
CONFERENCE PROCEEDINGS

G20 Youth Forum 2013 Conference
April 17-21, Saint-Petersburg, Russia

INTRODUCTION

The G20 Youth Forum (St. Petersburg, Russia, April 17-21, 2013) is the largest international event organized for young leaders in 2013, and over 1500 young leaders, students and academics, young members of parliaments, representatives of the business world and governments participated in it.

This was the 8th year of the Forum. Previous events were held in:

- 2006 – G8 Youth Summit – Russia (Saint-Petersburg);
- 2007 – G8 Youth Summit – Germany (Berlin);
- 2008 – G8 Youth Summit – Japan (Tokyo);
- 2009 – G8 Youth Summit – Italy (Milano);
- 2010 – G20 Youth Summit – Canada (Vancouver);
- 2011 – G20 Youth Summit – France (Paris);
- 2012 – G20 Youth Summit – USA (Washington D.C.);

The G20 Youth Forum 2013 had 4 main events that run in tandem with each other:

- G20 Youth Summit – resulting in the Communiqué
- Conference - with publication of academic articles in the Conference Journal
- International Young Parliamentarians' Debate - with Joint Statement
- Alumni's' Meeting of 2006-2012 Summits participants - with Joint enterprise initiatives

Conference was an international academic event for representatives from the 200 best Universities in the world who are experts in international relations, economics, finance and law.

Six round tables with presentations by academics and students followed by discussions were working in parallel:

1. World economy and finance
2. World politics and international relations
3. Law and legislation
4. Social dimension
5. Ecology, environment, energy and food security
6. Innovations, technology and science

In total, more than 350 presenters 50 countries participated in the G20 Youth Forum Conference 2013.



The participants of the Conference were representing more than 80 best Universities of their countries:

- Aalborg University (Denmark)
- Australian National University (Australia)
- Budapest University of Technology and Economics (Hungary)
- Cardiff University (UK)
- Catholic University of Leuven (a.k.a. Katholieke Universiteit Leuven (KUL) (Belgium)
- Chalmers University of Technology (Sweden)
- Charles Sturt University (Australia)
- Dublin University (Ireland)
- Ecole Polytechnique Federale de Lausanne (Switzerland)
- EFI (India)
- Gothenburg University (Sweden)
- Griffith University (Australia)
- Gubkin Russian State University of Oil and Gas (Russia)
- Hacettepe University (Turkey)
- Harbin Institute of Technology (China)
- Hokkaido University (Japan)
- Hong Kong University of Science and Technology (China)
- Instituto Tecnológico Autónomo de México (ITAM) (Mexico)
- International Business Academy (Russia)
- Kabardino-Balkarian Berbekov State University (Russia)
- Kobe University (Japan)
- Korea University (South Korea)
- Kuban State Agrarian University (Russia)
- Maastricht School of Management (MSM) (the Netherlands)
- Maastricht University (the Netherlands)
- Malmö University (Sweden)
- Memorial University of Newfoundland (Canada)
- Moscow Institute of Physics and Technology (Russia)
- Moscow State Industrial University (Russia)
- Nakhon Phanom University (Thailand)
- Nankai University (China)
- Nanyang Technological University (Singapore)
- National Cheng Kung University (Taiwan)
- National research Tomsk polytechnic university (Russia)
- National Taiwan University of Science and Technology (Taiwan)
- National University of Singapore (Singapore)
- Nazarbayev University (Russia)
- Nizhny Novgorod State Medical Academy (Russia)
- Northern Cape Provincial Legislature (South Africa)
- North-West University (South Africa)
- Queen's University (Canada)
- Quinnipiac University (USA)
- Renmin University (China)
- Reyerson University (Canada)
- Rostov State Economic University (Russia)
- Royal Holloway, University of London (UK)
- Russian State Hydrometeorological University (Russia)
- Sebelas Maret University (Indonesia)
- Shanghai University of Finance and Economics (China)
- Smt. Kashibai Navale Medical College - Maharashtra University of Health Sciences (India)
- Sochi State University (Russia)
- St. Thomas University (USA)
- St. Xaviers College (India)
- Stellenbosch University (South Africa)
- Stockholm School of Economics (Sweden)
- Swiss Federal Institute of Technology Lausanne (Switzerland)
- The Hong Kong University of Science & Technology (China)
- The University of New South Wales (Australia)
- Tianjin University (China)
- Tokyo Institute of Technology (Japan)
- Transport and Telecommunication Institute (Latvia)
- Tsukuba University (Japan)
- Umeå University (Sweden)
- University of Amsterdam (the Netherlands)
- University of Antwerpen (Belgium)
- University of Birmingham (UK)
- University of Catania (Italy)
- University of Copenhagen Denmark)
- University of Edinburgh (UK)
- University of Guelph (Canada)
- University of Information Technologies, Mechanics and Optics (Russia)
- University of Ioannina (Greece)
- University of Lagos (Nigeria)
- University of Luxembourg
- University of Manitoba (Canada)
- University of Minho (Portugal)
- University of Pavol Josef Safarik in Kosice (Slovakia)
- University of Pretoria (Cameroon)
- University of Queensland (Australia)
- University of Saskatchewan (Canada)
- University of Southern Denmark (Denmark)
- University of Western Sydney (Australia)
- University of Zurich (Switzerland)
- Uppsala University (Sweden)
- Ural Federal University (Russia)
- Vrije Universiteit Amsterdam (the Netherlands)
- Wageningen university (the Netherlands)

The articles submitted for the Conference were published in the present Conference Proceedings.

G20 Youth Forum is and always will be open for new ideas, researches and reporters to be presented at the Conference.

TABLE OF CONTENTS

WORLD ECONOMY & FINANCE

Acting as a Union: A cohesive European Employment Strategy to overcome the crisis

Ms. Ivana Maria Letizia Santonocito Ph.D, Teaching Assistant University of Catania, Italy 11

A Balancing Game: Tipping the Scales

Ms. Jessica Sarah Bell-Allen, Student, University of Queensland, Australia 15

An analysis of changes in financial regulation since the Global Financial Crisis and strategies for the future

Ms. Coral Yopp, Student, University of Western Sydney, Australia 20

Policy Making in Turbulent Economic Times

Ms. Laura Poppel, Research Assistant, University of Manitoba, Canada 25

Canada's Pension System Deficiencies: Time for Reform

Ms. Kathleen Neale, Graduate Student, University of Saskatchewan, Canada 31

Development of Financial Market, Monetary Policy and Global Imbalances

Prof. Junqing Li, Nankai University, China
Qiheng Han, Shanghai University of Finance and Economics, China 35

From Corporate Governance to Network Governance - China Case and the New Economy Governance Model

Prof. Runhui Lin Professor, Business School, Nankai University, China 39

Single versus Multiple:

A New Keynesian Perspective on the Choice of Monetary Policy Instruments for Mainland China

Mr. Li Xiangyang, Sch. of Finance, Shanghai Univ. of Fin. & Econ., China
Jin Hongfei, Dept. of Math., Anhui Normal Univ.(AHNU), Wuhu, 24100, Anhui, China 43

Economic Globalization and the Current World Economic Situation

Ms. Li Qirong, Student, Tianjin University, China 52

Why are the Basel III rules like to face challenges in the implementation phase? Suggestions to G20 leaders

Ms. Sonja Vaisanen, Student, Royal Holloway, University of London, UK 57

Effective Operations Management in recessionary period –doing better with less

Engaging Faculty and Students at School & University to meet the needs of Industry

Dr. Maneesh Kumar, Lecturer, Logistics & Operations Management, Cardiff Business School, Cardiff, UK 61

Transnational corporations today: need for social international accountability

Ms. Oleksandra Kondratenko, LL.M. Candidate, Maastricht University, the Netherlands 66

Some aspects of Sustainability development and effective usage of Olympic Legacy after XXII Olympic Winter Games and XI Paralympic Winter Games 2014

Mr. Nikolai A. Vorozhbit, PhD student, Sochi State University, Russia 73

The Mentor Approach to Social Sustainable Development

Ms. Suvi Panas, Master Student, Chalmers University of Technology, Göteborg, Sweden 79

Counteracting the Lack of Trust in Global Business: Creating Economic and Social Value with Stakeholders

Mr. Tobias Fredberg, PhD, Associate Professor, Department of Technology Management and Economics, Chalmers University of Technology, Gothenburg, Sweden 85

Shifting resilient production strategy for sustainable economic growth in Russia

Mr. Danila Shcherbakov, Postdoctoral research fellow at Commerce and Logistics Department, Rostov State University of Economics, Russia 91

Internationalization and Domestic Politics: Analysis of the Impact of Foreign Direct Investment on Local Governance in China

Ms. Tian Yuan, Hong Kong University of Science and Technology, China 98

The banking sector within the financial market of Kazakhstan

Ms. Alla Timasheva, Student, International Academy of Business Almaty, Kazakhstan 105

The European radical left and the international economic crisis: opportunity wasted?

Dr Luke March, Senior Lecturer, University of Edinburgh, UK 110

How to remove the geographical disadvantages in landlocked countries: A case study in Central Asia

Mr. Shinya Hanaoka, Associate Professor, Tokyo Institute of Technology, Japan Tomoya Kawasaki, Researcher, Japan Maritime Center Japan 116

China's Private Health Insurance Market development Analysis—Based on provincial data from 2003-2010

Ms. Xin Li, Graduate Student Department of Risk Management and Insurance School of Economics, Nankai University, China
Minglai Zhu, Ph.D Professor and Director, Insurance Economics and Policy Research Center School of Economics, Nankai University, China 121

China's Business network of Interlocks In Real Estate Industry

Prof. Bing Ren, School of Business, Nankai University Wei Zhang School of Business, Nankai University, China 127

Russia's Accession into WTO: problems and prospects

Ms. Olga Bugaenko, Student, Sochi State University, Russia 135

Urban cohesion for sustainable development: case of Brazil in BRICS

Ms. Belisa Marochi, PhD, Senior Lecturer in International Relations, Malmö University, Sweden 140

Macroprudential Regulation and Systemic Risk

Mr. Abhik Mukherjee, Doctoral Assistant, Ecole Polytechnique Federale de Lausanne (CFI, EPFL), Switzerland.. 148

The economic costs of sovereign default in theory and practice. Would international debtor countries benefit from a reduction in the cost of default?

Mr. Mateusz Adamski, University of Edinburgh, UK 153

Monetary Policy And Unemployment

Mr. Vincent Dadam Kosga Djaowe, Student, University of Pretoria, South Africa 157

A strategic framework to overcome the current economic crisis?

EU training programmes and the professional development of young EU labour migrants

Ms. Nora Siklodi, Teaching Assistant, Royal Holloway, University of London, UK 161

WORLD POLITICS & INTERNATIONAL RELATIONS

Multilateralism: a perspective

Ms. Taylor Alexandra Macdonald, Student, University of western sydney, Australia 167

Inter-civilizational Relations: Why Clash When You Can Cooperate

Dr Brett Bowden, University of Western Sydney, Australia 173

Winning hearts and minds: Constructivism's academic triumph and operational failure in thinking about nationalism worldwide

Ms. Hannah Ellix, Student, University of Edinburgh, UK 178

Cyber Culture and National Soft Power in World Politics: China's Experience

Mr. Xinghua Liu, Assistant Professor, Nankai University, China 183

Residential Segregation, Governance Fragmentation, and Disparity in Public Service Providing: The Case of Shanghai

Ms. Huiping Li, (coauthors: Qingfang Wang, Wei Shi, Zhongwei Deng.), Assistant Professor, Shanghai University of Finance and Economics, China 187

Agenda Setting and the Shift of Discursive Power in IR Research

Dr. Huang Haitao, Lecturer, Zhou Enlai School of Government, Nankai University, China 193

World Politics and International Relations: Humanitarian Intervention and the Emergence of the Responsibility to Protect

Ms. Jessica Start, Graduate Student, University of Saskatchewan, Canada 197

Governance and Government in the Arab Spring Hybridity. Reflections from Lebanon

Ms. Nora Stel, Research Fellow at Maastricht School of Management and PhD Candidate at the Centre for Conflict Studies, Utrecht University, the Netherlands 202

In the Shadow of the 9th of April:

Resistance under Nazi occupation and its impact on postwar Danish security policy, 1945-49

Mr. Anders Malle Hjortshøj, Student, University of Copenhagen, Denmark 211

Constructing and deconstructing the conflict in Tribal Areas of Pakistan: Why to account for economic inequality and deprivation to measure successful insurgency

Ms. Alia Qaim, Royal Holloway, University of London, UK 217

A Speculation about China's democratic landscape in 2030

Ms. Zheng Kaixi, Nanyang Technological University Singapore, Singapore 220

The European Union: A Realist Actor? The Case of The European neighbourhood Policy

Mr. Max Lyssewski, Student, Royal Holloway, University of London, UK 226

How did the key the Chinese fiscal reform and the cadre evaluation system affect the central-local government relations in the reform era (post-1979)?

Mr. Kevin Müller, Royal Holloway, University of London, UK 230

In the light of Russia's presidency at the G20, what are the challenges to sustainable development?

Ms. Kristina Brjazgunova, Student, Royal Holloway, University of London, UK 234

LAW & LEGISLATION

In Contravention of The Convention on The Rights of The Child: A Critique of The Practice of Selectively Providing Free Education At Primary School Level In South Africa

Ms. Chiedza Simbo, Lecturer, North West University, South Africa 239

The Death of One Rape Victim: Unexpected Outrage for Changes in Laws and Customs in India

Ms. Mun Jeong Kim, Student, Korea University, South Korea 244

Regulation of Prostitution within the Netherlands

Mr. Johan Simone Kortenhorst, Student, University of Queensland, Australia 248

The Law on Intellectual Property : have our legislators gone too far?

Mr. Richard Steppe, Student, Catholic University of Leuven, Belgium 253

Judicial Independence in Hong Kong – A UK Law Student's Perspective

Mr. Siu Yin Wong, Student, University of Birmingham, UK 259

Potent Revisions to Immigration and Refugee Policies in Canada

Ms. Grace Fishbein, Student, Memorial University of Newfoundland, Canada 262

The Responsibility to Protect and International Military Intervention

Dr. James Fergusson, Professor, Centre for Defence and Security Studies University of Manitoba, Canada 267

Participants in peace: Ukrainian and Canadian youth explore human rights and democracy

Dr. Maureen P. Flaherty, Professor, University of Manitoba, Canada 272

Drone warfare: A necessity for national security, or government sponsored (justified) anonymous execution?

Ms. Martha Magdalena Bradley, Student, University of Pretoria, South Africa 277

Human Rights and Shari'ah Two Compatible Concepts?

Ms. Christiane Fischer, Student, University of Manitoba, Canada 284

Community and the demands of justice

Ms. Meaghan Williams, Queen's University, Canada 291

SOCIAL DIMENSION

Taking university student instruction (si) to schools (grade 10 – 12)

Dr. Michael J. Klink, Senior Lecturer and Prof. E. Ebenso, North-West University, South Africa 297

Maximizing Studying Abroad: A Self-Study into the Effects of Internal Locus of Control & Target Language Proficiency on Learning & Adaptation

Ms. Wei-Ling Chen, Student, National Taiwan University of Science and Technology, Taipei, Republic of China (Taiwan) 301

The Role of Early High Authority Control and Intellectual Rebelliousness in Cultivating Creative Thinkers

Ms. Clara Li, Student, National University of Singapore, Singapore 313

Engaging Young People: Using Participatory Methodologies to Support Vulnerable Young People’s Wellbeing Samantha Ewart and Dr Amanda Third, University of Western Sydney, Australia, Young and Well Co-operative Research Centre, Melbourne, Australia.....	318
Higher Education and Innovation for Sustainable Development in North Africa Mr. Takahiro Morio, Associate Professor, Department of Global Activities, University of Tsukuba, Japan.....	326
Accelerating universities focus on sustainable development through student involvement Mr. Erik Wallnér, Student, Chalmers University of Technology, Sweden.....	330
The Feminist’s thinking on Translation Ms. Pan Miao, Student, Tianjin University, China.....	336
The Madness of Septimus and Clarissa Ms. Li Yixuan, Student, Nankai University, China.....	339
A New Era of Mass Media. Briefly on the Features and Impacts of Social Media Ms. Ruoxi Li, Student, Nankai University, China.....	342
Intercultural Transmission of Artistic Traditions in the Late Ottoman, Anatolian icons in the 19th century Dr. Sercan Yandım Aydın, Assistant professor, Hacettepe University, Turkey.....	346
In the Shadow of the Julian’s Column: The Late Roman Ancyra Mr. Tunc Turel, Student, Hacettepe University, Turkey.....	352
Intercultural communication in Chinese-Russian border areas Ms. Ma Yilun, Harbin Institute of Technology, China.....	357
Confucius Institute: The Culture Bridge between China and the World Ms. Yalin He, Student, Renmin University, China.....	362
Woman and Identity: The perceptions of African women on the concept of motherhood Dr. Liqhwa P. Siziba, Doctor, Northwest University, South Africa.....	366
What Ever Happened To The Subject? A critical re-evaluation of power à la Foucault: re-thinking the human subject in today’s world Ms. Adele Bardazzi, Student, Royal Holloway, University of London, UK.....	367
A whole of community partnership approach to meeting the economic and social challenges of youth mental health Banes, J., Burmeister, O.K., Clark, H., Citer, D., Grocott, S., Marks, E., Mulrooney, M., and Thomas, S...385	385
Indigenous Australian Health Hardware Mr. Christian Tietz, Lecturer, University of Western Sydney, Australia.....	396
New Strategies in the Fight against Malaria: Teaching an Old Drug New Tricks Dr. Kevin Shyong Wei Tan, Associate Professor, National University of Singapore, Singapore.....	403

Psychoneuroimmunology and a New Way Forward for Biological Psychiatry Mr. Kevin Formalont, Student, Institute of Experimental Medicine, Russia.....	408
A Cross-Country Comparison of Intellectual Property Rights Protection on Pharmaceutical Innovations Mr. Ming Liu, Assistant Professor, Dept. of Finance, Nankai University, China.....	413
Building Youth Capacity for Health Promotion: Listening to the Voices of Youth Dr. Roberta Woodgate, Professor, University of Manitoba, Canada.....	422
Capturing the Effect of Ethnic Diversity on Economic Growth Mr. Tomohiro Hara, Senior in College of International Studies, University of Tsukuba, Japan.....	429
Culture and creativity as remedy for the economic crisis Ms. Nadine van Veenendaal, Student, Maastricht University, the Netherlands.....	434
HIV Surveillance in Russia-positives and negatives and their impacts on epidemiology of HIV infection Kughan Govinden, Olga V. Kovalishena, Nikolai V. Saperkin, Department of General and Clinical Epidemiology, Nizhny Novgorod State Medical Academy, Russia.....	439
The Employment Outlook for Youth: Building Entrepreneurial Ecosystems as a Way Forward Dr. Peter Vogel, College of Management of Technology, École Polytechnique Fédérale de Lausanne, Switzerland.....	443
<u>ECOLOGY, ENVIRONMENT, ENERGY & FOOD SECURITY</u>	
Ecology & Environmental Problems: Global Warming and Agflation Ms. Min Joo Kwon, Student, Korea University, South Korea.....	451
Community participation on food security projects among low-income households of the Sedibeng district municipality, South Africa Ms. Loraine Boitumelo “Tumi” Mzini, Department of public management and administration School of Basic Sciences, Faculty of Humanities, North-West University, South Africa.....	455
Creating a Symbiotic Relationship with Nature by using SSPS Mr. Yasutomo Takano, Student, Tokyo Institute of Technology, Japan.....	465
Economical, ecological and ethical considerations of drinking water production Ms. Heleen Van Den Noortgate, Student, Catholic University of Leuven, Belgium.....	469
Environmental Pollutants Removal and Recycling In Clean Coal Technology Mr. Fei Sun, Jihui Gao, Shaozeng Sun, Zhengqi Li, Yukun Qin School of Energy Science and Engineering, Harbin Institute of Technology, China.....	474
Research on Industrial Environmental Efficiency of the Liaoning Coastal Economic Belt Ms. Yanan Song, Student, Shanghai University of Finance and Economics, Shanghai, China.....	480
A Sustainable Energy Future through Education and Research Mr. Patrik Jansson and Tünde Fülöp, Chalmers University of Technology, Göteborg, Sweden.....	486

Systemic Collapse or a New Industrial Revolution: on the need for political courage and leadership to meet the global environmental and resource challenge

Mr. Björn A. Sandén, Professor Division of Environmental Systems Analysis, Department of Energy and Environment, Chalmers University of Technology, Sweden..... 490

Investigations of unconventional oil and gas reservoirs in the Gubkin Russian State University as a basis for international cooperation in oil and gas industry

Mr. Vladimir V. Poshibaev, Graduate Student, Gubkin Russian State University of Oil and Gas, Russia.. 495

Study of the alternative fuels: E10, LPG and PEHV

Ms. Si Tong Liu, PhDStudent, Tianjin University, China 499

Russian agricultural sector in the context of globalization

Ms. Nathalia Chernyshova, PhD Student, Kuban State Agrarian University, Russia 503

Shale gas – moving forward

Ms. Nadezhda Fedorova, Gubkin Russian State University of Oil and Gas, Russia..... 508

INNOVATIONS, TECHNOLOGY & SCIENCE

Innovations Based on Inspiration

Mr. Le Cheng Ruan, Student, Harbin Institute of Technology, China..... 513

Ferroelectric and electron transport properties in epitaxial BaTiO₃/Pt heterostructures

Konstantin Bulakh (coauthors: A. Baturin, A. Chouprik, A. Kuzin, K. Maksimova, M. Minnekaev and A. Zenkevich), Student, Moscow Institute of Physics and Technology, Russia 519

Mobile technology for health care to assist development

Ms. Liudmila Razumovskaya, Student, Moscow Institute of Physics and Technology, Russia..... 523

Impact and Significance of Aerospace Science Popularization to Regional and International Relations - taking China as an example

Mr. Ziliang Kang, Student, Harbin Institute of Technology, Honor School, Harbin, China 526

Preventing Unwanted Events with Power of Software

Mr. Takero Inoue, Student, Tokyo Institute of Technology, Japan 531

The Art of Virtualization Security

Mr. Dmitry Ugarov, Student, Moscow Institute of Physics and Technology, Russia..... 534

Smoothing Electricity Consumption in University of Tsukuba

Which is better system, Semester or Trimester?

Mr. Koichi Yada, Student, Graduate School of Systems and Information Engineering, University of Tsukuba, Japan 538

Application of computational modeling as the most economically expedient approach in seismic exploration of oil- and gas-fields

Mr. Maxim Muratov (coauthors: Kvasov I.E., Sannikov A.V.), Graduate Student, Moscow Institute of Physics and Technology, Russia 542

Photocatalytic Water Splitting: Challenges for Materials Chemistry

Ms. Zoe Schnepf, Lecturer, School of Chemistry, University of Birmingham, UK..... 546

Enhanced Hydrogen Production via Steam Reforming

Mr. Jinlong Gong, Professor, Key Laboratory for Green Chemical Technology of Ministry of Education, School of Chemical Engineering and Technology, Tianjin University, Tianjin, China..... 550

Numerical modeling of seismology and aircraft industry problems

Ms. Alena Favorskaya (coauthors: Petrov I.B., Golubev V.I., Khokhlov N.I., Vasyukov A.V.), Lecturer, Moscow Institute of Physics and Technology, Russia 554

Problems on creating eco-friendly off-road wheeled vehicles

Mr. Vitaly Kurdyuk (Co-author: Nataliya Volskaya, Doctor of Technology, full professor, Head of Vehicles and engines department, chief scientific secretary FSBEI HPE «MSIU»), Post-graduate Student, Moscow State Industrial University, Russia 558

Construction optimization study for cargo containment system of Arctic LNG carriers

Mr. Adam Sampiev (Scientific adviser – prof. Zakharov M.N.), PhD Student, Gubkin Russian State University of Oil and Gas, Russia 562

Cool Roofs: Status and Opportunities

Mr. Yuanzhi Guo, Student, School of Materials Science and Engineering, Harbin Institute of Technology, China 567

The Robotics Revolution. How you will learn to stop worrying and love your robots

Prof. Jacky Baltes (coauthors: Chi Tai Cheng, Dean Yergens, John Anderson), Professor, University of Manitoba, Canada..... 573

Towards sustainable storage practices for large-scale data mining

Mr. Laurence Anthony Park, Senior Lecturer, University of Western Sydney, Australia 578

Automation in Humanitarian Technology

Dr. Min-Fan Ricky Lee, Graduate Institute of Automation and Control, National Taiwan University of Science and Technology, Taiwan 584

Experiential Learning Through Spacecraft Design By Team of Teams As An Extended Model For Education

Prof. Witold Kinsner (coauthors: Dario Schor and Ron Britton), Professor, University of Manitoba, Canada 591

Exploring R&D Globalization In Technology-Driven Multinational enterprises

Mr. Vlad Stefan Wulff, PhD candidate, University of Southern Denmark, Denmark 599

G8 & G20 ALUMNI ASSOCIATION

G8 & G20 Alumni Association 606

ACTING AS A UNION: A COHESIVE EUROPEAN EMPLOYMENT STRATEGY TO OVERCOME THE CRISIS

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WORLD ECONOMY & FINANCE

Abstract: Europe faces a moment of transformation. The recent crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe's economy. What began as a crisis on the financial markets has become a global jobs crisis. This paper aims to analyze the employment strategy adopted by the EU in response to the high level of unemployment due to the economic crisis. The research underlines how the Employment package strengthens the Europe 2020 strategy for smart, sustainable and inclusive growth and paves the way for better coordination and monitoring of employment policies in line with EU and G20 decisions to strengthen demand, growth, confidence and financial stability for all of citizens. The focus on the Euro area at the G20 in Los Cabos shows that G20 leaders recognize a strong, deeply integrated European Union as essential for systemic global stability. Unity and cohesion are fundamental to overcoming the crisis both at the EU level and the international level. Success depends upon a real ownership by European leaders and institutions and requires a coordinated response. However, without a real commitment by the states to act in accordance with EU policies and for the general welfare, every effort of the Union will be in vain. To overcome the crisis Europe must act collectively, Europe must act as a Union.

INTRODUCTION

Europe faces a moment of transformation. The recent crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe's economy. In the meantime, the world is moving fast and long-term challenges, such as globalisation, pressure on resources and ageing, intensify. What began as a crisis on the financial markets has become a global jobs crisis. After five years of economic crisis and the return of a recession in 2012, unemployment is hitting new peaks not seen for almost twenty years. Household incomes have declined and the poverty is on the rise, especially in Member States in Southern and Eastern Europe.

As published by Eurostat, the euro area (EA17) seasonally-adjusted unemployment rate was 11.9% in January 2013, up from 11.8% in December 2012. The EU27 unemployment rate was 10.8%, up from 10.7% in the previous month. In both zones, rates have risen markedly compared with January 2012, when they were 10.8% and 10.1% respectively. Eurostat estimates that 26.217 million men and women in the EU27, of whom 18.998 million were in the euro area, were unemployed in January 2013. Compared with December 2012, the number of persons unemployed increased by 222 000 in the EU27 and by 201 000 in the euro area. Compared with January 2012, unemployment rose by 1.890 million in the EU27 and by 1.909 million in the euro area. Responses to the crisis cannot be restricted to fiscal stimulus packages. The social dimension of the crisis should not be ignored.

THE EMPLOYMENT PACKAGE

In response to the high level of unemployment in Europe, in April 2012 the European Commission launched a set of measures to create jobs, the so-called Employment package, that takes its inspiration from the Europe 2020 strategy for smart, sustainable and inclusive growth.

This set of concrete measures focuses on the demand-side of job creation, setting out ways for Member States to encourage hiring by reducing taxes on labour or better supporting business start-ups. It also identifies the areas with the biggest job potential for the future: the green economy, health services and ICT. As pointed out by President Barroso: "All together, the green economy, the health and new technology sectors will create more than 20 millions of jobs in the years to come. Member States need to seize these opportunities, mobilise existing resources and stimulate their labour market in close cooperation with the social partners".

The policy communication underlines the need for stronger employment and a more developed social dimension to EU governance and lays down ways to better involve employers' and workers' representatives in setting EU priorities. Moreover, the communication aims to restore the dynamics of labour markets by helping workers succeed when changing jobs or getting back into work; mobilising all actors to implement the reforms required; investing in skills based on better forecasting and monitoring of needs; promoting the free movement of workers.

Presenting the new package in Strasbourg, László Andor, EU Commissioner for Employment, Social Affairs and Inclusion said: "If we are to restore growth and cope with major structural changes like the greening of the economy, an ageing population and technological change, the EU needs a dynamic and inclusive European labour market". The Employment Package carries forward the EU's 2020 flagship initiative on "New skills and jobs", but also helps to deliver, through better synergies, on flagship initiatives such as "Digital Agenda for Europe", "Innovation Union", "Youth on the move", "Resource-efficient Europe", "An Industrial Policy for the Globalisation Era" and "European Platform Against Poverty and Exclusion". The Employment Package paves the way for reinforced coordination and monitoring of employment policies at EU level in line with EU economic governance. From 2013, and as part of the European Semester, the Commission plans to introduce a scoreboard to keep track of Member States' progress in implementing their National Job Plans. To reinforce the involvement of EU and national social partners in employment policy making the Commission has put forward plans for EU-level exchanges of views and monitoring on wage developments. In doing so, it also responds to the call from the European Council to back up the new economic governance with a closer monitoring of employment and social policy, particularly where these can have an impact on macro-economic stability and growth.

The Employment Package also shows the important link between policy and funding of the Cohesion Policy as well as EAFRD and EMFF in supporting countries' employment priorities and reforms. They contribute to the strengthening of economic, social and territorial cohesion in the Union. For 2014-2020 the Commission has proposed to closely align these financial instruments with Europe 2020 objectives. It

is crucial that national, regional and local authorities use the available resources fully in order for Europe to develop and realise its economic potential, increasing employment as well as productivity. Economic, social and territorial cohesion is at the heart of the Europe 2020 strategy to ensure that all resources are mobilised and focused on the pursuit of the strategy's priorities.

As remarked by the statement of the Members of the European Council of 30 January 2012, "Growth and employment will only resume if we pursue a consistent and broad-based approach, combining a smart fiscal consolidation preserving investment in future growth, sound macroeconomic policies and an active employment strategy preserving social cohesion".

THE EU AND THE G20 EMPLOYMENT STRATEGIES: A COMPARATIVE APPROACH

The European employment policy is also in line with the strategies that the international community, as a whole, is adopting to respond to the economic and jobs crisis. The G20 leaders convened in Los Cabos on 18-19 June 2012 declared: "Since we last met, the global recovery has continued to face a number of challenges. [...] Clearly, the global economy remains vulnerable, with a negative impact on the everyday lives of people all over the world, affecting jobs, trade, development, and the environment. [...] We will work collectively to strengthen demand and restore confidence with a view to support growth and foster financial stability in order to create high quality jobs and opportunities for all of our citizens. We have agreed today on a coordinated Los Cabos Growth and Jobs Action Plan to achieve those goals."

Strong, sustainable and balanced growth remains G20 top priority, as it leads to higher job creation and increases the welfare of people across the world. States are committed to adopting all necessary policy measures to strengthen demand, support global growth and restore confidence, address short and medium-term risks, enhance job creation and reduce unemployment, as reflected in the Los Cabos Growth and Jobs Action Plan. According to the document states will implement all the commitments in a timely manner and rigorously monitor their implementation.

Already in September 2009, G20 leaders agreed in Pittsburgh to "launch a framework that lays out the policies and the way we act together to generate strong, sustainable and balanced global growth". In June 2010, at the Toronto summit, G20 leaders agreed on implementing growth friendly fiscal consolidation plans, differentiated and tailored to national circumstances. At the Seoul summit in 2010, all G20 leaders committed to strengthen multilateral cooperation and pursue the full range of policies conducive to reducing excessive imbalances. In Cannes, countries put forward structural reform commitments to boost and sustain global demand, foster job creation, contribute to global rebalancing and increase the growth potential in all G-20 countries. In Los Cabos states declared that quality employment is at the heart of the national macroeconomic policies. Jobs with labor rights, social security coverage and decent income contribute to more stable growth, enhance social inclusion and reduce poverty. Therefore, combat unemployment through appropriate labor market measures and fostering the creation of decent work and quality jobs, particularly for youth and other vulnerable groups hit by the economic crisis, must be set at the top of the agenda. For this purpose the G20 Task Force on Employment mandate has been extended for an additional year. Consistent with the Los Cabos Growth and Jobs Action Plan, the states declared to consider that structural reforms, in full respect of the fundamental principles and rights at work, can play an important role in lifting economic growth to generate labor market opportunities, mobility and jobs. They also commit to intensify their efforts to strengthen cooperation in education, skills development and training policies, including internship and on-the-job training, which support a successful school-to-work transition.

"All G20 members have put forward structural reform commitments to strengthen and sustain global demand, foster job creation, contribute to global rebalancing and increase growth potential. These include product market reforms to increase competition, measures to stabilize the housing sector, labor market reforms to boost competitiveness and employment, as well as steps to strengthen social safety nets in a way that is fiscally responsible, advance tax reform to raise productivity, increase investment in infrastructure, and promote inclusive green growth and sustainable development as appropriate to country circumstances."

THE GLOBAL STABILITY AND THE NEW THINKING FOR EUROPE

Worth to remark is also that at the Los Cabos Summit there was a focus on the situation in the Euro area. G20 leaders recognized the value of the European project and of the EU's currency, the Euro. They welcomed the measures taken in Europe to stabilize member states economies and financial system and expressed support for EU intention to move ahead with deeper economic and fiscal integration. As Presidents Barroso and Van Rompuy said in a joint statement just after the end of the summit: "EU partners have recognized that a strong, deeply integrated European Union is decisive for systemic global stability. This recognition mirrors the momentum which is now building in Europe. The EU is determined to show the irreversibility of the euro and of the European project".

In the 2012 State of the Union address, European Commission President José Manuel Barroso made a strong case for a new direction and a new thinking for Europe. He sketched out a path towards greater European unity to overcome the crisis and maintain sovereignty in a globalised world. "Globalisation demands more European unity. More unity demands more integration. More integration demands more democracy," he said. He presented to the European Parliament a 'decisive deal for Europe' that "requires the completion of a deep and genuine economic union, based on a political union." In this light, the European Dream so avidly pursued by Spinelli, De Gasperi, Monnet, Schuman, Adenauer and others is not only "alive" but necessary. To get out of the crisis, the EU and its States must be cohesive, unite people and not create coalitions of states, strengthen the EU through democracy rather than divide it through nationalism. The crisis requires unity, integration, democracy and solidarity in the EU, which will help not only domestic politics, but also re-set international politics according to global equity. Without solidarity, positive action cannot be achieved either in or outside the Union.

Without a real commitment by the states to act in accordance with EU policies and for the general welfare, every effort of the Union will be in vain. As President Barroso said: "It is not acceptable to present these European meetings as if they were boxing events, claiming a knockout victory over a rival. We cannot belong to the same Union and behave as if we don't."

CONCLUSION

Unity and cohesion are fundamental to overcoming the crisis both at the EU level and the international level. Success depends upon a real ownership by European leaders and institutions. Recovery requires a coordinated response. The EU has implemented new tools and new ambition. Now Europe needs to make it happen, acting collectively, acting as a Union.

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A BALANCING GAME: TIPPING THE SCALES

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1. INTRODUCTION

In the World Economic Forum's most recent edition of their Global Risks 2012 Report, chronic fiscal imbalances were identified as posing significant risk to the global economy over the next ten years. Although fiscal imbalances have persisted for some time now, they are particularly topical in the contemporary economic environment given the significant blow-outs experienced following the expansionary fiscal policies implemented by a number of governments to combat the Global Financial Crisis. Furthermore, the failure to address growing government budget deficits worldwide, spurred by excessive government debt obligations, threatens systemic economic disaster given its inextricable impact and influence on other areas of the economy.

While it is clear that the issue of growing fiscal imbalances needs to be addressed, governments are faced with considerable difficulty in determining the best approach to do so. John Maynard Keynes famously espoused, "The boom, not the slump, is the right time for austerity at the Treasury." The global economy is still very much in sluggish territory, with low interest rates, high unemployment, and growth uncertainty; thus making the practice of fiscal austerity prone to significant risk as premature, drastic actions threaten to tip the economy further into recession. Therefore, contemporary economies and governments must engage in an intricate balancing game, skilfully weighing towards fiscal consolidation and economic recovery whilst carefully averting the potentially perilous tip towards further economic decline.

The structure of the report is as follows. The second section reviews "The Fiscal Scales;" negative fiscal imbalances, their persistent nature in recent history and the impact of the Global Financial Crisis. The third section explores "The Imbalance;" effects on not only the economy, but also society, of the untenable trajectory of current budget deficits in many advanced countries. The final section then focuses on "Tipping the Scales;" how the issue of threatening fiscal imbalances can be addressed, with particular

consideration of the dangers of premature austerity measures given the current economic climate.

2. THE FISCAL SCALES

The fiscal scales represent the measurement of the interplay between government revenue and expenditure, with fiscal imbalance arising where the two are significantly different. Of particular concern in recent years, and for the future, are the persistent government budget deficits, representing negative fiscal imbalances, and the concomitant accumulation of debt in many advanced economies of the world.

Not all budget deficits are deserving of the negative connotations with which they are too often associated; for example those that arise from the implementation of effective expansionary policies to stimulate economic growth or from investment in positive return projects. Therefore, the issue lies not in the fact that governments occasionally employ deficit spending to combat economic recessions or to provide relief in times of national emergency, but that they do so continuously (Coleman, 1996). Consequently, the current trajectory of deficits in a number of countries, and ensuing government debt to fund them, is unsustainable and cause for alarm.

There exist multiple contributors to the current fiscal crises experienced by a number of advanced economies globally. Welfare states, recent demographic trends, and the Global Financial Crisis, in particular, have been identified as playing significant roles in the demise of fiscal balances into negative territory and, thus, are the focus of this section of the report.

2.1 Effects of the Welfare State and Recent Demographic Trends

While there are a number of factors steering fiscal imbalances along this precarious route, the welfare state and recent demographic trends have been considered largely attributable. Many social welfare programs in economies throughout the developed world were broadened in recent history on the premise that promising macroeconomic conditions existing at the

time, including low inflation and unemployment, and robust economic growth, would persist. As such, government budgets were set on unsustainable paths with no effective buffers to limit exposure to changing economic conditions, thus leaving them particularly vulnerable to economic downturn (Coleman, 1996). Fundamental macroeconomic shifts, such as slower productivity growth, rising healthcare costs, and increasing structural unemployment, led to budget revenues well below those projected in the boom times while expenditure continued to rise, therefore placing strain on the fiscal balance. While some economies were able to bring social spending back under control, thereby reigning in spiralling welfare deficits, the role of the welfare state in the current fiscal crisis is blatantly evident in the case of Greece. Despite attempts at reform, proven successful in most of Europe, North America, and elsewhere, the Greek welfare state showed no signs of improvement as social expenditure continued to soar. In this respect, the rigid Greek welfare state “contributed in a far from trivial way to the fiscal crisis of the state” (Matsaganis, 2011).

Of particular note in the case of Greece is the fact that their gluttonous pension scheme consumes the largest portion of social expenditure. This highlights the potential role of evolving demographics in the fiscal imbalance and warns of the consequences should no action be taken to counter the fiscal effects of unfavourable demographics. With increasing life spans, the retirement population demanding government benefits, not only in the form of pensions but also healthcare, the costs of which itself are growing, poses considerable threat to future budget expenditure. Furthermore, this increasing demand from the aging population is not supported by current youth employment rates, such that persistent increases in welfare and medical assistance schemes spending have outstripped, and are likely to continue to outstrip, the rate of growth in the economy should no appropriate action be taken (Gale, 2003).

2.2 The Global Financial Crisis

Negative fiscal imbalances have not emerged purely as a result of the GFC but have persisted for some time now in many advanced economies of the world. The impact of the GFC on the size of these deficits, however, is blatantly obvious as dramatic increases in public deficits were experienced in many of the advanced economies, with a number of them

experiencing their highest levels of debt since World War II (Aridas & Ventura, 2011).

Amongst the primary causes of this spike in negative fiscal imbalances was the expansionary and fiscally encouraging approach adopted by policies enacted by a number of developed countries following the onset of the GFC, coupled with shrinking tax revenues as a result of rising unemployment. These policies were designed to stimulate spending through means such as increased money supply, increased government spending and tax cuts for households. Furthermore, a number of governments participated in bailouts, recapitalisations and takeovers of banks and other financial institutions in an attempt to avert a crisis of even greater proportions than that which economies of the world are currently experiencing (Aridas & Venutra, 2011).

Despite the success of these rapid and comprehensive interventions, they only placed strain on already ill-equipped government budgets. The boom experienced prior to the current recession was synthetically fuelled by excessive expansion of mispriced credit in the private sector, generating a level of economic growth and fiscal expectation that proved to be unsustainable (World Economic Forum, 2012). Therefore, budget deficits, run in the expectation of continued boom-time economic growth, and associated public debt, grew to dangerously high levels and only continued to grow in response to the GFC (Lewis, 2011).

3. THE IMBALANCE

Persistent fiscal imbalances, and ensuing unsustainable public debt, have been identified as among the culprits propagating the economic malaise infecting the global economy. While chronic negative fiscal imbalances have important implications in terms of economics and finance, their reach extends further to also become an issue of social and political concern. Therefore, analysis of the effects of persistent budget deficits extending beyond narrow economic relationships is fundamental in developing an understanding of the true threat they pose.

3.1 Negative Fiscal Imbalance and Economic and Financial Theory

The traditional Keynesian model predicts that increasing budget deficits will lead to increases in ag-

gregate consumption demand, triggering a chain of events involving reduced total savings of the economy and thus an increase in the real interest rates. Such movements in the real interest rate result in reduced investment such that the deficit spending will have ultimately crowded out some productive capital (Lee & Lee, 1991). These economic adjustments have important effects on long-run growth, as investment, particularly in areas such as human capital, innovation and knowledge, have long been recognised as key contributors to economic growth and development. Gale (2003) further reinforces the notion that persistent budget deficits negatively impact economic growth, arguing that “the real problem created by budget deficits is that they reduce national saving, which in turn reduces the assets owned ... and hence reduces future national income.” Therefore, it becomes clear from economic analysis that budget deficits are detrimental to the growth outlook of economies in which they are persistently run.

Furthermore, as has been acknowledged throughout this report, chronic negative fiscal imbalances lead to the accumulation of debt in order to fund them. The nature of the boom preceding the current financial crisis, being fuelled by debt-driven rather than organic economic growth, created unrealistic fiscal expectations such that when the crisis hit, already debt-saddled governments were ill-equipped to cope. As a result of such fiscal implications, the scope of the GFC was broadened to a crisis that embraced sovereign debt (World Economic Forum, 2012). As investor sentiment shifts, governments are now at risk of plunging further into debt, and in cases such as Greece, Ireland and Japan, at risk of default, as financial markets realise the severity of current government debt levels and demand higher interest rates (Lewis, 2011). Therefore, persistent budget deficits and associated rising debt ratios induce market volatility.

3.2 Negative Fiscal Imbalances and Social Effects

The tendency for analysis of persistent budget deficits to focus on economic relationships and efficiency, clouds out the key observation that they primarily amount to a violation of equity (Matsaganis, 2011). This is particularly obvious in the case of welfare effects on persistent negative fiscal imbalances. The burden of the welfare costs to support the aging population and rising healthcare costs, used disproportionately by the elderly, fall upon current and future generations,

threatening intergenerational conflict. Furthermore, debt-saddled governments have to resort to increasingly imposing the risks previously assumed by governments and companies on individuals in order for them to obtain secure retirement and access to healthcare for themselves (World Economic Forum, 2012). Current levels of government indebtedness resulting from the running of persistent budget deficits also impose a considerable burden on taxpayers in order to service government debt. Therefore, chronic negative fiscal imbalances ultimately compromise the living standards of current and future generations.

4. TIPPING THE SCALES

The economic efficiency and equity implications of chronic negative fiscal imbalances highlight the need for a call to action. However, determining the best approach to budget consolidation in the contemporary economic climate entails significant difficulty and risk, as premature or too drastic austerity measures threaten to tip exposed economies further into recession. Furthermore, fiscal austerity is a topic of particular political contention given the unpopularity of austerity measures and tyranny of the status quo, particularly in the case of the welfare state. Therefore, governments of advanced economies running persistent budget deficits are faced with considerable difficulty in attempting to tip the scales in this complex balancing game.

4.1 The Timing Challenge

Persistent high budget deficits, rising debt ratios, and the volatility of financial markets serve as clear indicators for the need for continued fiscal consolidation, especially in advanced economies. However, the weakened global outlook for contemporary economies places policymakers in a difficult position when determining the extent to which austerity measures should be implemented. While too little fiscal consolidation threatens to agitate financial markets, too much risks further undermining the recovery which could, in turn, also raise market concerns. The negative short-term growth impact of fiscal tightening is generally expected, but concerns exist that this impact may be amplified by some features of the current economic climate which effectively serve to increase fiscal multipliers. Among these features are liquidity constraints faced by households, excess capacity in many countries, and the limited room for monetary policy to become more accommodative (International Monetary Fund, 2012).

The concerns for an acute growth impact in response to fiscal tightening in the current economic landscape have materialised in Europe over the last two years. The regime of spending cuts delivered by the David Cameron government in Britain in 2010, and furthered in 2011, failed to achieve its goal of reviving the economy, instead cutting its burgeoning recovery short and steering Britain into a double-dip recession (Madrick, 2012). Furthermore, protests for austerity programmes compulsorily implemented in Greece under bailout conditions to be overhauled continue following continuous quarter-on-quarter contraction of their economy, with the September 2012 quarter representing the seventeenth consecutive quarter in which the Greek economy shrank (Markets Slip, 2012). Ireland has similarly imposed fiscal austerity in order to receive its emergency loans, resulting in a Depression-level economic slump and real GDP down by double digits (Krugman, 2011). Therefore, the dangers of ignoring John Maynard Keynes's famous declaration that "the boom, not the slump, is the right time for austerity at the Treasury," are all too real. Governments need to be cautious of the timing and extent of the austerity measures required to correct the issue of chronic negative fiscal imbalances.

4.2 The Political Challenge

Fiscal austerity is an unpopular political approach as its measures include increases in the overall burden of taxation and cuts in either the real level or growth of government spending on state-provided goods and services. Industrial countries in particular have developed a culture that views government spending on social security and subsidised health care as an entitlement, thus rendering these areas not only unpopular, but essentially immune to political attack (Coleman, 1996). This is an example of the tyranny of the status quo; a concept popularised by Milton Friedman regarding the permanence of government programs, resulting from the difficulty of removing them once they become entrenched in society. Given the current demographic trends discussed earlier in this report, governments must venture into and brave these protected territories as an essential component of their budget consolidation.

4.3 The Approach

While analysis of the contemporary economic environment and the recent detriment caused by austerity programs in Europe suggest that the timing is

not ideal for fiscal consolidation, the debt trajectories of many advanced economies are imposing limitations on the options available to address the issue. Policymakers, in their approach to fiscal consolidation, must assess the appropriate timing for and extent of austerity measures to be implemented, and employ tactics to engage the public in order to convince them of the cause.

The International Monetary Fund (IMF) (2012), in their Fiscal Monitor report, performed simulations comparing the growth impacts of gradual versus up-front consolidation for an average of Group of Seven (G-7) when the output gap is initially negative, as is the case in many of the advanced economies. Their findings indicated that the negative impact on growth is smaller when the fiscal adjustment is implemented gradually than that for an up-front adjustment of the same overall size. Therefore, policymakers, in confronting persistent budget deficits, should consider gradual fiscal consolidation as a preferred approach to 'quick fix' style solutions.

The same report examines recent experiences with large fiscal consolidations, such as those in Europe, in order to identify the common features of challenges faced in implementing austerity measures. One such feature is the upwards revision of the size of the required adjustment shortly after the launching of fiscal consolidation plans. While attributable to the materialisation of substantial contingent liabilities in Ireland and Portugal, and significant statistical revisions in Greece, the upwards revision mostly resulted from overly optimistic growth forecasts. Jens Henriksson (2007) in his essay, 10 Lessons About Budget Consolidation, drawing on his first-hand experience within the Swedish government during its dramatic fiscal consolidation in the 1990s, similarly espouses the importance of conservative forecasting when it comes to prognosis. He argues that this serves to increase public understanding by highlighting the need to address the problem; and can create a virtuous cycle whereby implementing the right measures results in improvement which, when seen in the data, "comes as a pleasant surprise" (Henriksson, 2007). Therefore, in structuring fiscal consolidation plans, governments should adopt conservative estimates of growth and outcomes in order to avoid putting pressures on its rollout schedule, equity objectives and political support (International Monetary Fund, 2012).

Commitment, equity and communication are also dominant themes explored in Jens Henriksson's essay and the IMF Fiscal Monitor report, all of which serve to ensure positive responses from, and ultimately the support of, the public. Henriksson argues that a reward and punishment system should be created for those at the vanguard of the fiscal consolidation plan in order to encourage commitment by aligning political costs with social and economic costs. Furthermore, he suggests that consolidation should be designed as a package in order to signal to the public that the budget deficit is a general problem that all should be involved in solving, and to make it clear to interest groups that sacrifices are dispersed and thus that the package is as equitable as possible. Finally, communication is identified as key to the success of financial consolidation plans. Measures taken to improve communication strategies, such as increased transparency and broadened access to fiscal data, can embolden public support and "counter the risk that policy slippages or unmet fiscal targets will erode confidence and credibility" (International Monetary Fund, 2012).

Therefore, it becomes clear that managing the fiscal imbalance truly is a treacherous balancing game in which governments must not only balance revenues and expenses, but also the sentiment and support of the public and market at large.

CONCLUSION

While budget deficits have endured for a number of years, chronic fiscal imbalances have only recently emerged as a key risk to contemporary and future economies. Current demographic trends, in particular the aging population, and the effects of the Global Financial Crisis are primarily accountable for bringing the issue to the forefront. The unsustainable trajectories of persistent budget deficits, and the associated excessive debt levels amassed to support them, in many advanced economies of the world are of great concern given not only their economic, but also equity implications. Therefore, it becomes clear that the issue of chronic fiscal imbalances needs to be addressed in order to avoid potential systemic economic roiling and societal conflict.

However, the contemporary economic landscape is fragile, rendering fiscal consolidation particularly risky as premature or drastic actions threaten to cut short burgeoning economic recoveries or exacerbate current slumps in growth. Furthermore, fiscal consol-

idation is often difficult to implement due to political unpopularity. Therefore, contemporary economies and governments are faced with a treacherous and complex balancing game, and must practice steady, visible hands in their attempts to tip the scales towards deficit reduction and economic recovery in order to avoid an inadvertent swing in the opposite direction further into recession and potential social unrest.

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AN ANALYSIS OF CHANGES IN FINANCIAL REGULATION SINCE THE GLOBAL FINANCIAL CRISIS AND STRATEGIES FOR THE FUTURE

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The Global Financial Crisis (GFC) of 2008-09 saw the world's economy dissolve into turmoil. More than three years after the initial shock of the economy's downfall, the world continues its struggle to recover from the crisis. Stock markets have made slow and unsteady progress towards a healthier stance compared to that at the peak of the crisis. Unemployment rates are still proving hard to contain and consumer sentiment remains low, continuing the distortion of the circular flow of income. There is no doubt that there is still quite a way to go until the economy reaches the heights experienced in the pre-crisis boom. Indeed, the GFC caused a largely unpredicted and immense amount of damage to the global economy, however, this damage is not, nor should it be viewed as, irreparable. As with any disaster, recovery will come with time and in this case, carefully considered and implemented policies and financial regulations.

There has long been a separation amongst economists with conflicting views on the extent to which the economy should be regulated. The struggle to find a middle ground between Neo-Liberal and Social Liberal views on regulation has proven itself to be difficult. Even after a financial crisis in the 21st century one finds themselves considering whether policy should lend itself more to the 19th century neoclassical theories of Jevons, Menger, Walras and Marshall¹ or the demand orientated theories developed by Keynes following the Great Depression of the 20th century². Of course, thinking that the issue for the global economy rests with developing policies along a spectrum ranging from minimal to active government intervention is far too simplistic. The concern lies in the inconsistency of these policies in domestic economies and the influence of each of these domestic economies abroad as ever increasing links continue to be established in our global society. Globalisation has made the debate a more profound theme, the GFC highlighting more than ever the need for some uniformity in policies present in the global economy.

1 Michael Head and Scott Mann, *Law in Perspective* (University of New South Wales Press, 2nd ed, 2009) 278

2 Ibid 286

Prior to the GFC, many domestic economies had little regulation on the operations of their financial sectors. It has even been described how there was no one cause of the crisis, rather a 'perfect financial storm' was created through 'poor government policies, deterioration in lending standards, deterioration in credit rating standards, inadequate modeling of risk, greed, an absence of due diligence by investors, and benign neglect by regulators'³. For some economies, adequate regulation in the financial sector acted as a cushion for the fall out experienced due to the downfall of major trading partners. Since the crisis, regulatory frameworks have been analysed, with some being deemed quite effective safety nets to ensure a crisis like that of 2008 is not experienced again. Australia, while feeling the fallout of GFC- most notably with the demise of the retail sector and large losses on the share market decreasing household wealth and superannuation assets⁴ - weathered the storm remarkably well due to stricter financial regulations. Managing to avoid recession in the peak of the crisis, Australia's regulatory framework, namely the Australian Prudential Regulation Authority (APRA) has been praised for its 'proactive risk-based regulatory approach which encourages a culture of compliance'⁵. Certainly, regulation was not the only factor preventing recession in the Australian economy- the resource sector experienced a boom, which has caused what has been labeled the 'two speed economy'⁶ - however, it did prevent a lot of the issues which eventuated from sub-prime markets⁷, making the framework a worthy model for other economies as they recover from the GFC.

3 Jeffrey Carmichael, 'Regulatory lessons from the crisis' (2009) 5 *InFinance* 5 <<http://search.proquest.com.ezproxy.uws.edu.au/docview/210828953>>

4 Philip Lewis et al, *The Australian economy; your guide* (Pearson Australia, 5th ed, 2010) 216

5 Carlo Soliman, 'Banking and financial market regulation: an analysis of the effectiveness of prudential controls in Australia' (2012) 18(1) *Journal of American Academy of Business*, Cambridge 137 <<http://search.proquest.com.ezproxy.uws.edu.au/docview/1019442792>>

6 Phil Garton, 'The Resources boom and the two-speed economy' (2008) 3 *Economic Round-Up* 17 <<http://search.informit.com.au.ezproxy.uws.edu.au/documentSummary;dn=745629331396759;res=IELBUS>>

7 Lewis, above n 4

POLICY RESPONSES AND REGULATORY CHANGES IN LEADING ECONOMIES

The fact that there was an obvious lack in regulation in the world's major economies cannot be avoided, however, in some cases loopholes in the existing regulations were just as much the problem. Therefore, while on the surface an economy appeared to be regulated; financial institutions were in fact taking advantage of loopholes in regulations to participate in practices such as allowing "toxic assets" to move from one financial centre to another⁸. As the world continues to strategize and develop an international framework for avoiding a crisis like that of the GFC, it has become clear that in order for any such framework to operate effectively, all countries have to dedicate themselves to regulations of the framework and resist temptation to offer loopholes to financial institutions in their domestic economies. While many economies suffered due to a lack of framework, economies such as that of the United Kingdom were not immune despite having a framework in place. Following is an analysis of the regulation – or lack thereof – in major economies⁹ prior to the crisis and developments in regulation since.

United States

The presence of regulatory loopholes became a major contributor to the recession in the US. Practices of the sub-prime market continually fell short of complying with regulations and these breaches of regulation had a blind eye turned towards them as they were part of the loopholes. Such loopholes included the total lack of regulation of hedge funds and parts of the mortgage process and the voluntary regulation of investment banks. Additionally, 'competitive regulation' in the US allowed for regulatory arbitrage where financial institutions chose which regulator best suited them according to the level of risk they were taking with their investments, lending and so on. During the crisis in 2008, The United States Securities and Investments Commission (SEC) tightened some regulations, including the implementation of a ban on the short selling of financial corporations and tightening regulations on investment banks which had been relaxed only four

8 Fariborz Moshirian, 'The global financial crisis and the evolution of markets, institutions and regulation' (2011) 35(3) *Journal of banking and Finance* 502 <<http://www.sciencedirect.com.ezproxy.uws.edu.au/science/article/pii/S0378426610003110>>

9 Ibid

years beforehand¹⁰. In the peak of the crisis there was an undeniable focus on stabilising the economy and implementing short term stimulus rather than investing in long term solutions for the future¹¹. However, reforms have been suggested and this quite critically includes the recommendations of the Paulson Report to repeal the Gramm-Leach-Bailey Act, thus removing the ability of commercial and investment banks, securities firms and insurance companies to consolidate¹². Importantly, in addition to running Austerity budgets, the US government is attempting a policy similar to that adopted in the Chinese and German economies in the 2000s whereby real wages are suppressed and dramatically cut and the exchange rate is held down. The effect of this policy is demonstrated clearly in the sharp downturn of value in the US dollar, falling 8.6% in value against the euro, 11.9% against the yen, dramatically by 17.8% against the Swiss franc and 13.9% against the Australian dollar. However, the US dollar only fell by 4.7% against the Yuan, highlighting tension between the US and China in a so called 'Currency War' deriving from China's reluctance to have its own economic competitiveness undermined¹³. This once again emphasises the importance of cooperation and consistency in implementing domestic economic policies in this globalised day and age. Especially for the world's central economy, it is important to consider how these policies impact on interdependent countries.

The Euro Zone

The creation of an overarching policy in regards to financial regulation which came with the introduction of a single currency in the Euro zone has been said to somewhat weaken the immunity of the region's economy to financial crises such as the GFC. This is because, instead of having 16 different established sets of financial regulation, one overarching policy was created without being in response to a crisis, and thus missing crucial components of financial regulation. While many European economies were amongst the worst hit by the crisis, the positive im-

10 Robert Marks, 'Learning lessons? The Global Financial Crisis 4 years on' (Economics Paper, University of New South Wales, February 2013) 7 <<http://www.agsm.edu.au/bobm/papers/pwoolleyUTS.pdf>>

11 John H Farrar, Louise Parsons and Pieter I Joubert, 'The development of an appropriate regulatory response to the Global Financial Crisis' (2009) 21(3) *Bond Law Review* 1 <<http://epublications.bond.edu.au/cgi/viewcontent.cgi?article=1376&context=blr>>

12 Marks, Marks above n 13

13 Tom Bramble, 'The origins of the crash and the limits on recovery' (2011) 67 *The Journal of Australian Political Economy* 22 <<http://search.informit.com.au.ezproxy.uws.edu.au/fullText;dn=506364922336729;res=IELBUS>>

pact is that now, the fiscal and monetary policies made in response to the crisis can be more effective and if all countries embrace the change, and avoid regulatory arbitrage, the Euro zone will become increasingly integrated¹⁴. A more integrated Euro zone will create an economic environment more suited to weathering another crisis and provide greater support, especially for the smaller economies, as the long road to recovery continues. While as a collective unit the Euro zone has the opportunity to have a strong framework for financial regulation, individual economies have focused policy responses on Austerity policies. This is particularly the case for those economies identified as being the worst hit by the crisis- the 'PIIGS': Portugal, Italy, Ireland, Greece and Spain¹⁵. Growth rates for these regions in 2009 were between -2.7% for Portugal and -7.0%¹⁶ for Ireland. With such low negative growth rates it is easy to understand why austerity measures have been implemented, these policies have included the axing of public sector jobs and wages, cuts to pensions, reduced unemployment benefits and raised taxes. Perhaps the most notable of these countries is Greece (with a growth rate of -3.1% in 2009¹⁷) where widespread and violent protests have ensued due to the austerity measures, in one case a man was killed after being locked in a bank which was then set on fire. This clearly emphasises the wider social impact that a lack of financial regulation and corporate governance can have on a country's stability¹⁸.

United Kingdom

The UK has been no exemption in the implementation of austerity budgets, indeed, such a policy mix would seem necessary after growth rates plummeted to -4.0% at the peak of the crisis¹⁹. This was demonstrated in 2010 when the British parliament announced budget cuts of £81 billion - representing the proportionately biggest cut in budget spending in the UK since 1922- such a reduction in budget spending did not even occur during the Great Depression. Unlike many other advanced economies, the UK did have a framework in place to regulate financial institutions, thus unlike the US and other economies, it wasn't the lack of framework which affected the UK, but rather the architecture of the existing regula-

tions²⁰. Perhaps one of the most noted government actions by the British government during the GFC was the nationalisation of Northern Rock bank- indeed it was Northern Rock's collapse which "revealed the inherent fragility of the UK banking sector and the flaws in domestic financial regulation". Following the collapse of Northern Rock, the British government began taking steps towards tighter financial regulations, in particular introducing stronger framework in the Financial Services Compensation Scheme²¹. However, it must be understood that framework needs to first be focused on regulation so that such deposit security schemes are not needed. Being one of the major economies at the centre of the crisis, the UK government has taken policy changes seriously- including important changes to regulatory agencies, higher regulatory capital requirements and requirements for 'bail-inable' debt²².

Asia

Some of the largest economies in Asia were those which weathered the financial crisis the best out of the world's super powers. China, for example, managed to achieve remarkably high GDP growth rates both during and following the crisis while other economies continued their struggle to have positive growth figures at all (China's growth rate in 2009 was 9.2% and 10.4% in 2010)²³. China's strength during and after the GFC can be attributed to the tight regulations implemented proactively with one of the first major signs of economic meltdown- the collapse of the Lehman Brothers in the US. Different to other economies around the world, China's links to other economies were mostly trade and investment orientated- not having direct links to overseas banking markets shielded China from feeling the fallout of the banking crisis. Despite not having global links which would lead to downturn in the Chinese economy, the People's Bank of China in 2008 implemented an expansionary monetary policy to increase liquidity and upon recovery \$4 billion was spent in fiscal stimulus. It is thought that such proactive measures were

20 Maximilian JB Hall, 'The reform of UK financial regulation' (2009) 11(1) *Journal of Banking Regulation* 31 <<http://search.proquest.com.ezproxy.uws.edu.au/docview/196014396>>

21 John Raymond Labrosse, 'Time to fix the plumbing: improving the UK framework following the collapse of Northern Rock' (2008) 9(4) *Journal of Banking Regulation* 293 <<http://search.proquest.com.ezproxy.uws.edu.au/docview/196020394>>

22 Ian Beckett 'Financial regulation in Australia since the GFC' (2012) 3 *JASSA* 20 <<http://search.informit.com.au.ezproxy.uws.edu.au/documentSummary;dn=840895601650657;res=IELBUS>>

23 The World Bank, above n 16

considered even before the collapse of the Lehman Brothers. While a proactive approach and existing framework which allowed the central bank to control interest and exchange rates was successful in the short term to avoid external shocks, such policy regulations may prove to have adverse effects domestically in the medium to long term. It has been advised that in order to maintain economic growth, China must undergo structural reform including a shift towards domestic consumption and development and support of Small to Medium Enterprises. However, the fiscal and monetary policies implemented during the GFC were not targeted towards these needs²⁴. Other larger economies such as Indonesia and India also managed to avoid recession while other Asian economies, such as Japan which had a GDP growth rate of -5.5% in 2009, suffered²⁵. The resilience of many Asian economies can be attributed to the development of policies after Asia's financial crisis in the 1990s, as lessons learnt lead to defensive policy strategies for the future²⁶.

Australia

Australia was one of few economies which managed to avoid recession- narrowly avoiding the second consecutive quarter of negative growth with a growth rate of 1.4% in 2009²⁷. As discussed above, Australia's regulatory agency- APRA- has been praised for its proactive approach in implementing regulations and creating an environment where financial institutions have been required to comply with strict rules that prevented practices such as those used in the sub-prime market²⁸. Therefore, the lessons learnt from the GFC for Australia were much different to those learnt by other economies. Instead of unveiling major flaws in regulatory framework as it did in other economies, the GFC reinforced the strength of Australia's regulatory system. Government policy developments since the crisis have been focused more on crisis management than prevention- this includes joint efforts between APRA and major banks to develop recovery plans for now and in

24 Miao Han, 'The People's Bank of China during the global financial crisis: policy responses and beyond' (2012) 10(4) *Journal of Chinese Economic and Business Studies* <<http://www.tandfonline.com.ezproxy.uws.edu.au/doi/pdf/10.1080/14765284.2012.724982>>

25 Conference Paper, 'Asia and the Global Financial Crisis; Asia Economic Policy Conference' (2010) *Economic Review- Federal Reserve Bank of San Francisco* 62 <https://www.frb.org/economics/conferences/aepc/2009/09_Heng.pdf>

26 Dick K Nanto, 'The Global Financial Crisis: Lessons from Japan's lost decade of the 1990s' (2009) *Congressional Research Service* <<http://fpc.state.gov/documents/organization/125542.pdf>>

27 Lewis, above n 4

28 Soliman, above n 5

the case that there is a similar downturn in the future. These policy changes include making changes to allow for the implementation of Basel III, creating additional capital surcharges beyond the requirements of Basel III and meeting new liquidity requirements by 2015²⁹. The government has also been praised for maintaining stability with its bank deposit guarantee scheme which maintained a 'solid outlook and low-risk profile' amongst the big 4 banks in Australia³⁰. Australia also learnt a major lesson in the importance of international relations during the GFC. A major trade agreement with China involving resources such as Iron Ore and Coal was a major reason for Australia staying afloat during the crisis. Since the GFC, trade policies have been rethought as Australia's trade composition grows ever more favourable to China.

Canada

Canada was also one of the advanced economies recognised to have weathered the storm of the GFC relatively well. Like Australia, Canada had an existing prudential framework which shielded the domestic economy from practices of the sub-prime market. Before the crisis, Canada had an integrated regulatory framework for banks, insurance companies and investment dealers through the Office of the Superintendent of Financial Institutions. While Canada did not manage to completely avoid recession, having a growth rate of -2.8% in 2009, the Canadian economy did prove to be more resilient than the US economy coming out of the crisis, recovering to a 3.2% growth rate in 2010 (the US had a growth rate of 3% in 2010 which quickly deteriorated again to 1.5% in 2011)³¹. Although coming out of the GFC in a stronger and much more stable position than its American and European counterparts, the Canadian government still recognised a need for further reform. Such policy proposals became focused on a national securities regulator as opposed to having different financial market regulators in 13 different provinces³². In this however, there is a prime example of the complications faced when implementing policies for the good of the economy- the Supreme Court of Canada striking down these policy plans as unconstitutional. Despite this there is still a push in the Canadian parliament for the macro-prudential policy

29 Beckett, above n 19

30 Patrick Winsbury, 'Australian banks: bouncing back from the crisis' (2010) 124(2) *InFinance* 54

31 The World bank, above n 16

32 Kevin Lynch, 'Avoiding the financial crisis: lessons from Canada' (Report, IRPP, 2010) <<http://www.irpp.org/po/archive/may10/lynch.pdf>>

to be implemented- the debate is ongoing³³.

A GLOBAL APPROACH

It has long been thought that the best way to learn is to learn from one's mistakes. In many ways, the GFC has the potential to eventually have a positive impact on the global economy. The crisis has exposed flaws in existing regulatory frameworks and has shed light on the true nature of corporate governance in the financial sector. Recovering from the crisis, the most important thing is to see whether governments repair the architecture of regulatory frameworks and corporations see the error of their ways. Indeed, positive change has already been seen in movements towards a more consistent global framework- as Moshirian points out- "as a way of addressing the challenges of the recent global financial crisis, a more influential G20 emerged..."³⁴.

The establishment of the Financial Stability Board (FSB) to replace the Financial Stability Forum represented a major step forward for the global economy towards the goal of creating a global framework for economic and financial stability³⁵. Already the establishment of the board has led to collaborations with and enhancements of the role of the IMF and other international boards such as the Basel Committee. While the formation of the FSB has been a step forward, the effectiveness of the FSB in assisting the world economy to avoid another crisis is limited- just as any other global movement is- to the cooperation of its members in following the principles and standards which have been developed. While guidelines have been created, it is up to the institutions represented in the FSB to operate by the guidelines³⁶.

As it has been correctly concluded- "One of the challenges of the 21st century is how to deal with global financial problems that require global solutions, and yet global solutions require global ownership and global leadership..."³⁷. Certainly, the main issue coming out of the GFC seems to be the same issue our ever-globalising world has struggled to resolve for decades- a lack of international authority to solve international issues. Recommendations for a global framework will stay as mere recommendations if they are not adopted by domestic economies and embedded in domestic frameworks and

policies. It will be the steps taken in domestic economies, rather than those taken by international regulatory agencies that will become the most important in the world's prevention of another crisis. While there has been some doubt surrounding the commitment of some economies to implement policies in line with international guidelines, some steps have been taken. For example, there was some doubt that the US and China would not implement domestic policies to address trade imbalances but a recent bilateral trade agreement between the economies shows an improvement- however small³⁸. Further, the GFC has encouraged the integration of economies within the European Union- clearly this is a step towards overarching macroeconomic policies being made and therefore creating a more consistent and transparent economic and financial environment. The creation of an economic union can only be viewed as moving in the right direction towards an internationally regulated global economy³⁹.

To conclude, it is important to recognise that a crisis which caused damage unprecedented since the Great Depression will not be something which has a quick and simple resolution. More than four years since the peak of the crisis, substantial steps have been made to create stricter regulations in order to avoid a similar crisis in the future- the fact that such steps have been taken at all is an achievement when in these times policies could have been focused entirely on recovery rather than proactive approaches for the future. It is well known that from each crisis the world learns a lesson- from the GFC there wasn't a country that did not become more aware of the importance of sound architecture in regulatory frameworks and corporate governance in financial sectors. More importantly, the GFC reminded each government of its globalised surroundings and it's interdependence with international counterparts. There is one thing that will ensure the policies which have been designed and are being progressively implemented will be a shield against future economic meltdown- and that is cooperation and transparency. Economic policies must be consistent and compatible, and relations between economies need to be shared rather than concentrated to a particular region- that way, if we were to experience another crisis, trade would not come to a halt and GDP would not rapidly decrease for export orientated economies. Therefore, going into the future, financial stability will rely on the nature of corporate governance in the finance industry but also on the transparency and cooperation between domestic economies in regards to their policy making.

33 Paul Jenkins and Gordon Thiessen, 'Reading the potential for future financial crises: a framework for Macro-Prudential policy in Canada' (2012) 351 Commentary- C.D. How Institute 1 <<http://search.proquest.com.ezproxy.uws.edu.au/docview/1019979937>>

34 Moshirian, above n 8

35 Ibid 28

36 Financial Stability Board, Links to FSB Members <<http://www.financialstabilityboard.org/members/links.htm>>

37 Moshirian, above n 8

38 Moshirian, above n 8

39 Moshirian, above n 8

POLICY MAKING IN TURBULENT ECONOMIC TIMES

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Recently, the most talked about news was the financial crisis that engulfed the world's economy. The Conservative Government was forced to respond to this crisis through deficit spending because of economic globalization and media frenzy; nevertheless, they made the most of it politically. Although the crisis originated in the United States, due to globalization the issue spread worldwide and fell onto the Canadian Government's agenda. Canada's Economic Action Plan was the Government's chosen policy to deter the predicted global economic recession. Most economists, including the Minister of Finance, believed that government spending was not an appropriate solution to the issue; moreover, government spending was not in the Conservatives political best-interest. However, because of the way the media framed the problem, a stimulus package similar to the United States was the expected policy response from the public. So, Steven Harper decided that if he was forced by the public to do what he perceived as unnecessary excessive spending, he might as well play some good politics.

Previous to globalization, the United States (US) financial crisis would have remained an American problem. But what exactly happened, that set in motion the financial crisis? In short, there was a housing boom in the US in the early 2000's. This was combined with easy credit conditions where it became quite simple for people to take out home loans. Banks issued large amounts of mortgages to individuals who had low income and bad credit history; these were known as sub-prime loans. Sub-prime loans were excellent investment options for banks as long as the housing market was booming. If a sub-prime borrower persistently made the loan payments, the lender would continue to get high interest on the loans. If a borrower could not pay the loan and defaulted, the lender would have the option to sell the home (on a high market price) and recover the loan amount. Either way, the bank made money as long as the housing prices stayed stable. (Bergevin, 2008)

However, the housing prices began to decline in 2006 and led to the "write-off" of thousands of sub-prime loans. Overbuilding of houses during the boom

period led to a surplus inventory of homes, causing home prices to decline beginning in the summer of 2006. In the US, "an estimated 8.8 million homeowners – nearly 10.8% of total homeowners – had zero or negative equity as of March 2008, meaning their homes were worth less than their mortgage" (Moran, 2009). Sub-prime borrowers found themselves in a disastrous situation. Their house values were decreasing and the interest on the house loans were soaring. As they could not manage a second mortgage on their home, it became very difficult for them to pay the higher interest rate. As a result many of them opted to default on their home loans and vacated the house. Additionally, as the home prices were falling rapidly, the lending companies, which were hoping to sell the houses and recover the loan amount, landed in a situation where the loan amount exceeded the total cost of the house. Eventually, there remained no option but to write off losses on these loans. (Moran, 2009).

The fact that the United States banks were forced into writing off 260 billion dollars worth of loans, would have only affected the American economy before globalization (Shirai, 2009). Globalization refers to an ongoing process whereby "individual countries became increasingly interdependent—what happens in one country often has effects, positive and negative, on other countries" (Lombra, 2009). In general, a combination of economic, technological, cultural, and political forces worked over time to generate increased interconnection. Therefore, when one economy, in one country, went into a deep recession, it had a domino effect on countries' economies around the world.

What began as a United States recession led to a global recession and in turn, governments began to implement policies to reverse the downward trend. Not only did countries need to introduce a domestic policy for their own economic recession, a policy for worldwide economic recovery was also required. When every economy is linked together, if there is a weak link, it results in a weak string. Therefore not only do countries need to make sure their link is strong, they also need to help to revive other weak links to ensure a strong string. Thus, the US financial crisis is a perfect example to show

how policy making does not happen in a vacuum. Globalization created an integrated world economy which, when one country's economy failed, it brought all other economies down with it. Subsequently, domestic and international policies were needed to reverse the global economic recession.

Prime Minister Stephen Harper along with the Conservative Party of Canada released "Canada's Economic Action Plan" as their chosen policy response to the US financial crisis. It was composed of 5 areas of policy action. The first was "Action to Help Canadians and Stimulate Spending" (Canada, 2009). It provided for \$8.3 billion for the Canada Skills and Transition Strategy to provide training to Canadians in order for them to be able to get better jobs. In addition, \$20 billion was provided in personal tax reductions to citizens for 5 years. The second area was "Action to Stimulate Housing Construction" (Canada, 2009). \$7.8 billion was provided to build houses which would create construction jobs and encourage people to own homes. The third area was "Immediate Action to Build Infrastructure" (Canada, 2009). Over two years the government planned to fund \$12 billion worth of infrastructure. The fourth area was "Action to Support Businesses and Communities" (Canada, 2009). This area was aimed to protect jobs by giving \$7.5 billion to the businesses which were failing, mainly the automotive, forestry, and manufacturing sectors. The last area was "Action to Improve Access to Financing and Strengthen Canada's Financial System" (Canada, 2009). Here the most money was spent; \$200 billion was made available to all Canadians for financing. Jim Flaherty, Canada's Minister of Finance projected a \$33.7 billion deficit for 2009-2010 (Evans, 2009). He also projected that 2010-2011 the deficit would only be \$29.8 billion (Evans, 2009). However, this was not the reality. As of March 31, 2010 the bottom line was that the Economic Action Plan pushed Canada into a \$53.8 billion deficit since its introduction (Evans, 2009).

During the 2008 election race, Jim Flaherty persisted that if elected, the Conservative government would not go into a deficit to respond to the technical recession. "We may well be in a technical recession the last quarter of this year and the first quarter of next year," Flaherty said (CTV.ca (3), 2008). "It's quite possible that Canada will be below the line slightly in both of those quarters, which technically would be a recession" (CTV.ca (3), 2008). However, Flaherty predicted that Canada would still end the 2008 fiscal year with a mod-

est surplus (CTV.ca (3), 2008). Thus, before the economic action plan was released, Canada's finance minister denied that a financial crisis similar to that in the United States would occur in Canada. Therefore, there would be no need to go into a government deficit because there would be no real recession in Canada that required any sort of stimulus spending.

Most economists agreed with Flaherty that a financial crisis similar to that in the United States would not occur in Canada. The US financial crisis origin was the sub-prime mortgages that were issued by banks. In Canada, sub-prime mortgages only account for about 5% of the countries mortgage market (Bergevin, 2008). There are strict regulations to consider when issuing a loan in Canada. Banks check the debt servicing ratio and the collateral that the borrower can provide to secure the loan. Therefore, if the borrower cannot afford the loan payments and defaults then the collateral can be repossessed and sold to cover the outstanding amount of the loan. Further, there has not been a boom or bust pattern in the country's housing industry. "The housing industry has relied on a well planned, calculated growth that the market can bear" (Manitoba Home Owners Association). In short, the existence of few subprime mortgage loans in Canada and a strong housing market make the country almost immune to a sub-prime mortgage crisis like the one the United States went through.

However, economists did see that Canada was vulnerable to the indirect repercussions the American crisis had on its economy. In particular, slower economic growth in the United States would decrease their exports to Canada, draining real GDP growth. However, economists upheld that upon entering the economic downturn, Canada was better placed than many countries to weather the global financial turbulence and worldwide recession. "Its resilience can be attributed to three factors: First, a track record of sound macroeconomic policy management that has left the country in prime form at the beginning of the global turmoil; second, the authorities responded proactively to the crisis; third, Canada's focus on financial stability" (Raitt, 2009). Therefore, economists saw that even though a recession would hit Canada, it would not be as detrimental as compared to other countries, for example the United States. In turn, this meant that compared to the US, the policy response (government spending) would not have to be as drastic to address the smaller Canadian economic recession.

Prime Minister Steven Harper also did not think that government spending was a good policy response to the economic crisis. He believed that Canada was not going to even fall into a recession. During the election campaign of 2008 the economy was viewed by Canadians as the highest priority election issue (CTV.ca (2), 2008). The Liberals, the Greens, the New Democratic Party, and the Conservatives all offered their party platforms to the Canadian public which included their economic plans of action if elected. However, Steven Harper, leader of the Conservative Party, projected that Canada would not experience a recession that would require policy action. On October 10th, 2008, Harper stated that "this country will not go into recession next year and will lead the G-7 countries. We have every reason to believe Canada will stay out of recession if Canada doesn't start raising taxes and spending itself into deficit" (Calgary Herald, 2008). According to Harper there was not going to be a recession, thus there was no need for deficit spending either. He explained their economic policy four days before the election: "We're not running a deficit. We have planned a realistic scenario. We've got conservative budget estimates. We've got a modest platform that doesn't even fill the existing fiscal room that we have and we have plenty of flexibility in how we phase it. So that's our policy. We're not going into deficit" (Calgary Herald, 2008). Therefore, Harper was not a supporter of large government spending as a policy response because he did not believe that there was an actual problem in Canada that warranted policy action.

However, as history denotes, an economic recession did emerge in Canada. The Harper government announced a policy that would push Canada into a 53 billion dollar deficit even though it was against Harper's political best-interest. In his election campaign in 2008, Harper stuck to his long-time ideals of cautious fiscal conservatism. He consistently upheld that if elected, the Conservative Government would not run a deficit. "If you don't want a carbon tax and tax increases and a deficit and recession, the only way to ensure that is the case is to vote for the Conservative party" (Canwest, 2008). His party platform succeeded as he was elected as Prime Minister in 2008. But, subsequently, once in power, voters witnessed a complete turnaround in Harper, from a fiscal conservative into a reckless government spender and deficit creator. Harper has suffered harsh criticism since the unveiling of the economic action plan. The public has

criticized him: "Today's budget will be the final act in a long transformation of Mr. Harper's Conservative Party from a policy-driven, principled voice for conservatism to a process-driven electoral machine, intent only on surviving the coming budget vote and winning the next election" (Iverson, 2009). Obviously Harper knew that releasing a deficit budget would lead to condemnation and so, the Economic Action Plan was not a policy instrument he wished to use.

Not only is big government spending against the conservative ideal, it is also not an idea in good currency in Canada. Ideas in good currency are defined by Pal as "broad ideas about public policy that are widely shared without much commentary or debate and that change slowly over time but form a backdrop for policy discussion" (Pal, 2010, p. 138). In Canada, some ideas in good currency include the importance of environment, the need for democratic reform, or the need to focus on good security (Pal, 2010, p. 135). However, a more applicable idea in good currency in Canada is the necessity of fiscal prudence within the government (Pal, 2010, p. 135). Every policy the government makes cost money, but what has changed is the acceptable amount of money a government can spend to address a defined problem. As it applies today, the public demands that governments spend money smartly and conservatively or they will not be supported. As Pal (2010) illustrates "the idea of 'fiscal prudence' was in such good currency that all four major national political parties pledged during the 2004 and 2006 federal election campaigns that they would not run deficits, as did Steven Harper again in the 2008 election" (p. 134). However, as noted previously, today Canada is facing a \$53.8 billion deficit due to Harper's Economic Action Plan. Clearly, Harper created a massive deficit which he knew would lead to public upheaval because massive government spending is not an idea in good currency.

If the Minister of Finance, many economists, and Prime Minister Harper himself did not want to resort to any deficit spending, why is Canada facing a \$53.8 billion deficit? The answer to this can be found in the media frenzy that preceded the Economic Action Plan in 2008 and the perception it planted in the public's mind. As explained earlier, globalization includes technological forces that have generated increased interconnection around the world. Although there is regulations in place for Canadian television stations that state they must have 60% Canadian content on them yearly, with the advent of satellite television, a large portion of

television channels that Canadians watch are American. The consequence of this is that much of the news, commercials, reports, statistics, and statements that the Canadians are hearing, are actually about the United States, not Canada. Even though many Canadians realize this, it still does not stop the panic and fear that arises when they see such a crisis happening in their closest neighbour's country.

Several of the media stations in the United States compared the economic recession to the Great Depression of the 1930's. In 2006 "the broadcast networks compared 2006 conditions to the Great Depression 17 times that year, according to previous Business & Media Institute reports. The media are on track to make the comparison 24 times in 2008" and "in 2007, the broadcast networks aired 18 stories relating the Depression to everything from home prices to savings rates to the income gap" (Burchfiel, 2008). Canadian citizens were exposed to this un-substantiated comparison to the Great Depression because a majority of the television stations they watched were American stations. This led to widespread fear and panic that Canada was going to fall into a depression along with the United States.

In policy making, perception is everything and because Canadians perceived Canada was falling into a recession that could easily become a depression, politicians were forced to act in accordance to that perception, not the reality. In 2008, "results from a Strategic Counsel poll conducted for CTV and the Globe and Mail and released in September suggest voters have pegged the economy as their highest priority election issue this fall" (CTV.ca (2), 2008). Going into the 2008 election both Harper and Flaherty didn't believe the economy was a real issue in Canada and statistics were on their side: "Some good news from Statistics Canada that showed a rallying of the slowing economy" (CTV.ca (2), 2008). Despite the statistics, Canadians were still concerned. Harper was forced by the panicked public to go against every statement he made about no deficit spending, and no recession, during the 2008 campaign. When elected, he was required to implement a deficit ridden response to a recession many believed did not warrant that kind of spending. This is a prime example of how the media can transform a condition in society into a massive problem. Even though statistics and experts told a different story, that did not matter, the government still had to respond to the problem as the public viewed it.

Thus, since Steven Harper was forced by the public to do massive government spending against his best-interest he decided to play some good politics. Critics have slammed the Prime Minister for misusing tax payer's funds for political gain. The Liberal Opposition Party pointed out that "a review of the first billion dollars of project-specific announcements made under the Building Canada Fund since 2007 shows that more than three-quarters of projects were in Conservative-held ridings" (Canada (2), 2009). The financial crisis is a good example of how crises can give the government different tools to use to address a defined problem. The public gave Harper the freedom to spend as much money as he saw necessary to pull Canada out of the recession. Harper took this freedom and ran with it. He knew that usually, deficit spending is not an idea in good currency in Canada so he seized on the opportunity he was given and spent most of the \$12 billion infrastructure funding in conservative ridings. Harper knew that most conservatives may be upset with him for going against his statements in the 2008 election which promised no deficit spending. One way to silence the upheavals is to give the money back to those that may feel deceived. Therefore, although the Conservative Government was forced to go against their ideology and against usual ideas in good currency, he gained back all of the political support he may have lost, by spending the money in Conservative ridings.

Prime Minister did not only spend money in his own Conservative ridings, but he also tried to win Bloq Quebecois and Liberal ridings over in Quebec. In the last election, the Conservative Party was only 10 seats sort of a majority (Asper, 2009). Keeping this in mind, the federal government recently promised they will make every effort to construct a new NHL-sized hockey rink in Quebec City. Quebec wished to build an NHL-sized rink so they could put in a bid for the 2026 Winter Olympics (Asper, 2009). The funds for this project would come from the "Immediate Action to Build Infrastructure" part of the Economic Action Plan (Canada (1), 2009). When looking at an electoral map, one can see that there are about a dozen ridings that will directly benefit from the building of such a rink and a "halo effect covering perhaps another dozen seats" (Asper, 2009). Spending Economic Action Plan money in Quebec City could potentially win the Conservative Government the 10 seats they are lacking for a majority government. Again, this shows how the Government often combines good policy with good politics. The public saw a stimulus package as good policy to combat

the economic recession and the government used this perception to play good politics and tried to win non-Conservative ridings.

In conclusion, the 2007-2010 economic crisis is a prime example to show how complex policy making is. First, it shows how policy making does not occur in a vacuum. Since globalization, problems that fall on the government's agenda are not always domestically originated. The economic recession originated in the United States, however, Canada was forced to create a policy to address the problem because it trickled into the Canadian economy. Second, it shows the affect of the media on policy making. The media can change how a public perceives a problem and turn it into a massive crisis that requires drastic governmental measures to solve. Third, the public can often force the hand of the government when making policy. The Minister of Finance and the Prime Minister both did not want to do any deficit spending because they believed there was not a huge crisis in Canada. However, the perception within the Canadian society was that there was a massive recession in Canada and the only way to solve it was through massive government spending to stimulate the economy. Lastly, the economic crisis shows how good policy often evolves into good politics. The Conservative Government was handed the tools to promote their own political self-interest and they took advantage of this. They spent the majority of the infrastructure development funds in Conservative ridings and ridings they wished to acquire. In summary, the Conservative Government made the best of a bad economic and political situation.

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CANADA'S PENSION SYSTEM DEFICIENCIES: Time for Reform

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Abstract: This paper argues that although Canada's pension system is very effective in reducing poverty, it has not performed well in light of particular trends, such as population aging and the decline of workplace and voluntary pensions. Canada's rate of replacement is below OECD standards, and is projected to continue to decline without pension reform. While there has been significant interest in the part of the government and the public in initiating these reforms, the lack of cooperation from provincial leaders is jeopardizing the future of Canada's pension system and Canadians.

INTRODUCTION

In some respects, the Canadian pension system is highly regarded, having one of the lowest rates of poverty among seniors in the OECD. However since the inception of most of these programs, problems have emerged that require some pension reform, particularly demographic shifts and trends in private pensions. The result is the decrease in the pension rates of replacement. The significant losses to pensions in the wake of recession and resulting discussion of pension deficiencies triggered government attention to tackle the issues. So far, however, government action has been insignificant and largely misguided, attacking elements of the system that are working while adding supplemental programs the most problematic tier of the Canadian pension system: private pensions. A continuation on this path is unlikely to maintain Canada's excellent international pension reputation.

THE PROBLEM

There is significant debate over what an adequate rate of replacement is, especially given that most Canadians are not poor in retirement, but most experts agree that a satisfactory replacement level should enable pensioners to maintain a similar standard of living to what they had during their working lives. Currently many Canadians fall far short of this. Without pension reform, Wolfson projects that "half of middle-earning Canadians born between 1945 and 1970

will experience a drop in living standards of at least 25 percent when they retire" (1).

CANADA'S THREE TIER SYSTEM

Canada has a three tier pension system. The first tier is composed of the Old Age Security (OAS) which provides a guarantee of a basic minimum pension to the majority of Canadian senior citizens, and the Guaranteed Income Supplement (GIS), which provides a supplement for low income seniors (covering approximately one third of seniors). Combined, these programs create a basic safety net that is financed through tax revenues. The second tier is the Canadian Pension Plan (CPP) and the parallel program in Quebec, the Quebec Pension Plan (QPP). Employers and employees contribute equally to finance this program, together paying 9.9 percent of an employee's covered earnings: the program's coverage caps at the indexed average earnings of a Canadian (the Yearly Maximum Coverable Earnings) (Béland and Waddan 244). The third tier is composed of various private schemes, such as occupational pension plans and Registered Retirement Savings Plans (RRSPs).

The OAS and GIS are largely considered a success, have frequently been credited with Canada's low level of poverty among seniors, which has decreased significantly since the programs' conceptions. Mackenzie wrote, "using Human Resources Development Canada's Market Basket Measure (MBM), the poverty rates [in 2009] are 2% and 5% for senior couples and singles, respectively compared with 8% and 30% for non-senior couples and singles... in 1976 20% of elderly couples, 55% of single elderly males and 68% of single elderly females were living below the applicable low income-cutoff after-tax income." (3). This compares favourably internationally: "Canada performs as well as countries such as Sweden and much better than the UK and the US" (Béland and Waddan 244).

The CPP until now has also been very effective, often praised for its innovative investment techniques.

The CPP/QPP and OAS and GIS were revised in the 1990s to improve its fiscal soundness, and “as a result, experts agree that the universal OAS/GIS and CPP/QPP components of Canada’s retirement income system are in better shape today than are their counterparts in many other developed economies” (Ambachtscheer 8). The CPP rate of replacement is low by OECD standards, at 25 percent. This low replacement does not indicate that CPP has failed, however; it was kept low to allow room for private retirement investments (Béland 55).

When CPP was created in the 1960s, the intention was that employees would have additional retirement income, through occupational pension plans and RRSPs. This has not materialized as envisioned. “Private pension coverage has been in steady decline; long-standing pension plans are threatened by slow growth in contributions, fast growth in benefits and a decline in investment returns; and voluntary saving in individual plans is showing increasing weakness as an alternative” (Horner 3).

Occupational plans were never as prominent as anticipated, and have fallen into decline in recent years; “private pension plan coverage in Canada has never exceed half of Canadian employees, and has declined from a high of 46% in 1977 to 39% in 2010” (Mackenzie 3).

Thus a combination of factors has resulted in many Canadians not having saved enough for retirement to maintain their living standards in retirement. Horner calculates that “as many as 25 to 30 percent of today’s modest- and middle-income workers are not saving enough to avoid a significant drop in their living standards at retirement” (1).

This therefore leaves much of the responsibility for private retirement savings on RRSPs. They were meant to provide a vessel for retirement savings for those who did not have occupational plans, or for those who wanted to bolster their retirement savings. Like occupational plans, contributions are tax deductible while withdrawals are taxable. (Mackenzie 6). Mackenzie asserts that this intention has not been realized. Instead, those with occupational plans are the most likely to contribute to RRSPs: “Overall, the participation rate in RRSPs is higher for employees who are members of pension plans (58.2% in 1996, 50% in 2008) than for employees who were not members of a pension plan

(33.1%, 26% in 2008)” (6). He also noted that while this is the case, those without occupational pensions tended to contribute slightly more to their RRSPs than those with them, by a difference of 20 percent (6).

Additionally, it is disproportionately high-income earners who contribute. “Contributors to RRSPs tend to have higher incomes than non-contributors. The median employment income in Canada in 2008 was \$29,500. The median employment income of those who contributed to RRSPs was \$51,090” (Mackenzie 7). High income earners are more likely to contribute firstly because they have more disposable income, and secondly because they are deductible from taxable income (Mackenzie 6-7). The lowest earning quintile, however, is the least likely to contribute, owing to their lower disposable income and also because this income will be clawed back from GIS recipients (Horner 11).

Many studies have shown the deficiencies in voluntary retirement savings. Horner explains that based on studies of 401(k)s, it appears that many chose not to participate in voluntary savings, or do not participate sufficiently. “Individuals tend to shy away from complex savings choices (how much to save, what choice of investments), leading to non-participation, deferral of savings and under-saving” (Horner 9). Furthermore, individuals can withdraw from their RRSPs when they wish; there is a propensity in such schemes for the money to be withdrawn prematurely to cover expenses unrelated to retirement income (Mackenzie 9).

Of the voluntary investments that are made, the yields compare unfavorably with mandatory plans. Horner notes that those who do contribute appear, on average, not to have a very strong understanding of investing, overestimating the retirement income they will receive from their contributions. Additionally, most individuals do not have sufficient knowledge of investing to yield sufficient returns from their investments, tending to buy high and sell low. Alternately, many rely on investment advisers, which costs they pay substantial fees (Horner 9). Ontario Finance Minister Dwight Duncan said “the cost of administering Canada Pension Plan is three-quarters of one per cent, versus 2.5 to 3.5 per cent on privately administered plans” (The Canadian Press). The result is low returns on individually invested savings, when compared to CPP.

These problems with inadequate private pillar savings have been aggravated by the recession. A gradual transition in the type of private pensions from defined benefit pensions to defined contribution schemes is transferring the investment risk; while under the former system the employers bear the financial risk, the latter system puts the financial risk on workers. The financial crisis and resulting losses to defined contribution schemes has thus exacerbated deficiencies with private pensions (Béland and Waddan 245).

While the effectiveness of the private tier is weakening, its importance is growing. Firstly, demographic circumstances have changed considerably in Canada. “Average life expectancy for males and females combined in the late-1960s was 72 years, which meant an average period of benefits of seven years... Average combined life expectancy now stands at 81, implying a benefit period of 16 years or more than double the original benefit period” (Veldhuis and Palacios 12). This has two effects. Firstly, it means that individuals with private defined contribution plans will need to stretch their money over longer periods. Secondly, longer average benefit durations combined with the financial crisis that has resulted in large federal deficits, is likely to result to changes to the public pillars. The tax-funded OAS program has been revised; the age of eligibility will gradually increase from 65 to 67. In addition, changes to CPP that came into effect in 2012 seek to incentivize workers to retire later. Longer periods of retirement coupled with the shrinking of the public tiers emphasizes the of the success of private pensions, and the significance of their current inadequacy.

CPP REFORM PROPOSALS

Thus it is clear that there are significant deficiencies with the private pillar, which is becoming an increasingly more important element of retirement savings. Given the voluntary nature of these programs, it is difficult for government to increase the replacement rate adequately by reforming this pillar. For this reason, it seems CPP is a better candidate for reform.

Labour unions and other groups have advocated increasing CPP benefits; one popular proposal is the Canadian Labour Congress’ plan to double the CPP replacement rate (Béland and Waddan 245). There are others as well. The advantages are obvious; the re-

turns are expected to be higher, on average, than the same investments made to private plans, and by making participation mandatory, a higher level of retirement income can be ensured.

Another suggested amendment to CPP is to raise the YMPE, which is \$51,100 in 2013 (Government of Newfoundland and Labrador). Canada Research Chair in Public Policy, Daniel Béland put this in an international perspective: “In the United States, the annual wage ceiling on Social Security contributions is well above 100,000 dollars, and, recently, Democrats including President Barack Obama have suggested increasing it further in order to address the fiscal challenges facing that program” (Canada).

Critics of increases to CPP have cited potential flaws. Experts from The Fraser Institute among others have speculated that expanding CPP could result in a problem of diseconomies of scale. As the size of the portfolio grows, it becomes harder to realize the same level of returns. “This has real implications for Canadians because CPP legislation includes a mechanism to adjust benefits or contribution rates to return the plan to sustainability in meeting its objectives. Hence, weaker than expected investment performance could adversely affect CPP benefits drawn by retired Canadians” (Mohindra 6).

There are also arguments that because employees split the costs of CPP with employers, if CPP contributions are increased, employers could respond by freezing wages to compensate, which would result in lower real wages, (Kelly).

While there may be some legitimacy in these concerns, the fact remains that Canadians are not saving enough for retirement. It seems that even if individuals must face small reductions to real wages, and possibly lower yields to CPP, it would be a worthwhile tradeoff to ensure an adequate standard living during the lengthy period of retirement that follows.

GOVERNMENT RESPONSE

The Conservative government responded to the heightened public concern shortly after the onset of the financial crisis. On November 27th, 2008, Finance Minister Jim Flaherty stated there would be “consultations on issues facing defined benefit and defined contribution pension plans” (qtd in Béland

and Waddan 245). However the process of reform is complicated firstly by institutional challenges—reform must be agreed to by seven of the ten provinces—as well as by the fact that the Conservative federal government has a propensity towards shrinking, rather than increasing, the role of government (Béland and Waddan 245). Thus the reforms to date have been to the private sector, where there is the least chance positively influencing pension outcomes.

The government introduced Tax Free Savings Accounts introduced in 2009. These are much like RRSPs, differing in that they are not tax deductible, but withdrawals are not taxed either. These have received much criticism as they are subject the same problems associated with Canada's other private pension schemes; savings is voluntary, and it leaves retirement planning to individuals, who tend to lack adequate knowledge of saving and investment. Additionally, the Townson predicts that because these savings are not factored into GIS eligibility calculations, more people, using these plans for savings instead of RRSPs (which are factored into GIS eligibility calculations), will increase the number eligible for GIS, costing the government an additional "\$4.2 billion or 12% in GIS expenditures by 2050" (2).

In 2010, Flaherty announced a government proposal for Pooled Registered Retirement Plans, which would be another type of private savings scheme (Béland and Waddan 246). This is unlikely to be free of the flaws of other private pension programs. This proposal has not proceeded, however, as it has failed to get support from enough provinces.

As of the December 2012 meeting of Flaherty and provincial finance ministers there remains a lack of consensus on how to proceed. Flaherty stated he hoped for "modest" CPP increases, and that "the number one concern of all the ministers is to not do any harm" (Beltrame). This attitude fails to consider that inaction will just ask likely do harm. Thus despite the obvious need for reform, nothing significant has emerged to improve pension outcomes.

CONCLUSION

Canada's pension system has great strengths in its ability to reduce elderly poverty. However the deficiencies of the private pillar have resulted in inadequate rates of replacement for a large portion of Canadians, and trends indicate this problem will be aggravated without pension reform. While the federal government and most provinces have acknowledged the need for reform, they have failed to produce any significant changes so far. Greater cooperation and some compromise is needed from the provinces for Canada's pension system to remain one of international repute.

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DEVELOPMENT OF FINANCIAL MARKET, MONETARY POLICY AND GLOBAL IMBALANCES

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The global current account imbalances have received considerable attention in recent years. These unprecedented global imbalances are the subject of heated debates in academic and policy circles. Most prominently, the U.S. current account deficit has widened to over 4.7% of US GDP in 2008, and this deficit is mirrored in some equally marked surpluses on the part of some of the United States' trading partners. The current account balances of China, one of major developing Asian economies, have moved from a small aggregate deficit in 1995 to a surplus of near 10% of China GDP in 2008 years.

In this paper we argue that the large global imbalances could be the result of financial integration among countries with heterogeneous domestic financial markets development, as well as different monetary policy across countries. Today, financial systems differed substantially across countries despite the globalization of capital markets since the 1980s. Financial integration was a global phenomenon, but financial development was not. The basic idea of the paper is that countries with more sophisticated financial markets will run trade deficits with countries with less sophisticated financial markets, all else equal. The logic is straightforward. Financial sophistication leads to better risk-sharing. Better risk-sharing results in a lower demand for precautionary savings. When two otherwise identical countries trade, the one with lower demand for precautionary saving saves less and runs a trade deficit. Even more, A country with higher macroeconomic volatility will increase its demand for more precautionary savings, and thus lead to less consumption and trade surplus.

At same time, different monetary policy will cause the real return of nominal bonds to vary greatly, which will also influence agent choice of asset portfolio and in turn work upon international trade. The paper finds that a country with a one-sided peg monetary policy tends to experience a certain amount of trade surplus.

The motivation for studying global imbalances from this perspective derives from three key observations since the 1990s

GLOBAL TRADE IMBALANCE

Since the year 2000, a typical characteristic of the global economy has been global economic imbalance, in particular, the large current account deficit in mature market economies represented by the US, and the massive current account surplus in emerging market economies represented by Asia and oil exporters. Since the 1990s, trade deficits in developed countries have shown a steady increase, and the World Bank indicates that in 2008, the current account deficits in developed countries had reached 465 billion US dollars (1.1% of world GDP), the highest level in recent years, and chief among them is that of the US. In 2006, the US total current account deficit rose to the highest level recorded in recent years, \$788.1 billion (6% of US GDP). Although the US current account deficit decreased in 2008 due to the influence of the financial crisis, it still reached the sum of \$673.3 billion (4.7% of GDP), corresponding to massive negative net savings¹, See figure 1.

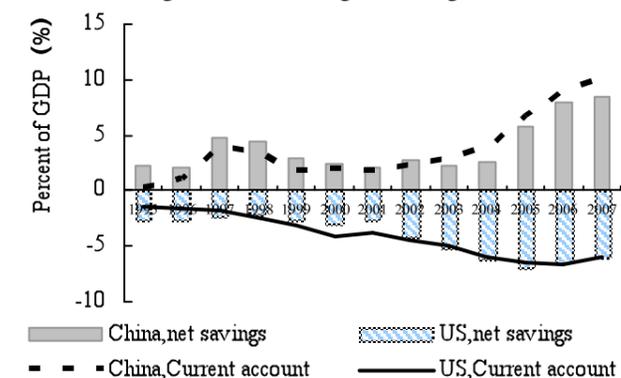


Figure 1 Saving-investment Balance and Current Account, China and US

Source: Ronald McKinnon, Gunther Schnabl, "China's financial conundrum and global imbalances" BIS Working Papers No 277, 2009, March

¹ net savings equals savings minus investment

The current account surplus of emerging market countries exhibited vigorous growth in the 1990s, and in 2008, this surplus was equal to 3.8% of world GDP, \$714.4 billion. The trade surplus of Asia and OPEC constituted the largest portion of this current account surplus. In 2008, the current account surplus of developing countries in Asia exceeded \$282.4 billion (5.8% of regional GDP), and the trade surplus of middle-eastern countries was \$341.6 billion (18.8% of regional GDP). China's current account trade surplus was \$426.1 billion in 2008, 10% of China's GDP, corresponding to China's massive positive net savings. See figure 1.

DIFFERENCES IN THE DEVELOPMENT OF FINANCIAL MARKETS ACROSS COUNTRIES

While financial markets in both emerging and developed countries have grown greatly, the gap of financial markets development between developed and emerging countries has not exhibited a great degree of change. As shown in the Figure 2. The features are evident from an index of financial development constructed by Abiad, Detragiache, & Tressel (2007) for industrial and emerging economies for the 1973-2005 period. There is a high degree of heterogeneity in domestic financial markets across countries, and these differences persist, despite financial globalization and financial development (Mendoza, Quadrini and Ríos-Rull 2009).

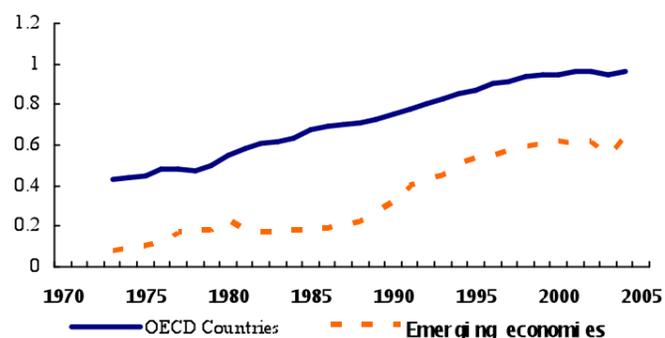


Figure 2 Index of Financial Liberalization

Source: Abiad, A., E. Detragiache, and T. Tressel, "A new database of financial reforms", IMF Working Paper 07/XX, 2007

DIFFERENCES IN EXCHANGE RATE POLICY AND MONETARY POLICY BETWEEN CHINA AND US

Almost all emerging countries, with China as an example, have taken exchange rate policies into account in their monetary policy, pegging to the dollar to varying degrees. On the other hand, developed countries, represented by the US, have continued to place the consideration of stable GDP growth at the center of their monetary policy, and have declined to prioritize stable exchange rates.

For a long period of time, China's monetary policy took into consideration an exchange rate policy of pegging to the US dollars. From 1994 to 2005, China adopted a fixed exchange rate regime, especially in 1998, due to the financial crisis in Asia. Up to 2005, there was almost no fluctuation in the exchange rate of the RMB Yuan to the US dollar, and only started to gradually climb against the dollar in July of 2005. From 2005, the Chinese government began to adopt a floating exchange rate system based on market supply and demand, adjusted by a basket of currencies and regulated by related rules. Therefore, China's monetary policy has to consider the demand of pegging to dollars.

With growth of the domestic economy and the development of the financial market, US monetary policy has persistently involved adjustment. After the 1970s, the intermediate target of monetary policy has changed from nominal interest rates (followed with Keynesian policy) to money (especially M1) supply (heeding the advice of Friedman). After the 90s, financial innovation and economic globalization caused the US to gradually move towards a neutral monetary policy with a constant real interest rate (Taylor rule), but the Federal Reserve still had not completely abandoned money supply as a target of regulation. Although the intermediate targets of US monetary policy were increasingly integrated, and included multi-term financial variables, the US still has not made exchange rate as main part of its monetary policy, and has consistently adopted a policy of floating exchange rates.

In order to explain the above characteristics of the global economy, this paper, based on a heterogeneous agent model with infinite horizon, mainly analyzes the far-reaching influence of one country's financial development on its individual behavior and

international trade. It analyzes the influence of other factors on individual behavior and welfare, including two country's different monetary policy combinations, the degree of completeness of financial markets, and the macroeconomic volatility. It also considers the aftermath of these factors on international trade and capital flow. The paper highlights that these factors have varying degrees of influence on the individual behavior and welfare, and that the main factor affecting the capital flow and the state of trade is their financial development, while monetary policy and the macroeconomic volatility can also affect the international capital flow and international trade in certain degrees. The main conclusion of the paper are as following:

The development of the financial market of a country has a great influence on its individual behavior, and in an open economy, it will influence international capital flow and trade in goods significantly. At same time, the country's macroeconomic volatility and different monetary policies also exert a different influence on each country's individual behavior and international trade. Studies have shown that the key factors that intensify imbalances in world trade are, in order from strongest to weakest: incompleteness of financial markets, macroeconomic volatility, and monetary policy (one-sided peg exchange rate policy). Of all these factors, the incompleteness of the financial market is the most important factor that affects bond interest rates and agent welfare.

The larger the gap between two countries in financial markets is, the more trade imbalance there will be between them. An undeveloped financial market will increase an agent's precautionary savings significantly. In concert with the trade deficit, it causes capital to move from the country with an undeveloped financial market to the country with a developed one through the purchase of bonds. At same time, countries with undeveloped financial markets show a trade surplus. Furthermore, because an undeveloped financial market will cause a country's consumption to become more volatile, its agent welfare will be harmed.

Furthermore, the increase of macroeconomic volatility in a country will lead its agents to make more precautionary savings, which results in less consumption and more trade surplus in the country. Different combinations of monetary policy will cause the real

return of nominal bonds to vary greatly, which will influence agent behavior and international trade. A country with a one-sided peg monetary policy tends to experience a certain amount of trade surplus.

Our study concludes that, over the past 20 years, the rapid integration of international finance has provided a basis of financing for international imbalance. Under the international financial system based on the dollar standard, the US has inherited the core role from the Bretton Woods system. This kind of core role is reflected in two ways: the first is to provide dollar assets as international dollar reserves; the second is to provide a mature market for the efficient allocation and trade of financial assets. Using these two advantages, the US can finance its large trade deficit by the sale of bonds.

Therefore, in the long run, the main way to alleviate market trade imbalance is to narrow the gap in financial market development between nations, especially in regions where the financial market is underdeveloped. The measures to take include developing various kinds of commercial insurance products, providing noncommercial insurance by the government, such as pensions and medical and unemployment insurance, and enhancing agents' ability to smooth consumption under any shock. This will not only benefit the global trade balance in the long run, but it will also reduce volatility in every country's consumption, and increase agent welfare.

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FROM CORPORATE GOVERNANCE TO NETWORK GOVERNANCE CHINA CASE AND THE NEW ECONOMY GOVERNANCE MODEL

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Abstract: With the deepening of globalization and the environmental, regional challenges, global economy governance model is always a hot topic in practical and academy field. In this article we provide the case and process of the reform and evolution of corporate governance in China and suggest that network governance among business sectors and governments may be a solution to help recover and accelerate the global economy sustainably.

Keywords: Corporate Governance, Network Governance, Global Governance, New Economy Governance, China

THE TRANSITION OF CORPORATE GOVERNANCE IN CHINA: FROM ADMINISTRATIVE GOVERNANCE TO ECONOMIC GOVERNANCE

The past twenty years since the foundation of Shanghai Stock Exchange and Shenzhen Stock Exchange in late 1990 has witnessed China’s corporate governance transforming from administrative governance to economic governance. China’s corporate governance development has kept evolving from conceptual introduction, issuing of governance principles and the new corporate law, the establishment of independent director system, the orderly implementation of equity division, to the institutionalization of board of directors and board of supervisors of state-owned enterprise. The ongoing evolving process has been centering on the principles of regulation, compliance and accountability. Throughout the process, we have gone through the transition from governance structure to governance mechanism. This is the transition in which governance structure and mechanism are on the way to be regulated. Corporate governance also evolves from the traditional “breaking the rules” and mandatory governance to autonomous governance. And the transition from irresponsibility to responsibility is arising.

At the early stage, internal corporate governance structure was bettered in line with the corporate governance principles and relevant laws and regulations. To follow, the responsibilities of general meetings

of shareholders, board of directors and the managers were clearly identified. Thus, the transition from governance structure to governance mechanism in corporate governance system was accomplished. As a result, China’s corporate governance construction has achieved impressive improvement. It is also the process where China’s corporate governance system is gradually established. To practice corporate governance, One must first observe rules, namely, the principle of regularization. So far, the gradual transition from the punitive governance in the broad sense in the planned economy system to the compliant corporate governance has been realized in China’s enterprise reform. Fully-fledged corporate governance regularization should be based on initiative and voluntary spirits and aim at lowering governance cost in order to raise governance efficiency. As China’s corporate laws and regulations, and institution environment gradually improve, China’s corporate governance reform has witnessed the transition from mandatory governance featuring passive compliance to voluntary governance featuring taking initiative to observe rules and laws. Recently, some corporate directors, chairmen and general managers have been subjected to financial penalties and even criminal liabilities because they did not observe relevant corporate governance laws, rules and regulations. Gone is the time when the issue of liability could be underrated or even neglected. Now, a liability-featured corporate governance system in its true sense has been established.

During this process, administrative governance gradually gave way to economic governance, which is the path and direction China’s corporate governance reforms should follow. Meanwhile, to evaluate and assess whether a given governance structure is reasonable, whether a given governance mechanism is effective or observes relevant laws, rules and regulations, whether the liability system is implemented or not, we must resort to a scientific evaluation and assessment standard. CCGI -China Corporation Governance Index affiliated to China Academy of

Corporate Governance (CACG, Nankai University) provides such a standard. The Chinese Corporate Governance Index (CCGI) annual report (2003-2012) demonstrates that the level of economic governance of Chinese enterprises is increasing year by year.

Meanwhile, during the transition from typical governance characterized by administrative operation goal, resource allocation and the employment and discharge of operators to economic governance characterized by regulation, standardization and liability, the phenomena of political liaison, marriage-related connection and clan influence that are widespread in Asia (especially in south and east Asia) still find their weight and traces in China. Traces of relationship governance mirror the weak side of administrative governance. As another noteworthy feature during the transition from administrative governance to economic governance, the phenomenon of relationship governance reflects typical Asian cultures into which economic governance tries to penetrate.

THE EVOLUTION FROM INDIVIDUAL CORPORATE GOVERNANCE TO BUSINESS GROUP GOVERNANCE AND NETWORK GOVERNANCE

While relationship governance still assumes an important role, The formal and informal relationship network such as parent company-subsidiary ownership network in business group, the supply chain network, alliance network, interlocking network of directors, demonstrates the need and importance for governance from monomer firm to business group and network.

1) The governance structure and mechanism of the monomer company should be extended to adapt to the needs of network governance.

While enterprises are growing bigger and stronger in the form of domestic and multinational groups, it is essential to better corporate practice and theory. The parent company and its subsidiary companies within a group have their own legal governance structure and exercise corresponding governance responsibilities. Within the same group, the parent company and its subsidiary companies as well as affiliated companies constitute governance networks of equity, manager mobility, and chain directors. To run a unified governance mechanism, the group must cope with equity control, the allocation, appointment and coordination of managers and directors in

addition to internal equity allocation, the incentive and constraint mechanism of senior executives. Further, corporate social responsibility (CSR) makes it mandatory to expand corporate governance subject from shareholders to stakeholders, which complicates conglomerate governance. We must keep an eye on this phenomenon.

Supply chain network and strategic corporate alliance network are two kinds of cooperation between an individual company and another company that has longitudinal external supply connection or has horizontal competition relationship. Intimacy may lead to merger, acquisition or anti-merger, anti-acquisition, which are important issues of corporate governance. Therefore, the expansion of an individual company's governance structure and mechanism in the context of network governance can be reflected in how this individual company works together with its upstream and downstream enterprises and rivals, how it handles the incentive, constraint mechanism between its own managers and partners' managers, equity allocation and control.

2) Network governance structure and mechanism calls for a profound corporate governance connotation to satisfy the development of enterprises against the background of transitional economy

As an official contractual structure, network governance structure constitutes three spheres, namely, network nodes, connection between nodes, and the entire network format. The essential contents of network governance structure include the diversity and activeness of network nodes, the intensity and tightness of network connection, the structure and distribution formats of the entire network. Network governance mechanism is the integration of allocation, incentive and constraint rules. It is initiated to maintain connection among nodes, maintain the orderly and efficient operation of the network, constrain and regulate behaviors between nodes. Network governance mechanism unfolds to us the internal institutional environment and the internal mechanism during the operation process of network organization. To match and share resources and capabilities, and to set up and preserve trust are on the top agenda of corporate governance mechanism.

The popularity, importance of network governance in the context of a transitional economy makes

it fundamental to further dig the connotation of corporate governance. The diversity of corporate governance subjects, the transition from opposition and constraint to collaboration between subjects, the requirement of the establishment and the evolution of governance network to various subjects and the changes of their relationship all present inspiration to the deepening of an individual company's corporate governance connotation. At the same time, the network governance mechanism can find better settlement to the problems of resource distribution and capability allocation, the incentive and constraint of managers.

FROM CORPORATE NETWORK GOVERNANCE TO INTER-GOVERNMENTAL NETWORK GOVERNANCE

In the 21st century, economic globalization, new science and technology revolution, and the call for sustainable economic development all have resulted in a new world economic landscape. New economic governance model, unexceptionally, is confronted with new challenges.

According to Schumpeter, there are two forms of innovation, namely, institutional innovation and technological innovation. Practice has proved that institutional innovation can fuel the development of technological innovation and economy. For example, in the new era of economic development in China or other developing countries, we must intensify our efforts to implement the institutional innovation of economic governance system so that the present economic structure and growth mode can follow the proper direction to grow more sustainable and healthier, so that we can materialize the transformation of economic growth mode from export dominance to domestic demand expansion, so that we change our focus from the pursuit of growth rate to that of structural optimization, so that we can upgrade from low-end manufacturing to high-end creation, so that our attention can turn away from mere economic growth to the harmonious development between environment and economy. As a result, we must seek a new cooperation mechanism and framework of inter-governmental network governance on how to realize healthy competition between different countries on the basis of cooperation so as to accelerate the course of economic integration. The philosophy of network governance may lend us some useful inspiration in this aspect.

The importance of network governance in global economic governance has been fully demonstrated in a state level. The idea of network governance is widely adopted in European Union, both in the governance of EU and the inter-government relationship of Europe countries. In EU, network governance is an effective institution design to realize the mutual respect, trust, collaboration and win-win situation. Association of South East Asian Nations also tries its best to cooperate following the principle of network governance.

Therefore, countries can stick to the principles of mutual development and multiplicity to expand their cooperation scope in a moderate and steady manner on the basis of regional cooperative alliance and set up an inter governmental network governance mechanism. Meanwhile, non-governmental exchanges between countries should also be strengthened. Official cooperation mechanism can be improved in cooperation with non-governmental exchanges and mechanism. Eventually, countries can come up with a new network governance cooperative mechanism on the basis of mutual benefit and win-win strategy to establish a new alliance governance model favorable for regional and even global development.

NETWORK BASED NEW ECONOMY GOVERNANCE MODEL

In conclusion, as the economy recovering remains the focus of global issue, the future strategic development direction of the world should further deepen the reform of corporate governance from the micro level, improve the government governance from the national level, and enhance inter government network governance from the macro level, so as to build up a new economic governance model adapting to the background and requirement of globalization.

As the backbone of economic growth, the enterprises should follow the trend to transform from administrative governance to economic governance, transform from individual corporate governance to network governance, and take the initiative to set up lawful corporate governance policies, balance the rule-based governance and relation-based governance, so that Chinese and Asian enterprises can realize full integration with their European and American counterparts in business practice. Active efforts should be made to explore the governance structures, mechanisms and patterns of the conglomer-

ates and multinationals. Meanwhile, we should take account of regional economies' own unique features at various stages, and study the influence of regional cultures on governance systems. In this way, we can establish a scientific, reasonable, culture-specific and effective governance model.

As the policy maker, a given government should adjust itself to the latest global economic growth practice and set up a cooperative network governance mechanism to improve the governance of national level and also provide good institutional environment for the private organizations. In accordance with the strategy of regional integral development, the governments should structure an regional and even more border global joint development governance framework to promote the integral, rapid and common development of global economies, and realize the harmonious development among economy, politics, culture and environment.

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SINGLE VERSUS MULTIPLE: A New Keynesian Perspective on the Choice of Monetary Policy Instruments for Mainland China

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Abstract: The paper develops a small-scale dynamic stochastic general equilibrium (DSGE) model with sticky wage and sticky price to evaluate the effectiveness of two types of instruments: quantity instruments (agented by the extended McCallum rule, quantity rule) and price instruments (agented by the extended Taylor rule, price rule) for Mainland China. The model incorporates various features such as habit formation, costs of adjustment of investment, variable capital utilization and partial indexation from the literature. I also introduce various structural shocks into the model including “demand” shocks, “supply” shocks, “cost-push” shocks and monetary policy shocks. Then I estimate the DSGE model with Bayesian techniques for quantity rule and price rule separately using six Chinese key macroeconomic variables each (1992Q1-2011Q4): GDP, Consumption, Investment, Wage, CPI and M2 (for quantity rule) and Benchmark Interest Rate (for price rule). The empirical results indicate that the hybrid of both price and quantity instruments is more effective and efficient than when only one type instrument is used by the PBoC. The findings provide some empirical evidence for the PBoC's efforts of making an active and frequent use of a combination of both price and quantity instruments especially in recent years. And it also indicates that the time may be not mature for the PBoC to only adopt price instruments when facing multiple monetary policy objectives. Furthermore, as a by-product, I found considerable price and wage stickiness in the economy which well fit the facts that observed.

Keywords: DSGE, New Keynesian Model, Taylor Rule, McCallum Rule, Monetary Policy Instrument

INTRODUCTION

Since the 1980s, most developed economies have employed very simple monetary policy instruments, which mainly are price instruments, and successfully achieved low volatility in output and low inflation. Compared with those developed economies, the monetary policy of

Mainland China (henceforth China) seems to be much more complicated. The monetary policy instruments in China can be classified into three categories: quantity instruments, price instruments and administrative measures. Quantity instruments refer to the instruments that directly and explicitly control the supply of money. The instruments used by the People's Bank of China¹ (hereafter the 'PBoC') in open market operations (hereafter 'OMOs') are typical quantity instruments, such as the PBoC's bills, Reserve Requirement Ratio (RRR). Price instruments refer to various kind of interest rates which emphasize indirectly and implicitly control of money supply. Price instruments could include official benchmark lending and deposit rates for commercial banks, re-discount rate, legal reserve rate, etc. Administrative measures are still enjoying popularity, such as window guidance, moral suasion, to provide guidance to credit growth and its allocation among sectors. It seems that the PBoC still heavily relies on quantity instruments and administrative measures, such as RRR which are no longer be used by most developed economies. And at the same time, the PBoC seemingly does not attach too much attention on price instruments which are widely believed to be much more market-based and more efficiently to allocate the financial resources by the leverage of market force. And why?

And naturally, there are increasing voices that urge the PBoC to employ price instruments only as major economies do. There are two fundamental reasons that quantity instruments are gradually given up by most developed economies. First, the money supply indices, such as M2, are increasingly difficult to be controlled and measured by monetary authorities. Besides, the quantity instruments is originated from the classical Fisher quantity theory of money which seems to be inapplicable anymore when underlying assumption that money velocity is stable in short run is violated (Zhang, 2009). Second,

¹ The People's Bank of China is the central bank of China

since inflation target is the single objective of monetary policy in major economies, low and stable inflation has 1st priority. As argued by Zhou(2012), the inflation expectation has important implications to the actual inflation since self-fulfillment could be possible. And in turn, inflation expectation could be fine-tuned by various price instruments. Hence, it is natural that most developed economies depend so much on the price instruments. Concerning the advantages that price instruments have, therefore, is it the time that mature enough for the PBoC to employ only price instruments? Is multiple instruments much more effective and efficient than only single type of instruments in China? This paper uses a small new Keynesian model to quantitatively shed some light on this issue.

LITERATURE

Monetary policy evaluation has been a hot research area since it has important implications for monetary policy practices. The research is immense in developed economies and relatively scarce in emerging economies. I only briefly review the relevant studies below.

Taylor(1993) proposes the well-known monetary policy rule – Taylor rule – that stipulates how the central banks should change the nominal interest rate in response to changes in inflation, output and other economic variables. Clarida et al.(2000) believes the Taylor rule plays an important role in helping central banks in major economies in controlling inflation and stimulating output growth from the 1980s through the 2000s, the so-called Great Moderation. As an alternative to the Taylor rule, McCallum(1988) proposes the so-called McCallum rule, further extended by McCallum(2003) which describes the money supply growth target for central banks. Esanov et al.(2005) uses an extended McCallum rule to evaluate Russia’s monetary policy by setting the money supply growth target the function of the expected inflation-rate gap and output gap. Xie and Luo(2002) firstly uses the fixed-coefficient Taylor rule models to study China’s monetary policy. Fan et al.(2011) investigates the responsiveness and effectiveness of China’s monetary policies in terms of the money supply M1 and official interest rates by estimating the Taylor rule and McCallum rule. Using quarterly data(1992-2009), they finds money supply responds actively and policy rate responds passively to the inflation and output.

Zhang(2009) and Ma(2011) employ a simple DSGE model to evaluate the effectiveness and fitness of the China’s monetary policy instruments. They use GMM or OLS to calibrate almost all structural parameters or simply borrow parameters’ values from other literature, and then carried out their simulation using the toolkit provided by Uhlig(1999). They reached the conclusion that price instruments are preferred. However, the model settings and the estimation techniques of Zhang(2009) and Ma(2011) maybe problematic. First, The model settings in Zhang(2009) and Ma(2011) are too simple to capture the dynamics in the data. They fail to incorporate various features and frictions into their model such as habit formation, costs of adjustment of investment, variable capital utilization and partial indexation which are quite standard in DSGE literature. Second, the estimation techniques they used is in doubt. The log-linearized optimal F.O.C. equations of DSGE model should be estimated simultaneously rather than independently. Their estimation techniques could be a problem since it is possible to lead a bias in their conclusions.

Comparing with the models in Zhang(2009) and Ma(2011), the model developed here is a much more powerful and full-fledged one. The model is a small-scale dynamic stochastic general equilibrium(DSGE) model with sticky wage and price. Smets & Wouters(2003,2005,2007) estimates a DSGE model for Euro area and US and they find that the model fit real data quite successfully. Christiano et al.(2005) estimates various DSGE models against a benchmark DSGE model for U.S. and successfully presents convincing evidences to explain the observed fact that there are inflation inertia and output persistence in the data. The key features employed by Christiano et al.(2005) in their model setting are the staggered wage contract and variable capital utilization. I do borrow some features from them. But the model settings and the problems I studied here do have some distinctions from Christiano et al.(2005), and Smets & Wouters(2003,2005,2007). First, I employ the DSGE model to study effectiveness and fitness of two alternative monetary policy instruments: the quantity and price instruments for China. Then the model incorporates Money-In-Utility(MIU) comparing with Smets&Wouters (2003,2007). Preference shock is introduced in our utility function comparing to Christiano et al.(2005). Furthermore, in the staggered wage contract settings, I follow

Sbordone(2006) whose settings are quite different from the one used in Christiano et al.(2005), and Smets&Wouters(2003,2005,2007) and the settings² of Sbordone(2006) is also adopted by Zhang(2009) in analyzing China’s monetary policy.

Another important distinction of our model from that in Zhang(2009) and Ma(2011) is that I introduce various structural shocks into the model which make various impulse responses analysis possible. The model has four types of exogenous shocks: the “demand” shocks, the “supply” shocks, the “cost-push” shocks and monetary policy shocks. The “supply” shock is the technology shock in intermediate goods producer’s production function and investment adjustment shock in capital accumulation. The “demand” shocks are the preference shock in utility. The “cost-push” shocks are the wage and price markup shocks in stickiness setting.

The rest of paper is structured as follows. Section 3 presents some facts about China’s monetary policy. Section 4 only presents the log-linearized DSGE model due to the space constraint. Section 5 describes the estimation and simulation procedures of the log-linearized DSGE model and conducts the impulse responses analysis. Section 6 concludes the paper.

CHINA’S MONETARY POLICY

In 1978, China began its opening-up policy and after more than thirties years later, the economic development has achieved great success. And now it ranks the world No.2 in economic size and the real GDP growth averaged about 10% per year. Since its inception in 1984, the PBoC started to adopt its functions as central bank, and it has gradually moved toward a monetary policy strategy anchored on intermediate monetary instruments(Laurens and Maino,2007). The general process for conducting monetary policy in China could be illustrated as: each year, the PBoC first set the growth targets for money supply(M2) and credit, then the targets are fine-tuned through the whole year(Liu,2010).

The choice of monetary policy instruments reflect the concerns of objectives of the monetary policy. Hence, I first review the actual objectives of the monetary policy of the PBoC and then list few possible

² stickiness sometimes refers to nominal rigidities

reasons why the PBoC has so many objectives compared to major economies.

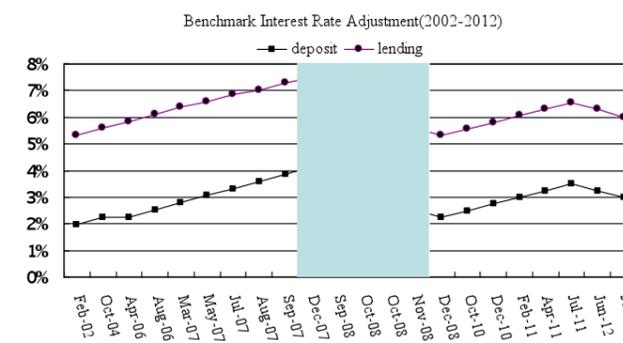


Figure 1: The PBoC’s adjustment of benchmark interest rates
Source: The PBoC’s official website: <http://www.pbc.gov.cn>.

China’s monetary policy has more final objectives than those in major economies which can be seen at least from two aspects. First, Issued in 1995, the Law of the PBoC states that the objectives of monetary policy is to maintain the stability of price level thereby to promote economic growth (Zhang,2009). Second, according to a series of speeches of the PBoC’s governor Zhou Xiaochuan³, the objectives include not only to maintain the stability of price level and promote economic growth, but also to maximize employment and achieve external balance. Moreover, the monetary policy has the responsibility to maintain the overall stability of financial system, deepen the reform in financial sector and cooperate with fiscal policy practices. In recent year, especially in the last five years, the PBoC has conducted monetary policy operations using various instruments at hand to fight the 2008’s financial crisis as reported by Monetary Policy Executive Report⁴ (hereafter ‘MPER’). Fig.1 shows the historical adjustments of official benchmark one-year interest rates for lending and deposit by the PBoC from 2002 through 2012. One can see that the adjustments is intensive and the intermediate margin⁵ is still large and consistent, roughly 3%. Fig.2 shows the historical adjustments of RRR from 1998 through 2012. In 2011 alone, the PBoC raised the RRR six times from 17.5% in January to a historical highest point 21.5% in June for large commercial banks and raised one-year benchmark interest rates up three times. OMOs

³ The speeches were published in Zhou(2012) in Chinese which includes the one delivered at International Economics Association(IEA) 16th Global Meeting at July, 8th,2011

⁴ MPER is the quarterly publication of the PBoC

⁵ The difference between the lending and deposit rates, which are supposed to protect the commercial banks though the protections are weakening

are also frequently used to flexibly contract liquidity with forward-looking behaviors. The frequency of adjustments using various instruments is intensive in the last five years.

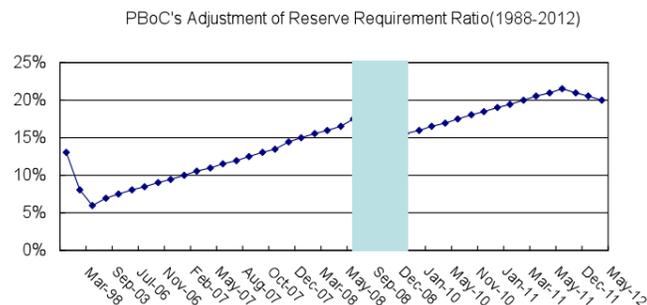


Figure 2: The PBoC's adjustment of reserve requirement ratio
Source: The PBoC's official website: <http://www.pbc.gov.cn>.

There are few possible reasons that may justify the PBoC's strategy. First, the PBoC is burdened with multiple policy objectives and does not enjoy full discretion as other major central banks do⁶. Second, there are dual-track system of interest rates in which the official benchmark rates and market rates coexist. The interest rates system yet not fully liberalized though the PBoC has made persistent efforts to liberalize the interest rates, especially the officially controlled benchmark rates. In October 2004, the ceilings on lending rates and the floor on deposits were removed(Liu,2010). In June, 8th, 2012, the PBoC lifted the ceilings on deposit rates to be 1.1 times larger and lower the floor on lending rates to be 0.8 times than before. As argued by Liu(2010), market segmentation still exists in interest rates system in China. Benchmark lending and deposit rates are still controlled by the PBoC though the control has been largely relaxed than before. Apart from the officially controlled interest rates, there are market-based interest rates too, such as the interbank lending rate, interbank bond market rate and bond-repo rate in money market. Market segmentation has made the difference between market-based rates and controlled rates are sizable. Structural impediment is another reason why price instruments alone may not enough. China's financial system is still largely dominated by large state-owned commercial banks. Geiger(2006) argued that the four state-owned commercial banks have a quasi monopoly in China's financial system and they account for overwhelming majority of the whole banking sector's asset and li-

ability and hence the market share for lending and deposit. Due to the profit-driven and risk-adverse nature of the banks, however, a large number of micro- and small firms are struggling, sometimes even impossible to get loans from these banks, though the situation is improving.

The uncompleted liberalization of interest rates system and the weakening banking environment have distortions on the transmission channel of monetary policy. The policy interest rates is not the pivotal as a transmission channel of monetary policy impulse(Laurens and Maino,2007). This implies that price instruments alone may inadequate. Liu(2010) also argues that quantity rule alone also inadequate too. Geiger(2006) first make the points that money and credit growth targets missed frequently by the PBoC. Laurens & Maino(2007) and Green & Chang(2006) attribute the failure to meet the targets to the unstable money multiplier.

LOG-LINEARIZED MODEL

The model is supposed to has four agents: the households, the intermediate goods producer, the final goods producer and the monetary authority. Households has utility functions and maximize its utility subject to income constraints. Furthermore, households provide idiosyncratic labor service to the intermediate goods producer and has power to "price" its wage. Final goods markets are fully competitive but intermediate goods markets are subjected to monopolistic competition. The price mechanism of both households and the intermediate goods producer is supposed to follow Calvo(1983).

For a special emphasis on the monetary policy instruments, I lay out the settings. Since the framework of the Taylor rule and MaCallum rule are widely used in the literature, I used an extended version of the Taylor rule and MaCallum rule as the agents for the price and quantity instruments respectively. Xu and Chen(2009) argues that under the New Keynesian framework, it is much better to use M2 than M0 and M1 in analyzing macro-economy in China. Hence, I define \hat{r}_t as the deviation of nominal money growth in M2 from its long-run value. Now I define the following modified McCallum rule for China:

$$v_t = l_v v_{t-1} - l_\pi E_t \pi_{t+1} - l_y \hat{Y}_t + \varepsilon_t^m, \quad 0 < l_v < 1, l_\pi, l_y > 0 \quad (1)$$

where π_t is the inflation rate and \hat{y}_t denotes the relative output gap, i.e. measured as the deviation percentage of output from its long-run trend. I assume the money supply shock follows AR(1) process. And $l_v > 0$ reflects the smoothing behavior of the central bank. The positive values of l_π, l_y indicate that the central bank moves in counter-cyclic manner. Li and Meng(2006) adopts similar quantity rule in analyzing the China's monetary policy and they argues this form of quantity rule fits China's data quite well. For the price instruments, I use a modified Taylor rule for China which is also employed by Zhang(2009):

$$\hat{R}_t = \theta_R R_{t-1} + (1 - \theta_R) [\theta_{d\pi} (E_t \pi_{t+1} - \pi_t) + \theta_\pi \pi_t + \theta_y \hat{Y}_t] + \varepsilon_t^R \quad (2)$$

where \hat{R}_t is the deviation percentage of gross nominal interest rate from its long-run value. The gross nominal interest rate responds to the expected increase in inflation. I assume ε_t^R the shock follows AR(1) process. As argue by Zhang and Zhang(2007), controlled benchmark rates play a major role in the economy. Hence I choose one-year benchmark lending rate as the agent for interest rate in the modified Taylor rule. Due to the space constraint, I only present the log-linearized model⁷.

Assuming general equilibrium and the optimal FOCs can be log-linearized around the steady-state values of the variables. For the quantity rule, there are 13 equations: (3)-(15) for 13 endogenous variables:

$$\hat{Y}_t, \hat{C}_t, \hat{M}_t, \hat{K}_t, \hat{M}_t, \hat{\pi}_t, \hat{w}_t, \hat{m}_t, \hat{N}_t, \hat{q}_t, \hat{R}_t, \hat{v}_t$$

For the price rule, there are 12 equations: (3)-(15) except (9),(10) are replaced by (2) and there are 12 endogenous variables .

$$\hat{Y}_t, \hat{C}_t, \hat{M}_t, \hat{K}_t, \hat{M}_t, \hat{\pi}_t, \hat{w}_t, \hat{m}_t, \hat{N}_t, \hat{q}_t, \hat{R}_t$$

$$\hat{C}_t = \frac{h}{1+h} C_{t-1} + \frac{1}{1+h} E_t C_{t+1} - \frac{1-h}{(1+h)\sigma} (\hat{R}_t - E_t \pi_{t+1} + E_t \varepsilon_{t+1}^b - \varepsilon_t^b) \quad (3)$$

$$\hat{I}_t = \frac{1}{1+\beta} I_{t-1} + \frac{\beta}{1+\beta} E_t I_{t+1} + \frac{1}{\kappa(1+\beta)} \hat{q}_t - \frac{1}{1+\beta} (\beta E_t \varepsilon_{t+1}^i - \varepsilon_t^i) \quad (4)$$

$$\hat{q}_t = E_t \pi_{t+1} - \hat{R}_t + \frac{1-\delta}{1-\delta+\bar{r}^c} E_t q_{t+1} + \frac{\bar{r}^c}{1-\delta+\bar{r}^c} E_t r_{t+1}^c \quad (5)$$

$$\pi_t = \frac{\rho_p}{1+\beta\rho_p} \pi_{t-1} + \frac{\beta}{1+\beta\rho_p} E_t \pi_{t+1} + \frac{(1-\beta\xi_p)(1-\xi_p)}{\xi_p(1+\beta\rho_p)} \left(\alpha \hat{r}_t^c + (1-\alpha) \hat{M}_t - \frac{\hat{\lambda}_{p,t}}{\lambda_p - 1} - \hat{\varepsilon}_t^A \right) \quad (6)$$

$$\frac{\hat{M}_t}{\Phi} = (1+\eta\lambda_w) \xi_w (\hat{w}_{t-1} + \rho_w \pi_{t-1}) - (1+\beta)(1+\eta\lambda_w) \xi_w \rho_w \pi_t + (1+\eta\lambda_w) \beta \xi_w E_t (\hat{w}_{t+1} + \pi_{t+1}) + (1-\beta\xi_w)(1-\xi_w) \left(\eta \hat{N}_t + \frac{\sigma}{1-h} (\hat{C}_t - h C_{t-1}) - \frac{\hat{\lambda}_{w,t}}{\lambda_w - 1} \right) \quad (7)$$

$$\hat{m}_t = \frac{\sigma}{(1-h)\gamma} \hat{C}_t - \frac{\sigma h}{(1-h)\gamma} C_{t-1} - \frac{\beta}{(1-\beta)\gamma} \hat{R}_t \quad (8)$$

$$\hat{m}_t = m_{t-1} - \pi_t + v_t \quad (9)$$

$$v_t = l_1 v_{t-1} - l_2 E_t \pi_{t+1} - l_3 \hat{Y}_t + \eta_t^m \quad (10)$$

$$\hat{Y}_t = \hat{\varepsilon}_t^A + \alpha K_t + \alpha \kappa_u^{-1} \hat{r}_t^c + (1-\alpha) N_t \quad (11)$$

$$\hat{r}_t^c = \kappa_u u_t \quad (12)$$

$$\hat{M}_t = \frac{\bar{r}^c - \alpha\delta}{\bar{r}^c} \hat{C}_t + \frac{\alpha\delta}{\bar{r}^c} \hat{I}_t + \alpha \hat{u}_t \quad (13)$$

$$\hat{K}_t = (1-\delta) K_{t-1} + \delta I_t \quad (14)$$

$$\hat{N}_t = K_{t-1} + (1+\kappa_u^{-1}) \hat{r}_t^c - w_t \quad (15)$$

⁶ Most monetary policy changes at the PBoC, if not all, must be approved by the State Council

⁷ For the detailed settings of the model, please send me email: ah-nulxy@yahoo.com.cn

The stochastic behavior of the above linear rational expectation equations system is driven by six exogenous shocks. Three shocks arising from preference and technology ($\varepsilon_t^b, \varepsilon_t^l, \varepsilon_t^a$) where $\varepsilon_t^a, \varepsilon_t^l$ could be viewed as “supply” shocks and ε_t^b as the “demand” shocks; two “cost-push” shocks: η_t^w, η_t^p , shocks to wage markup and price markup parameters and two monetary shocks, i.e. money supply shock and interest rate shock: η_t^m, η_t^r . The shocks are all supposed to follow AR(1) process.

ESTIMATION AND POLICY ANALYSIS

Data

I estimate the log-linearized DSGE model for quantity rule(QRM) and price rule(PRM) separately. Quarterly data from China are used for both estimations: 1992Q1-2011Q4. For the QRM, I use six key macroeconomic variables, GDP, Consumption, Investment, Wage, M2 and CPI inflation. For the PRM, I also use the same data series as in the QRM except the money supply, M2 is replaced by one-year benchmark lending interest rate. CPI is fixed-base and based on 1992Q1=100. All level variables except interest rate is deflated by CPI into real ones⁹. The corresponding measurement equation is:

$$\begin{pmatrix} d\log GDP_t \\ d\log CONS_t \\ d\log INV_t \\ d\log WAGE_t \\ d\log M2_t \\ d\log CPI_t \\ R_t \end{pmatrix} = \begin{pmatrix} TR \\ TR \\ TR \\ TR \\ TR \\ \pi \\ \bar{R} \end{pmatrix} + \begin{pmatrix} \mu_t - \hat{Y}_{t-1} \\ \eta_t - \hat{C}_{t-1} \\ \hat{I}_t - I_{t-1} \\ \hat{w}_t - w_{t-1} \\ \hat{m}_t - m_{t-1} \\ \pi_t \\ \mu_t \end{pmatrix}$$

where d and \log stand for 1st difference and logarithm respectively, for example $d\log GDP_t = \log\left(\frac{GDP_t}{GDP_{t-1}}\right)$, TR is assumed to be the common quarterly growth trend to real GDP, consumption, investment and wage; π is assumed to be the quarterly target of CPI inflation tolerated by the PBoC over the sample period. \bar{R} is the steady-state value of nominal interest rate. \bar{R} is set to be the average of quarterly interest rate over the sample period. The parameters TR and π will be estimated.

These two models are solved and estimated using Dynare v4.2.0 in Matlab v7.6¹⁰.

Impulse Response Analysis

I now evaluate how the two monetary policy instruments differ from each other from either of two perspectives: (1) which policy instrument is much more powerful after a monetary policy shock to each of them separately¹¹, and (2) under which policy rule the economy undergoing less fluctuations after the nonmonetary policy shocks since less volatility implies a lower value of loss function to monetary authorities. If single instrument¹² meet the requirements of above two criteria, then I say single instrument is more effective and efficient than the multiple instruments, otherwise, I say that multiple instruments is preferable. Taylor (1994) defines an optimal policy rule as the one that minimizes a weighted sum of variances of inflation and output gap, with the weight attached to inflation and output gap variances reflecting the monetary authorities' preference for inflation and output stabilization. In a simplest form, a loss function of the PBoC can be written as

$$L(y, \pi) = var(y_t) + \mu var(\pi_t)$$

or more specifically here:

$$L = E_t \sum_{t=1}^{\infty} \beta^t (\pi_t^2 + \mu Y_t^2) \quad (16)$$

where $\beta=0.9822$ is the discount factor in households utility function. I set $\mu = 0.5, 1, 3$ for simplicity to reflect various concerns of the authorities when I calculate the loss function. Fig.3 shows that the estimated mean impulse responses (I.R.) of output and inflation to from monetary policy shocks (the shocks η_t^m and η_t^r in Eq.(1,2)). The first column is the I.R. to shock from nominal money growth in QRM, while the second is from nominal interest rate in PRM. Fig.3 clearly shows that the quantity instruments are more powerful than the price instruments concerning the response time and the magnitude of impulse responses of output and inflation.

¹¹ The powerfulness of a monetary policy instrument can be evaluated from two aspects: first, the response time of macroeconomic variables after monetary shock. The response time refers to the duration from the point when the shock takes place to the point when the magnitude of response is maximal. Generally speaking, the shorter, the better. Second, the magnitude of response, the larger, the better

¹² When I say single instrument, I mean single type of instruments, either price or quantity type

The impulse responses of output and inflation to nonmonetary policy shocks¹³ from both QRM and PRM are not displayed but I do calculate the values of corresponding loss function (see Table 1). The result shows that the economy subjects lower loss under the price instruments than under the quantity instruments when facing almost all nonmonetary policy shocks.

Under the two evaluation criteria proposed above, one may come to the conclusion that a hybrid of price and quantity instruments seems to be well vindicated to manipulate the China's macro-economy by the PBoC. In the one hand, our simulation results imply that the quantity instruments is much more powerful to gain control over macro-economy concerning the magnitude and time of responses. On the other hand, by employing the price instruments, the monetary policy operations will bring about larger welfare gains as measured by volatility of inflation and output. This findings are consistent with Liu(2010) and also provide some empirical evidence that supports the monetary policy practices by the PBoC. As argued by Liu(2010), the price instruments alone may not be effective for the PBoC to wholly rely on because of the structural impediments such as segmentation of financial markets and still emerging modern banking system.

China's economy is experiencing great sectoral reforms and restructures and it moves slowly from the so-called highly centralized planned economy to socialist market economy¹⁴. This special economic background determines that the degree of marketization is still limited in China and the situation is quite different from most developed and even some emerging economies. And, in turn, the monetary policy instruments is different too (Zhou,2012,p122). Hence, the hybrid of both price and quantity instruments is a better choice for the PBoC nowadays since it is burdened with multiple monetary policy objectives.

¹³ The shocks in equations (3)-(15) are nonmonetary policy shocks

¹⁴ In November 1993, China decided for the first time to lay down the goals of establishing the socialist market economy and allowing market instead of the administrative measures to play a decisive role in resource allocations. However, some twenty years later, the transition is slowly and not yet completed

Table 1: Loss Function to Various Nonmonetary Shocks

Shocks	Weight	Loss Function	
		QRM	PRM
Technology	$\mu = .5$	0.1637	0.0414
	$\mu = 1$	0.3248	0.0827
	$\mu = 3$	0.9690	0.2480
Real Wage	$\mu = .5$	0.0403	0.0188
	$\mu = 1$	0.0800	0.0358
	$\mu = 3$	0.2389	0.1038
Investment	$\mu = .5$	0.0129	0.0049
	$\mu = 1$	0.0257	0.0097
	$\mu = 3$	0.0768	0.0289
Preference	$\mu = .5$	0.0046	0.0047
	$\mu = 1$	0.0092	0.0092
	$\mu = 3$	0.0273	0.0270
Price Markup	$\mu = .5$	0.0823	0.0123
	$\mu = 1$	0.1631	0.0200
	$\mu = 3$	0.4863	0.0510

Sources: author's estimates. Standard Errors,(S.E.) are calculated from results of I.R. based on 40 quarters. Assuming $\mu = 1$ implies the PBoC attaches equal weight to output and inflation. Assuming $\mu = .5$ and $\mu = 3$ implies much weight are placed on output and inflation stability respectively

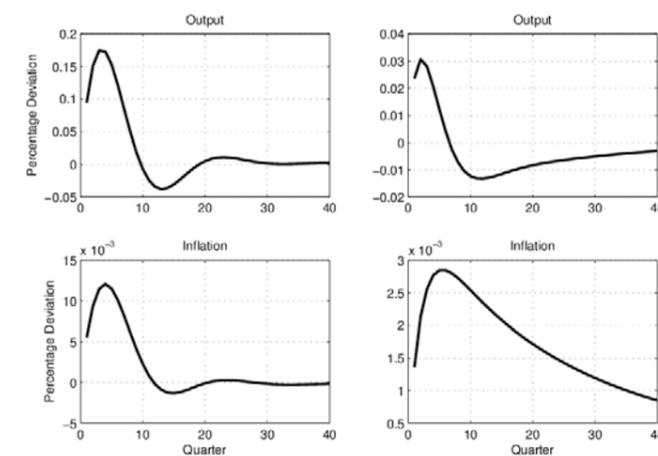


Figure 3: I.R. of Output and Inflation to monetary shocks

The first column denotes the impulse response of output and inflation to one unit positive money supply shock from quantity rule (increasing in money supply) while the second column denotes impulse response to one unit negative interest rate shock from price rule (decreasing in interest rate). The horizontal line denote the quarters elapsed after the initial shocks

CONCLUSION

The paper develops a small-scale dynamic stochastic general equilibrium (DSGE) model with sticky wage and sticky price to evaluate the effectiveness of two types of instruments: quantity instruments (agented by the extended McCallum rule, quantity rule) and price instruments (agented by the extended Taylor rule, price rule) for Mainland China. The model incorporates various features such as habit formation, costs of adjustment of investment, variable capital utilization and partial indexation which are standard in DSGE literature. The model also introduces various structural shocks including “demand” shocks, “supply” shocks, “cost-push” shocks and monetary policy shocks which serve as the driving forces for the dynamics of the model. The DSGE model is estimated with Bayesian techniques for quantity rule (QRM) and price rule (PRM) separately using six Chinese key macroeconomic variables each: GDP, Consumption, Investment, Wage, CPI and M2 (for quantity rule) and Interest rate (for price rule).

The simulations do show that the monetary policy operations that combines both the price and quantity instruments for the PBoC brings about the higher efficiency in manipulation and larger welfare gains for the economy. Hence, the multiple policy instruments is preferable for the PBoC and the time may be not mature for the PBoC solely rely on the price instruments because of the inefficiency of its transmission channel and weak banking environment. The findings do have some policy implications. **First**, the PBoC should rely more on the quantity instruments when the immediate impact and control on the economy is desired. For example, to cooling down the over-heating economy, such as over-investment, the quantity instruments may be more approximate to effectively contract the liquidity and tighten credits. **Second**, price instruments should be considered with higher priority since it could achieve larger social welfare gains. Generally speaking, price instruments could influence market expectations and individual's investment and consumption behaviors through short and long term structures of interest rates and further through wealth effect, balance sheet effect etc. Facing with insufficient domestic demand and high inflation expectation, the PBoC should proactively adopt the price instruments, to stimulate the domestic consumption and increase government

and private investment. **Third**, the PBoC should try to establish an integrated and complete interest rates system and remove the so-called “dual-track” interest rates system and instead an unified one. Specifically, the PBoC should maintain the stability and continuity of the monetary policy, to gradually improve the efficiency of transmission channel of interest rates signal, and remove the ceiling of deposit rate and the floor of lending rate step by step to further liberalize interest rates system. And by doing so, the PBoC could establish a benchmark term structure of interest rates which are basic to pricing bonds and other debt instruments. Moreover, exchange rate is another important price instrument. To improve the RMB exchange rate formation mechanism and maintain its stability are crucial to independence and stability of the PBoC's monetary policy practices. **Fourth**, I found empirical evidence for considerable price and wage stickiness from our data¹⁵.

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15 Abstract the discussions of price and wage stickiness in the model

ECONOMIC GLOBALIZATION AND THE CURRENT WORLD

ECONOMIC SITUATION

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Abstract: With a larger scale of global economic imbalances, the imbalance between the countries and regions is becoming more serious, involving almost all the world's major economies. And the global economy is now divided into three parts: the first one is the United States, living in the center of the global economic system, the second one is recently emerging economies in East Asia which is characterized by manufacturing exporters, and the third one is energy resources exporter countries, especially oil-exporting countries. The three major economic regions support each other, to form a "triangular relationship".

The IMF has already raised the problem of external imbalances in the global economy in the late 20th century; however, there is no substantive progress for lack of support from sovereign states. But we must know that the global economic imbalance is closely connected with global economic conditions.

Plagued with weak economic growth as well as the multiple crises, global economic imbalances are becoming worse in 2011. In general, global economic imbalances can be represented by external economic imbalances about the current account, internal economic imbalances about savings and investment, and the international financial dealings imbalances about financial accounts, foreign exchange reserves. There are both "good reasons" (some fundamental factors) and "bad reasons" (such as the flawed international monetary system, the absence of the international financial regulations and the distorting domestic economic policy) accounting for this problem.

G20 started working on rebalancing global economic from the Reference Guide. China, France, Germany, India, Japan, the United Kingdom and the United States are 7 countries that have the problem of system importance imbalance. Through macroeconomic policies assessment on these countries, G20 defined the distorting policies which lead them to imbalances and made a recommendation of "Cannes action resolution".

1. ECONOMIC GLOBALIZATION

1.1 The Challenges of Economic Globalization in Developing Countries

After the 1990s, the process of globalization of the world economy has greatly accelerated; an important trend of economic globalization is constantly extending to the third world, the developing countries, which really play an important role. But for developing countries with relatively weak economy and scientific technology, economic globalization is a double-edged sword, both opportunities and challenges.

a) The economic globalization has exacerbated the gap between the developing and developed countries.

In theory, all countries involved in the globalization benefit to some degree, but never shared them. In the process of marketization, competition is the first rule. As major owners of capital and advanced technology, the developed countries are in the center of the globalization and they have a significant competitive advantage, so they can have the initiative of pricing setting, which benefits them more when dealing with the developing countries. This will inevitably lead to uneven distribution of benefits of economic globalization; wealth is increasingly concentrated to a small number of countries or interest groups. As a result, the gap between the developing and developed countries is exacerbating.

b) The economic globalization has increased economic instability in developing countries.

The financial globalization under economic globalization promotes economic growth in developing countries as well as brings the risk of financial and economic shocks. Firstly, due to the insufficient development of markets in developing countries, the economic structure is relatively fragile, more vulnerable to the impact of adverse external factors. The entry of transnational capital increases the speculative and risk of the financial markets. The most obvious example is the international financial crisis in

Southeast Asia happened at the end of the last century. It is estimated that the economic losses amount to more than \$ 100 billion, making these countries and regions in a severe recession. Secondly, the introduction of a large number of foreign investments in developing countries is likely to cause increasing domestic inflationary pressure, exchange rate risk and debt risk. The huge debt to be paid for Western countries has become a serious impediment to economic development in developing countries, which often leads to economic and social unrest.

c) Economic globalization in developing countries makes economic transformation full of changes.

In terms of scale, technology, and management, there is a larger gap between enterprises in developing countries and developed countries in the wave of economic globalization. Global competition results in a market in developing countries filled with multinational brands and products from the developed countries, while the self-development of the national industry in developing countries is inhibited, the smooth transition of the national economy cannot be realized. At the same time, developing countries have been controlled by the developed countries, so they have to rely on their cheap labor force to engage in some low-skill, low-value-added products, and always in the bottom of the global vertical division of labor, did not realize the optimization of the industrial structure.

d) Economic globalization has deepened the contradictions of ecological environment and sustainable development in the developing countries.

After decades of economic globalization movement, the new pattern of global economic division of labor has emerged: knowledge-intensive high-tech industries and services become the main direction of the developed countries, while resource-intensive, labor-intensive industries are basically transferred to developing countries. The majority of developing countries not only become suppliers of raw materials and primary products of the Western developed countries, but also become a more and more worldwide manufactured goods processing workshop. The most fundamental reason for the emergence of this new global economic division of labor lies in the relatively backward industry in developing countries. In order to participate in international competition, they have to endure the consumption of scarce natural resources and the destruction of national ecological environment, which lead to a serious impact on the

sustainable development of developing countries.

1.2 The Opportunities of Economic Globalization in Developing Countries

It is true that economic globalization is indeed a serious challenge to the developing countries, but it has also brought rare opportunities to developing countries. Only did they clearly recognize that can they get the chance to cope with the tide of economic globalization with a positive attitude, and then achieve a qualitative leap of the country's economic development.

a) Economic globalization is conducive for developing countries to fully introduce and make use of foreign economic.

Developed countries can take advantage of its capital and technology, constantly open up their markets to developing countries through the output and transfer of capital and technology. Developing countries can solve the problem of surplus labor force, by introducing the capital and technology of the developed countries to develop their economies. The entry of a large number of foreign investment can help solve problems of a serious shortage of capital encountered by developing countries in the process of economic construction; while the entry of multinational corporations has brought practical technology and advanced management experience, which can help developing countries to develop labor-intensive products with the advantages of the international division of labor and industry.

b) Economic globalization promotes the progress of science and technology in developing countries.

It can be seen clearly in the previous analysis that in the process of economic globalization, the most fundamental reason that developing countries has remained controlled by the developed countries, is the disadvantage in technology. In economic globalization conditions, developing countries can achieve scientific and technological research and development because of the worldwide modern science and technology innovation. Economic globalization has promoted the spread of science and technology in the world. Developing countries can import advanced science and technology they need, promoting national scientific and technological progress and economic development.

c) Economic globalization promotes the liberalization of trade and investment in developing countries.

Trade and investment liberalization is a powerful driver of economic globalization, investment liberalization has become the mainstream of the development of international investment, not only in developed countries, a growing number of developing countries are also taking active measures. On the one hand, a large number of foreign investments are introduced, on the other hand, actively engaged in overseas investment. The normative framework and the rules of the global investment began to take shape. Significant experience shows that the degree of openness of a country's economy is proportional to its GDP growth, so the developing countries should make full use of the opportunities of economic globalization, further promote national trade and investment liberalization, and actively explore the advanced development mode which is suitable for themselves.

d) Economic globalization promotes the progress of democracy in developing countries.

Economic globalization is not only making the global economy become increasingly interconnected overall, but also making the democratic and progressive ideas gain popularity worldwide. The increasingly developed information media network provides support technically, strengthening people's own power of choice, publicizing the status and value of people's awareness. In the tide of economic globalization, developing countries, whether in terms of social structure, values or lifestyle, have undergone great changes, people in developing countries pursue democratic progress unprecedentedly. They will pay more attention to their own political environment. People's political awareness and political participation have been greatly improved, they want to fully express their political demands, requiring more extensive participation in the management of the state and society, and these are no doubt a symbol of the country's democratic progress in developing countries.

2. THE CURRENT WORLD ECONOMIC SITUATION

The world economic structure refers to the status and role of the countries in the world economy as well as the formation of a relatively stable relation-

ship. The current world economic situation is quite complex, the relative strength of each country is undergoing a subtle change. The world economy is also quietly changing. Under this pattern, there are two major trends going hand in hand, economic globalization and regional economic integration. Under the two major trends, countries are trying to develop a variety of levels, and various forms of foreign economic relations. At the same time, the development of the world economy is facing problems and challenges, countries must unite as one together to achieve a balanced, healthy and rapid development.

2.1 The Basic Pattern of the World Economy

World "pole" --- the United States, European Union, Japan's GDP accounted for 70 percent of the world economy, but now each has their own problems. By the impact of the global financial crisis in 2008 and 2009, the sovereign debt crisis, economic growth slowdown in real economic malaise, the employment situation is grim, the sovereign debt crisis continues to spread to the depth. At the same time, a number of emerging markets and developing countries showed a rising trend, prominent bright spot, where we are concerned about is the BRIC countries --- Brazil, Russia, India, China and South Africa, the GDP of the five countries total amount accounts for about 20% of the world total, and these five countries no longer retreat. On March 29, 2012, the BRIC countries signed the "BRIC countries Bank cooperation mechanism multilateral local currency credit total agreement" and "multilateral letters of credit confirmation services Agreement", which means that there will be steadily expanded local currency settlement and lending business scale, bilateral trade and investment facilitation between the five countries. There is also a new national portfolio --- Diamond Max 11 countries, namely Mexico, Indonesia, Niger, Korea, Vietnam, Turkey, the Philippines, Egypt, Pakistan, Iran and Bangladesh, the economic potential of 11 emerging market is only less favorable than BRIC, Goldman Sachs predicted that Diamond Max 11 country's GDP in 2050 will be shoulder to shoulder with the United States.

Some experts said that the global economic growth centers are historically shifting from the West to the East, especially in such emerging economies as China, India, and Russia. The center of global trade will follow the transfer of this trend. Of course, the

emerging economies are also facing the problem of inflation, the too large income gap. The shifting of the economic center will be a long process.

2.2 The Trends of the World Economy

a) Trend I -----Economic Globalization

The process of economic globalization is the process of a market economy globalization. Economic globalization is bound to bring the original duality of the market economy to the world, that economic globalization is a double-edged sword. It can not only bring the equality, competition, the rule of law, openness of the market economy to the world, take advantages of various regions, and make the most of resources to maximize and configurate, but also take market economic disorder, blindness and risk to the world, such as the ecological environment of the developing countries, the destruction of economic globalization, the unequal income distribution between countries and so on. Economic globalization has never been a move towards the road of common prosperity of the world economy; on the contrary, the polarization of the world economy is growing during the past 30 years.

Objectively speaking, economic globalization is irreversible, because it is the result of a spontaneous market mechanism. Therefore, in order to adapt to the globalization of the economic zone, after lengthy negotiations, China joined the WTO on December 11, 2001, and it has formed a comprehensive foreign economic relations when participating in the process of economic globalization.

The direction of future work for economic globalization is to strengthen mediation and improve governance, for example, the G20 summit has replaced the G8 as the main forum for global economic cooperation, and in terms of the outcome of the meeting, it tends to transfer from the short-term countermeasures to long-term mechanism which aims to improve global economic governance. The voice of developing countries in international organizations is continuously improving at the same time. Of course global economic governance is a long-term process, it cannot be resolved immediately just to open several sessions. Countries, especially developing countries are sparing every effort to this direction.

b) Trend II -----Regional Economic Integration

The limitations of the WTO multilateral trading system itself lead to multilateral trade negotiations in recent years, often encounter setbacks and difficulties for economic reasons so that the world powers need to seek regional level political protection to contend with other regional groups, and thus making regional economic integration and economic globalization two parallel trend.

Currently, the regional economic integration has covered most of the countries and regions. According to World Bank statistics, only 12 island nations and countries around the world did not participate in any regional trade agreement (RTA). And one country tends to have multiple identities, and may be both a member of the WTO and a member of regional economic organizations.

Currently, China is working with 28 countries and regions in five continents for the construction of 15 free trade zones. The trade volume that these free trade zones achieve accounted for 25% of China's total trade volume, and it is proposed to increase to 30% in 2015. China has chosen the free trade zone as the main platform to participate in the world economy.

2.3 The Challenges Development of the World Economy is Facing

a) Challenge I -----Over-reliance on the U.S. Due to the economic hegemony of the United States, dollar's international reserve currency status, the global economic imbalance, even if the United States is the birthplace of the financial crisis, the impact of the United States is not the largest, on the contrary, Europe, other emerging markets and developing countries are all in a mess. With the deepening of the financial crisis, countries in the world have been profoundly aware that it is unsafe for the world economy to rely on the United States only. So from Latin America to the Middle East and the East, Asian countries with emerging economies are joining together to pull the "de-dollarization" campaign. For example, a complete flow path of the euro and the ruble was formed between Russia, the EU and Iran. In 2007, the Latin American countries, such as Venezuela, Uruguay, Ecuador, Bolivia and Paraguay funded the South Bank, aiming to provide more options to financing of Latin American countries.

b) Challenge II -----Over-development of the Virtual Economy

Before the crisis, the virtual economic value of America is five or six times the value of the real economy, at the same time, the total value of the global financial derivatives up to about 10 times the global GDP, the overflow are some of the major resources financial bubble and the capital market bubble. The bubble is bound to rupture in the end and those who have benefited from the foam before will definitely suffer from it.

After the outbreak of the financial crisis, countries are positively adjusting, for example, the Obama government proposed export revitalization plan to return to the real economy in the United States. The United States will focus on the development of new energy, infrastructure and basic sciences. It can be seen that the “re-industrialization” is not a temporary expedient to deal with the financial crisis, but a strategic restructuring. The United States is seeking a new high ground in the new round of economic structure adjustment.

China is also experiencing the virtual economy tendency. For example, the emergence of small and medium-sized businesses “bunk” event in the areas of Zhejiang, Jiangsu in recent years. The problem lies in the finance, but the root is the real economy. Real economic costs rose too fast, bosses do not want to do some real industries, thus entering the field of virtual economy. For this problem, China has actively adjusted to reduce the burden on small and medium enterprises, small and micro enterprises. On October 12, 2011, the State Council launched the “State of nine”; On October 25, the CBRC issued the “silver ten” as a supplement, aiming to provide fiscal and financial support.

c) Challenge III -----the Grim Situation of the Sustainable Development

Human beings are not only facing a financial crisis, but also facing the ecological crisis, and even a crisis of survival. Heavily dependent on natural resources, especially petroleum resource, has caused serious air pollution and varieties of frequent human diseases. In addition, the Earth continues to heat up. For human health and sustainable development of the Earth, this industrial expansion mode must be changed. Black industrialized expansion mode should be shifted to the green new industrialization expansion mode. Under this new mode, it is no longer over-reliance on natural resources, but to rely on technology, future

scientific and technological cooperation and technology trade will become the protagonist in the end.

In the green industrial expansion mode, there are two main future development direction of the structure. One is revaluation and re-use of traditional fossil energy sources, such as the development and utilization of natural gas. Natural gas is currently the only low-carbon fuel nuclear power comparable to electricity generation. Compared with traditional fossil energy such as coal and oil, the natural gas has not only the minimum negative impact on the environment, but also has a huge development potential. The other is the development and utilization of renewable energy, especially wind, solar, hydro, bio-energy and other non-nuclear renewable energy. Japan’s Fukushima nuclear spilt in 2011 following the Chernobyl nuclear incident in Russia, again to prove to the world that the use of nuclear energy is not 100 percent safe. Wind energy, solar energy is inexhaustible and renewable clean energy. According to the forecast of the U.S. Department of Energy in December 2010, to 2035, the proportion of renewable energy generation will increase from 18% in 2007 to 23%, most of which come from the Water and wind power.

WHY ARE THE BASEL III RULES LIKE TO FACE CHALLENGES IN THE IMPLEMENTATION PHASE? Suggestions to G20 leaders

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This paper will focus on a subject in the first pillar of the Russian presidency of the G20 which is strengthening financial regulation (G20, 2012). It will argue that the adequate regulations have been created by organizations such as the Basel III Committee and will come into force in January of 2013 but the implementation side of the process (a prerequisite of which is political will) creates a demand for stronger bank oversight. One of the lessons learned from the latest crisis is that this bank oversight should occur at both the domestic and international level but that such cooperation will face tough challenges.

As the word limit of this essay does not allow for it to possibly consider all types of financial regulation, the focus of it will be on banking supervision and the attempts which have been made to coordinate these between the countries in the G20. This is because a key commonality between previous financial crises and the global financial crisis which started in the United States in 2007 is that national authorities had not been given adequate supervisory adjustments after a period of financial liberalization or the adjustments had been poorly sequenced. This has created a scenario in which severe imbalances between maturities and currencies for example as well as credit risks have come about. These imbalances can have a major impact on the resilience of a financial system (Claessens et al. 2010, p. 6).

The structure of this paper is as follows: in the first section to follow this introduction, the problems with the current status quo in banking supervision will be outlined. In the second section, suggestions for these problems from the literature will be addressed. A section on the challenges to successful cooperation over implementation of reforms will precede the concluding part of the essay.

As mentioned above, financial institutions have often been able to practice business outside the framework of banking regulation in the formation of what is called a ‘shadow market’. This kind of market can quickly grow without the appropriate degree of oversight functions and can thereby cause a significant amount of systemic risk. Due to the interconnected nature of the global financial system, it can arguably be considered appropriate that regulators should cooperate at the international level in order to successfully monitor its resilience (Claessens et al. 2010, p. 7). For example, banks have avoided meeting capital requirements such as common equity and leverage ratios (Basel Committee, 2010, p. 2). This and other illicit activities create a system which is at times unstable and unable to serve its functions properly. Shadow markets are inherently connected to the banking industry and they can symbiotically provide capital to each other through loans and investments. However, this form of relationship can have a negative impact on markets as they can serve to exacerbate credit crunches and asset price bubbles as a lack of liquidity scares markets (Financial Stability Board, 2012, p. 20).

The chairman of the FSB, Mark Carney envisions that the shadow market as a part of a globally operating financial system being transformed from its current state as a source of potential vulnerability into a system which sustainably promotes competition and diversification of financial instruments. Policy recommendations by the Financial Stability Board (FSB) have been successful in their first steps of consolidating this process. The evidence given by the FSB indicates that countries which have undertaken their financial reform that increases the likelihood of financial stability have seen it have a positive impact on job and economic growth (Carney, 2012, pp. 1-2). This evidence bodes well and gives legitimacy to the FSB and the Basel Committee in terms of their policy recommendations.

The Basel III reforms are predicted to meet the demand created by the problems surrounding liquidity coverage ratios which will be implemented over a number of years. However the adequate supervision of these new regulations will be needed in order for them to be properly successful (Basel Committee, 2010, p. 3). Despite the fact that capital requirements, whilst requiring the bank to factor in the amount of downward risk which occurs when they invest their own capital, are not as effective as prudential regulation is without the supervision of a centralized regulator (Hellman et al, 2000, p.154). This is seen in that although the banking sector as a whole has until now seen a trend towards strengthening capital requirements (CET1) the retention of profits to meet the 2019 requirements will need to be even more extensive (Carney, 2012, p. 3). The implementation of these regulations is clearly of high importance.

As services in financial markets operate globally on a daily basis, regulatory authorities optimally conceptualize and operationalize regulation appropriately (Osborne, 2012, p. 43). In the United Kingdom, the Prudential Regulation Authority (PRA) is being created. It will be a subsidiary organization of the Bank of England and will come into force in early 2013. It is being created as a part of the British attempt to reform the regulatory framework in reaction to the financial crisis. Its mandate includes the supervision of UK based banks in addition to all banks with significant branches in the UK in order to promote the “safety and soundness of firms” (Bank of England, 2012). Its international role is to mainly replace the Financial Services Authority as a member of regulatory colleges and core colleges which are institutions set up to share information and monitor large multinational companies in their cross-border activities (Osborne, 2012, p. 46). This is institutional innovation and it reflects a need for a different kind of banking oversight.

The Finance Ministers of the G20 have called for new regulation which will successfully sustain their core financial markets and in OTC derivative markets. In response to this demand, the focus of the FSB will however be to make sure that new regulations such as the Basel II.5 and III reforms are implemented in as symmetrical a way as possible through various research projects including the new Coordination Framework for Implementation Monitoring (Carney, 2012, pp. 2-4). This will shift the focus

of the work of the FSB and of Basel to focusing on the implementation side of regulation. It should be noted that this FSB framework for research is quite comprehensive; it included their 24 member jurisdictions as well as Chile and the Euro area in their 2012 evaluation exercise which amounts to 90% of the world’s financial assets (FSB, 2012, p. 6).

The experiences of European governments in the Eurocrisis should be taken into note in this policy area. The European Commission is currently proposing a banking resolution, supervision and deposit insurance system. This is because the common European marketplace promotes the free movement of people, goods and services, something which applies heavily to the financial sector. This in tandem with the increased integration of monetary and economic integration in the Eurozone makes the formation of an institution mandated to reinforce system-wide regulations logical (Jones, 2012, p. 8). Trichet, in his 2011 article in the Financial Stability Review states that the strength of this European initiative (the European Systemic Risk Board) is purely built upon with the amount of institutions which it incorporates including national central banks, the Commission, the Council and a number of other bodies (Trichet, 2011, p. 147). His focus on solidarity and cooperation between national authorities is arguably dependent upon the political will to consolidate.

Whilst the demand for increased cooperation between central banks and central regulatory bodies exists, the problem with manifesting it is that of building a consensus amongst those countries which are willing to participate (Jones, 2012, p.9). This is the complicated area of international political will. For example, although amongst other international organizations a G20 and EU member, the UK government is firmly committed to a policy which makes sure that there is enough room for individual EU member states to flexibly make prudential decisions about financial stability including capital requirement standards and crisis management within European legislation (Osborne, 2012, p. 45). The UK has the third largest shadow banking economy in the world after the US and the entire Euro area (FSB, 2012, p. 10). From such a financially important player like the UK, this does not bode well for coordination in this capacity.

The impact of the Basel III reforms have different implications for developing and emerging countries as well, on which opinions vary. As financial stability can suffer from cross-border spillovers, it is vital that there is a strong dialogue between the authorities of national jurisdictions (Carney, 2012, p. 3). These spillovers can create at times global imbalances which need to be monitored by a network between central banks and other authorities in order to identify the warning signs and indicators of large-scale systemic risk (Trichet, 2011, p. 147). Developing countries after experiencing high capital inflows can have serious implications for volatility in foreign reserves. Because of this, the head of the Brazilian Central Bank argued that the implications of these spillovers were so serious that they should be avoided with legal incentives in strengthening international macro prudential banking supervision (Campos Meireiles, 2011, p.29).

Another problem in supervising the banking sector and especially the shadow market is that even if the new Basel III rules are able to govern the current financial instruments, it is likely that new parts of the shadow market will develop in order to evade the new regulations. This is likely as there is so much activity in the shadow sector that is subject to estimation. In the sub-sector of non-banking financial intermediaries, structured finance vehicles alone account for an estimated \$5 trillion of assets in 2012 but due to the varied forms of accounting and regulation across the jurisdictions, the FSB admits that more research is needed to fully grasp the extent to which this kind of financial activity behaves in a non-prudential manner (FSB, 2012, p. 16). The lack of credible information makes it difficult to assess best practices as well as policy recommendations.

In his speech at the Bank for International Settlements Conference on central bank cooperation, former General Manager of the BIS A.D. Crockett reflected on the observation that central bankers have historically preferred more low-profile ‘soft’ cooperation such as the regular exchange of views rather than more robust ‘hard’ cooperation. This is because central banks are considered to be unique to their country which makes benchmarking any cooperative measures difficult to evaluate. Regional cooperation, for example in Europe and Asia has been much easier to manifest as economic and financial stability tends to be regional. Time differences and similar levels of economic development help as well (BIS, 2006, pp.

8-9). Monitoring groups and cooperation are perhaps better suited towards taking place at a regional level than at a global level however it is not uncommon for institutions to be created at a regional level and then expanded to the global one.

Another issue is seen in the United States, the Basel III rules have created some problems for regulators. The banks themselves do not agree that what they portray to be one-size-fits-all policies on capital requirements are appropriate nor will they prevent the creation of another sub-prime mortgage crisis. Nearly 15,000 community bankers and allies have signed a petition against the new rules (Eavis, 2012). This adds another factor to the preventing the consolidation of financial reform like Basel III.

In conclusion, in order to strengthen financial regulation, the G20 needs to be realistic about what kind of central bank cooperation is likely to come about. It is clear that global economic interdependence is growing at a much faster rate than is the rate of cooperation (BIS, 2006, p.5). The two are not expected to increase at the same rate. However, the power of forums and tables of discussion in consolidating the softer cooperative developments should not be underestimated. Central bankers are not politicians; they cannot use public money like national leaders are able to in the same way. Strengthening financial regulation, although ideally should occur through colleges and organizations at the international level like the BIS, will continue to be dealt with at the national level. What these joint organizations can do is supply information and policy recommendations but they depend upon individual constituents for successful implementation.

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EFFECTIVE OPERATIONS MANAGEMENT IN RECESSIONARY PERIOD – DOING BETTER WITH LESS Engaging Faculty and Students at School & University to meet the needs of Industry

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Abstract: Operations Management (OM) is anticipated to become an increasing focus for leaders, executives, managers, and workers to tackle the issues of efficiency and effectiveness faced by organizations in the current climate of economic recession. OM is concerned with creating/producing goods or delivery services that meet the needs and expectations of end consumers. There has rarely been a time when OM was more topical or more at the heart of business than today in the period of recession. Effective OM facilitates organizations to improve their efficiency, promote creativity among employees, understand changes in the customer preferences, and thereby provide excellent customer service.

There has been a misconception in the academic world that OM as a topic is more relevant for faculty and students in the Business School or School of Engineering. In reality, we all need to be aware of the methods that can help us to do our job more effectively. It does not matter if we are studying or teaching subjects' such as life sciences, engineering, art and history, tourism and hospitality, marketing, sales, HR, or any other stream. I believe, any undergraduate student in the University should go through the basic principles of OM. Alternatively, we may need to introduce OM at one level below, i.e. at Schools. This could have significant impact not only on the students at School or University level but may also improve the Industry's operational efficiency and enhance customer satisfaction. If students are aware of tools and techniques of OM and get an opportunity to apply these principles through different forms of assessments in the University/School, it may help them to be a better worker/manager/leader when they join the industry. It may help industry to reduce their training costs on any Graduate and also address the issue faced due to limited operational capability of workers to improve efficiency and effectiveness of their operations.

Thus, my emphasis in the G20 Forum would be to influence government policies to bring about changes at University and School level to introduce OM for the benefits of the individual, industry, and society.

INTRODUCTION

Managing any business operations efficiently and effectively is the buzzword in the current climate of economic meltdown (Kumar and Antony, 2010). Every company, public / private sector or manufacturing / service or large organization / small businesses, is focused on doing better with less resources at their disposal. Situation is no different in the Higher Education Institutes (HEI), feeling constant pressure of funding cuts from the government on one hand and striving to maintain better quality standards to meet the expectations and demands of their customers, i.e. students. Resources are shrinking every year in HEI and you are expected to deliver more (in terms of teaching, research, and administration) than ever before. The mind boggling question for senior management team at HEIs is "How to do better with less resource?"

Operations Management (OM) is one of the tools at their disposal that will help them to efficiently and effectively run their institute with the existing resources at their disposal. Slack et al (2010) defines OM as "an activity of managing resources which produce and deliver products and services". Organizations have slowly started realising the benefits of OM as it gives an opportunity to improve both efficiency and customer services (Hill and Hill, 2011; Slack et al., 2010; Johnston and Clark, 2008). It deals with several aspects of changes that affect the business world – ever changing needs of the customer, changes in the supply chain network, changes in what, when, and where we want to work, changes in the perception of quality, changes in product and ser-

vice design and so on. There has rarely been a time when OM was more topical or more at the heart of business than today in the period of recession. Effective OM facilitates organizations to improve their efficiency, promote creativity among employees, understand changes in the customer preferences, and thereby provide excellent customer service.

However, there has been a misconception in the academic world that OM as a topic is relevant more for faculty and students in the Business School or School of Engineering (Goffin, 1998; Johnston and Clark, 2008). In reality, we all need to be aware of the methods that can help us to do our job more effectively. It does not matter if we are studying or teaching subjects' such as life sciences, engineering, art and history, tourism and hospitality, marketing, sales, HR, or any other stream. Wherever there is a process, inputs, and outputs, you can apply the principles of OM to improve the performance of any business process (Heizer and Render, 2008; Johnston and Clark, 2008). Due to this perception and dying of manufacturing industry in the UK led to decrease in size of students taking OM related course at the University level and also demand for OM faculty reduced significantly.

Operations are everywhere in the business functions and thus managing operations efficiently and effectively is key challenge for organizations. Anecdotal events clearly indicate that OM concepts are not only beneficial for operations manager but also to managers in all functions areas. OM has now become more effective in demonstrating its wider relevance (Goffin, 1998). This is the key focus of the paper, where I will emphasise on the need for teaching basics of OM to all students at the University and if possible to School pupils (ready to enter University or start a job after their School). The next section of the paper includes discussion on why introducing OM at the School and University level is important. The opinion presented is based on my experience and exposure to OM teaching in the last nine years.

OPERATIONS MANAGEMENT BEYOND BUSINESS SCHOOL

The basic operations management model, which includes input, process, and output may help school and college students to better understand the link between input and output and how any process is affected by those factors. Anything you do in real-life is

a process. It has list of activities, some inputs, tangible and intangible outputs. Then there is a measure to check if you have managed to do it correctly or not. Whether learning at University or School, coming to university everyday, doing an assignment- all involves activities, input, and output.

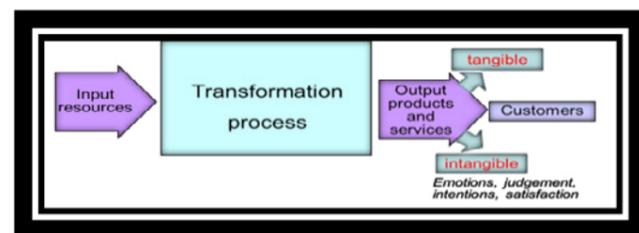


Figure 1: Basic Operations Management Model (Source: Slack et al., 2010)

For an example, if you are doing an assignment, you may need several things or information such as objective of the assignment, marking criteria, reading lists, books from library, information from internet, notebook or paper or laptop for writing. All these can be considered as input to the system. Now, every student has got its own process of writing the assignment, some may be referring to few sources than other to write the assignment. Each student will have their own ideas to pen down. Some student may jot down initial ideas, then search for material, and then start writing an assignment. Other students may start writing an assignment first and then slowly develop some ideas. This is what we call a process of doing a task. Within any operation, the mechanism that transform inputs into outputs are called processes. Processes are arrangements of resources that produces some mixture of goods and services. At the end you have an assignment ready, which will be assessed by a teacher or lecturer. You may pass or fail in the assignment, which is an output. Now the key questions is

- Why some students perform better than other?
- Do students have different approaches to do a task?
- How can we improve the overall performance of the class?

Answers to such questions may be provided by understanding the basic operations management model and studying the causal links between input, process, and output. By collating information from some good students approach to assignment, we may develop a process on how to produce a good as-

signment. Again, it does not mean, we are trying to jeopardise the creativity of students. *Within a defined process, how can you still be creative and innovative as well as continuously improve your performance – Toyota is classic example that follows a disciplined process and still manages to be creative at shop-floor level for continuous improvement of processes.*

Not understanding the process clearly and how it operates can create variation in the process- variation could be in the way you do an assignment, produce a product, treat your patient, or manage finances of people. Variation is an enemy to any process as it may affect the performance of a workplace (Slack et al., 2010). Understanding the reasons for variation and addressing the root-causes of variation is the key to success and long-term sustainability of performance. A classic example to understand variation is to ask students to count the number of squares in the figure 2 below within 20 seconds. You will get different answers, which may range from 16 to 29. It is such a simple problem, but you get a huge variation in the answer by school or MBA students- tested many times in my class. And when student ask about the right answer, I always say that you all are right because this is how you see and visualise this process. This happens in reality as well. When you work in an organization, we have got our own methods on how to approach a task or an activity.

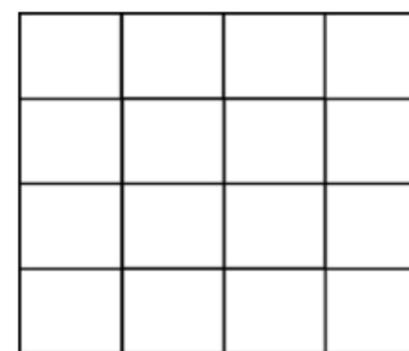


Figure 2: Understanding variation in counting number of squares

Due to variation in our approach, we may all approach the task differently with a similar or different outcome. This is not good for any business process- whether two doctors or nurses are treating the same type of disease in a patient in a different way, or call centre representatives giving different solution to the same problem. How do we minimize such variations in the processes? How to ensure that students or em-

ployees produce an output with minimum variation? *Better understanding of process, its design, how it works may help to reduce such variation in the process. OM has got many tools at its disposal for an effective process design and reduces variations in the processes.*

There are some very basic tools of continuous of continuous improvement (CI) that may help to reduce variations in the process, get things right first time, and understand the relationship between inputs and outputs. Here, I am referring to quality tools proposed by Prof. Kaoru Ishikawa (Ishikawa, 1990) that may resolve up to 80%-95% of quality related problems in any organizations, see figure 3. However, these tools are not introduced to all students at school or university level. There are only 3-4 universities in the UK that teaches Quality Management (an important element off OM) at the UG level. I have trained more than 500 people from industry on tools of CI and when I have asked the Operations Director, Quality Managers, Production Engineers, or Supervisors from manufacturing and service firms to list the seven basic CI tools – they have hardly managed to list 2-3 tools of CI. What chance we have to improve our efficiency and reduce operations costs if our managers are not aware of such basic tools that can help to better understand our processes, the relationships between different process parameters, and identify the root causes of issues faced by us in day-to-day activities? Understanding of basic tools of CI at School or University level may not only help students to improve their performance but will also have an impact when they start working in the industry.

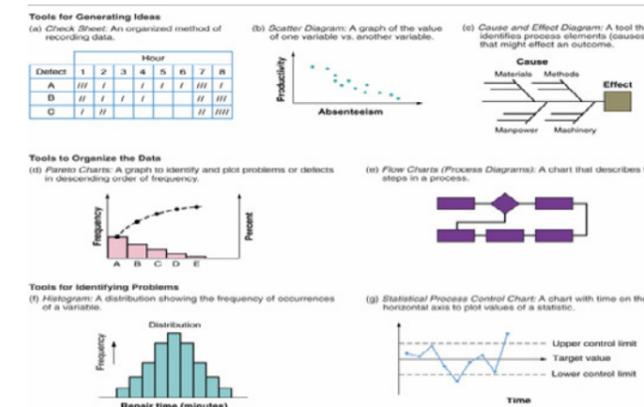


Figure 3: Basic tools of Continuous Improvement

If students are aware of tools and techniques of OM and get an opportunity to apply these principles through different forms of assessments in the University/School,

it may help them to be a better worker/manager/leader when they join the industry. It may help industry to reduce their training costs on any Graduate and also address the issue faced due to limited operational capability of workers to improve efficiency and effectiveness of their operations.

EFFICIENCY VERSUS EFFECTIVENESS

'Improving efficiency & effectiveness' is a sentiment shared by many service/ operations managers in organizations affected by global recession and economic meltdown. A noble pursuit, and yet despite researchers arguing that OM research has evolved significantly (Gustafsson, 2009; Metters and Marucheck, 2007; Johnston and Clark, 2008) since the start of 21st century; organisations' focus still remains primarily on productivity metrics, i.e. efficiency as opposed to effectiveness metrics such as quality. An illustration of the difference lies in whether the number of calls completed per hour (efficiency) in a call centre environment is the primary focus compared to whether those calls were resolved 'right' at first instance (effectiveness). As a result of such focus, call centres are still struggling to resolve the customer issues right at the first instance because of their focus by focusing on efficiency metrics, i.e. if they understand and resolve the customer issues at the first instance, the number of calls they receive every hour will drop and they will have to think creatively about improving their processes. There have been widespread reports of customers being unable to get through to an operator or waiting hours before getting a call back with the information they have requested. If you keep on working in a fire fighting mode every day and focus on just attending calls every hour, how you can resolve customer queries at first instance or be creative and innovative in your approach?

Another example is treating patient in the hospital environment. In spite patient-centred care being high priority on national agenda (Institute of Medicine, 2001), the current focus is still on improving efficiency and meeting the key performance targets (Davis et al., 2013; Pindler, 2013). This has resulted in shift in focus of organizational culture from patient-centred care and safety towards meeting individual/ward/hospital/Trust targets, i.e. organisational culture moving from 'patient focussed' to 'provider focussed'. Due to this shift in focus, one of the NHS Trusts in England was in news recently for compro-

missing patient safety and care. The Mid Staffordshire NHS Trust Foundation was in news recently due to the wrong reasons of costing lives of 1200 patients, needless deaths of 670 patients (which was preventable) and too much focus on achieving the targets by compromising patient care and safety (Borland et al., 2013). Again in the healthcare setting, clinicians are trained at university to be a good doctor, nurse, etc but hardly are they trained to be a good manager. In the healthcare, its not only important for clinicians to understand the technical side but also how to manage their existing resources effectively to provide a patient-centered care. *Any organization can only thrive if they focus both on efficiency and effectiveness (Hines et al., 2010), see figure 4. Understanding the balance between efficiency and effectiveness is the key to success in any organization.*

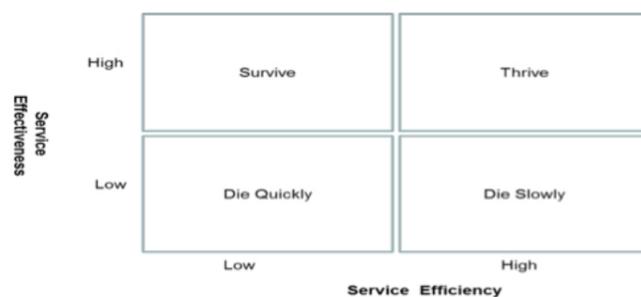


Figure 4: Status of Organizations on efficiency-effectiveness matrix (Source: Hines et al., 2008)

It is imperative to put the customer at the forefront (focusing on effectiveness) when thinking of improving a service. This aligns with the philosophy of OM and CI-understanding the voice of the customer.

CONCLUSION

Operations are everywhere and we come across it every day. How do we manage it effectively & efficiently is a key question? Do we have the required skill-set to understand and better manage any operations? The introduction of some of the basic concepts, tools, and models of Operations Management to all students at University level or School pupils, may be an answer to minimise the gaps in the existing skill-sets of employees working for different organizations. I am stressing on introducing OM concepts at School level as well because not every pupil go to University after finishing their schools. So it is important for us to better equip the school pupils with skill-sets required to work in industry. Some of the basic

concepts discussed above may help school and universities to produce pupils or graduates who are better equipped to manage their task and resolve mundane issues with ease. This will also help the western world to minimize their operational cost at work by getting things right first time. This will help them to compete against low-cost labour issues in South Asian countries and regain their competitive advantage. The support of bodies such as G20 is critical in operationalizing the proposed concepts at school and University level.

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TRANSNATIONAL CORPORATIONS TODAY: Need for social international accountability

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Globalised world of the XXI century is the world of rapid development and prosperity due to new technologies, free trade, integration of markets, interchanges of ideas and views. However, it is also a world that faces environmental problems (inter alia, climate change), poverty and hunger, mortal diseases, disrespect for the rights of humans etc. States, being main actors who bear responsibility to overcome these challenges and further current achievements, cannot anymore act independently. We all live now in what Marshall McLuhan once called 'global village'. States recognized back in 2000 that, in addition to the responsibility of each to their own societies, they 'have a collective responsibility to uphold the principles of human dignity, equality and equity at the global level'¹. 'Responsibility for managing worldwide economic and social development, as well as threats to international peace and security, must be shared among the nations of the world and should be exercised multilaterally. ... The United Nations must play the central role'². But are states the only duty bearers? Is it only for them to make this world be based on principles of freedom, equality, tolerance and respect for nature? The answer should be definite: no.

As was stated by Professor J. Sachs, 'There are no solutions to the problems of poverty, population, and environment without the active engagement of the private sector, especially the large multinational corporations'³. Transnational corporation (hereinafter – TNC) can be defined as 'an enterprise consisting of commercial entities in more than one state that are linked by ownership or otherwise'⁴. It usually exercises a uniform and cohesive policy aimed at furthering its economic interests⁵. Today TNCs, growing dynamically, affect the life of millions of people throughout the world. They have a direct impact on humans and environment,

on general economic, social and political situation in states where they carry out their activities. TNCs nowadays have as much (or sometimes even more) power as governments. The capital controlled by corporations amounts about one-fifth of the world's wealth⁶. Therefore, it turns out to be highly controversial to consider states only accountable for wins and losses in current international affairs, especially when it comes to respect and protection of human rights and environment.

Generally speaking, there is no definite view on the issue whether TNCs should do more than merely maximize their profits. On the one hand, traditional economists consider that business has to do business and nothing more. On the other hand, others believe that due to the high level of influence and power, TNCs should not harm and, moreover, advance social needs, including protection of human rights and environment⁷. The real aim of activities carried out by TNCs is still debated.

The issues to be considered in the current context are the following: do TNCs actually have legal social responsibilities? Who do they owe the duty of diligent behaviour? Are they obliged to respect, protect and promote human rights? Do they have responsibility to act in an environmental-friendly manner? Most countries specify obligations put on companies in relevant provisions of corporate law (e.g. rules on the establishment, structure, fiduciary duties), civil law (regulation of contracts, torts), administrative and criminal law (liability for violations of obligations put by relevant legal rules) and other soft law regulations (e.g. corporate governance codes, codes of conduct). Relevant provisions are also included into the Triple P legislation, namely, labour law (rights of employees, health and safety regulations, formation of trade unions etc.), consumers law

(right of consumers, consumers protection, product liability etc.), environmental law (principle of environmental protection, standards on emissions etc.), competition law (e.g. rules on fair competition). All these branches of law envisage relevant legal obligations that concern social responsibilities. For companies operating on the national level only the duties are clear and explicitly provided. But when it comes to TNCs we have a situation of, as was called by Joseph E. Stiglitz, 'a system of global governance without global government'⁸, meaning that international law norms are not automatically addressed to corporations. There is no supranational regime to regulate the corporations, meaning that there is a governance (accountability) gap which creates a permissive environment for unlawful acts of TNCs. Business enterprises move resources rapidly around the world and, thus, national governments can hardly know what TNCs are doing⁹. Being subject to many jurisdictions, TNCs escape full global regulation. One may argue that they still are subject to national law of the country where they are operating and this is indeed true. But what if this country lacks effective monitoring and enforcement mechanisms? What if it does not have enough resources to ensure that TNCs carry out their activities in accordance with their obligations under national law? This is often the case for the TNCs, operating in developing countries where laws in practice do not provide a realistic framework for the protection of local communities. In addition, governments do not want to confront with TNCs due to the risk of losing benefits associated with their foreign investments¹⁰. And this is exactly the situation where obligations under national law are not sufficient and where international regulation is seen as crucial.

TNCS AND HUMAN RIGHTS

It is generally acknowledged that TNCs are not subjects of international law, meaning that international law norms do not address directly TNCs and they are not responsible for their internationally wrongful acts. There is much fear expressed by scholars that if left without regulation, TNCs will

act solely for the purpose of earning profits without meeting social needs. They will 'opt for short-term profits at the expense of human dignity for many persons affected directly and indirectly by their practices'¹¹. In order to avoid responsibility TNCs usually maintain contractual relationship with individual suppliers who engage in human right abuses. This is particularly relevant for suppliers in developing countries, for instance, Bangladesh, El Salvador, China, Indonesia etc. Though TNCs do not directly commit violations of human rights, they are indirectly involved therein by taking advantages from such abuses. In particular, these are sweatshop practices exercised by suppliers of Nike, Gap, Puma, Reebok etc., where people work in unacceptably difficult and dangerous conditions, where child labour might be involved, where wage is below the minimum. And this all happens while human rights are guaranteed to every human being by the International Bill of Human Rights, relevant International Labour Organisation's conventions and declarations and other international instruments on human rights which, however, put relevant obligations on states, but not on corporations. Therefore, there must be countervailing power to make TNCs care about other stakeholders and not just see profit as the single aim of their operations.

TNCS AND ENVIRONMENT PROTECTION

In addition, rather often TNCs' actions harm environment. This is particularly relevant if talking about those corporations dealing with mine workings, development, extraction and transportation of mineral resources, production of chemicals etc. The consequences of Bhopal gas tragedy, Deepwater Horizon oil spill (Gulf of Mexico oil spill), Shell oil spills in Nigeria and other numerous accidents both for human health and for the environment are devastating. Meanwhile, again international law stipulates that only states are duty bearers and this is for them to care about the protection of the environment and, related to that, protection of human health (note that there are several exceptions when international law do address corporations directly, more information provided below).

1 GA Res 55/2, United Nations Millennium Declaration, 8 September 2000, para.

2 Ibid. Para. 6

3 Bryan Horrigan, Corporate Social Responsibility in the 21st Century: Debates, Models and Practices Across Government, Law and Business, Edward Elgar Publishing, 2010, p. 339

4 A Dictionary of Law, Oxford University Press, 2009, p. 557

5 Ibid

6 Mahmood Monshipouri, Claude E. Welch, Jr., Evan T. Kennedy, Multinational Corporations and the Ethics of Global Responsibility: Problems and Possibilities, Human Rights Quarterly, 2003, vol. 25, p. 971

7 David P. Forsythe, Human Rights in International Relations, Cambridge University Press, 2012, p. 282

8 Joseph E. Stiglitz, Globalism's Discontents. Access: <http://people.cas.sc.edu/coate/Readings/Stiglitz.pdf>

9 David P. Forsythe, Human Rights in International Relations, Cambridge University Press, 2012, p. 278

10 Isabella D. Bunn, Global Advocacy for Corporate Accountability: Transatlantic Perspectives from the NGO Community, American University International Law Review, Volume 19, Issue 4, Article 4, p. 1294

11 Mahmood Monshipouri, Claude E. Welch, Jr., Evan T. Kennedy, Multinational Corporations and the Ethics of Global Responsibility: Problems and Possibilities, Human Rights Quarterly, 2003, vol. 25, p. 975

Talking about TNCs engaged in the extraction of natural resources, especially in developing countries, their social record is rather poor, inter alia, due to their cosy relations with the government, controlling access to the resource. Together they share interest in complaint labour force. Meanwhile, governments of such countries are themselves often engaged in abuses and TNCs show little care about local population and environment. This is exactly the situations in which TNCs should be blamed for indirect abuses and their failure to speak out against state abuses.

So, are TNCs not restricted in their activities by international law? Are they free to abuse human rights and harm environment? Why should TNCs not have responsibility for the consequences of the accidents caused by their internationally wrongful acts to those numerous victims and environment?

SHOULD TNCs BE SUBJECT TO INTERNATIONAL LAW?

Although it is widely regarded that international law does not impose obligations on corporations, this consideration is not absolute. There already are international treaties (concerning the environmental issues) that apply directly to corporations. These are civil liability conventions where the principle 'the polluter pays' has been implemented. In accordance with the principle TNCs are legally responsible for the pollution of environment they cause and its consequences.

- 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy (amended by the Additional Protocol of 1964 and by the Protocol of 1982)¹² puts liability for damage to or loss of life of any person and any property (excluding nuclear installation itself) caused by a nuclear incident (Article 3). The 'operator' is defined by Article 1(a)(iv) as 'the person designated or recognised by the competent public authority as the operator of that installation', therefore, it includes legal persons such as TNCs.

- 1969 International Convention on Civil Liability for Oil Pollution Damage (last amended in 2000)¹³ applies to corporations as provided in Ar-

¹² OECD Nuclear Energy Agency. Convention on Third Party Liability in the Field of Nuclear Energy of 29th July 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982. Access: http://www.oecd-nea.org/law/nlparis_conv.html (Accessed 20.03.2013)

¹³ International Maritime Organisation. International Convention on Civil Liability for Oil Pollution Damage (CLC). Access: [http://www.imo.org/About/Conventions/listofconventions/pages/international-convention-on-civil-liability-for-oil-pollution-damage-\(clc\).aspx](http://www.imo.org/About/Conventions/listofconventions/pages/international-convention-on-civil-liability-for-oil-pollution-damage-(clc).aspx) (Accessed 20.03.2013)

Article I.3 ("Owner" means the person or persons registered as the owner of the ship or, in the absence of registration, the person or persons owning the ship'; 'person' is defined as 'any individual or partnership or any public or private body, whether corporate or not ...', Article I.2). Corporation, owner of the ship, should be liable for any pollution damage caused by oil as a result of an accident (Article III.1).

- 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (with 1999 Protocol on Liability and Compensation)¹⁴ puts strict liability on persons for damage until the disposer has taken possession of the hazardous wastes and other wastes (Article 4 of the Protocol). 'Person' within the meaning of the Convention includes legal persons (Article 2.14).

In addition, there is other category of treaties that do not speak of direct obligations of corporations, but nevertheless TNCs need to follow them when engaging in particular activities. For instance, 1973 International Convention for the Prevention of Pollution from Ships¹⁵ envisages very specific standards for the construction, design and equipment of oil tankers for builders, owners and operators of oil tankers to take account of¹⁶. The drafters of these treaties considered corporations to be such important players that in order to achieve the treaties' objectives they had to be addressed directly, in addition to states¹⁷. Thus, international law puts direct obligations on corporations, tough in specific cases.

In general, however, there is a void in the international regulation of TNCs and their behaviour with

[www.imo.org/About/Conventions/listofconventions/pages/international-convention-on-civil-liability-for-oil-pollution-damage-\(clc\).aspx](http://www.imo.org/About/Conventions/listofconventions/pages/international-convention-on-civil-liability-for-oil-pollution-damage-(clc).aspx) (Accessed 20.03.2013)

¹⁴ UNEP. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and Their Disposal. Access: <http://www.basel.int/Portals/4/Basel%20Convention/docs/text/BaselConventionText-e.pdf> (Accessed: 20.03.2013)

¹⁵ International Maritime Organisation. International Convention for the Prevention of Pollution from Ships. Access: [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx) (accessed 20.03.2013)

¹⁶ D. Bodansky, J. Brunnee, E. Hey (eds.), The Oxford Handbook of International Environmental Law, Chapter "Business" by S. Ratner, Oxford University Press, p. 814

¹⁷ Menno T. Kamminga, Corporate Obligations under International Law, 71st conference of the International Law Association in Berlin on 17 August 2004, access: <http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CDAQFjAA&url=http%3A%2F%2Fwww2.ohchr.org%2Fenglish%2Fissues%2Fglobalization%2Fbusiness%2Fdocs%2Fkamminga.doc&ei=RXxjUYWrl6qaOQXY64HIDQ&usq=AFQjCNGI00GYtkmNmI7DVUcFb7hcOe0dig&bvm=bv.44011176,d.d2k> (accessed 20.03.2013)

respect to meeting social needs¹⁸. Understanding of the need for international law to impose obligations on corporations and to fill this void can be derived from various attempts to put obligations on TNCs. The most famous examples are 2003 Norms on the Responsibilities of TNCs and Other Business Enterprises with Regards to Human Rights¹⁹ and 1982 Draft UN Code of Conduct on TNCs²⁰. Other efforts concern mainly voluntary initiatives (more information further provided). Corporations themselves these days understand that besides maximizing their profits, they have to respect and protect environment and human rights. Many TNCs are nowadays adopting their own codes of conduct where they oblige themselves to be socially responsible. These codes are usually based on the main strategy of corporate social responsibility, known as Triple P: People, Planet, Profit²¹. Due to active actions of NGOs and media, corporations realise that when bad abusive conduct is revealed, the consequences are crushing (they face not only material damages, but also reputational ones due to negative publicity, consumers boycotts etc.). The drawback of such codes of conduct is merely that they are the form of self-regulation (individual or collective). Therefore, they, as a general rule, do not constitute any legal obligations and for their breach a corporation may very rarely be held legally liable²². Therefore, adoption of international standards of socially responsible conduct for

¹⁸ Rebecca M.M. Wallace, Olga Martin-Ortega, UN Norms: a First Step to Universal Regulation of Transnational Corporations' Responsibilities for Human Rights?, Dublin University Law Journal, Volume 26, p. 305

¹⁹ E/CN.4/Sub.2/2003/12/Rev.2, 26 August 2003 (Norms on the Responsibilities of TNCs and Other Business Enterprises with Regards to Human Rights)

²⁰ Draft United Nations Code of Conduct on Transnational Corporations. Access: <http://unctad.org/sections/dite/ia/docs/Compendium/en/13%20volume%201.pdf> (accessed 20.03.2013)

²¹ Fanous examples include Code of Business Conduct of Dutch Multinational Royal DSM (Access: <http://www.dsm.com/corporate/about/corporate-governance/code-of-business-conduct.html>); Global Code of Conduct of Samsung Electronics (Access: http://www.samsung.com/us/aboutsamsung/ir/corporategovernance/globalcodeofconduct/downloads/SAMSUNG_globalcode_of_conduct.pdf); Nokia Code of Conduct (Access: http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&cad=rja&ved=0CCQFjAA&url=http%3A%2F%2Fdl.nokia.com%2Fnewcom%2Fcodeofconduct%2Fbrochure%2FCODE%2520ENGLISH_www.pdf&ei=yPdIUazqHtSX0AWy74GACg&usq=AFQjCNGE3_IStMTyGxD0TYXXH6i9IvP3w&bvm=bv.44011176,d.d2k (all sources accessed 20.03.2013)

²² Note Kasky v. Nike case where the main issue was about legal liability for misrepresentation in CSR reports; also principles stipulated in corporations' codes of conduct sometimes enter the area of contractual relations, meaning that they put relevant provisions (e.g. for respect of human rights) to their contracts or direct references to the code of conducts is made in the contract which than may be legally enforced; US Sarbanes-Oxley Act (also known in the House as 'Corporate and Auditing Accountability and Responsibility Act') that obliges corporations to be transparent and adopt code of ethics for Board members and staff (15 USC, Sec. 7211(g)(3), including senior financial officers (15 USC, Sec. 7264), access: <http://uscode.house.gov/download/pls/15C98.txt> (accessed 20.03.2013)

TNCs is an important task which needs to be 'backed up by effective sanctions to motivate corporation to take such standards seriously by defecting and preventing misconduct throughout their global operations'²³.

VOLUNTARY INITIATIVES AIMED AT HOLDING TNCs LIABLE FOR INTERNATIONAL MISCONDUCT

International community has already taken important steps on the way of making corporations responsible for their actions. In the field of human rights, the very first attempt dates back to 1948 when the Universal Declaration of Human Rights was adopted. Its Preamble states that 'every individual and every organ of society ... shall strive ... to promote respect for rights and freedoms [proclaimed in the Declaration] ... to secure their universal and effective recognition and observance'. According to Louis Henkins, the expression 'every organ of society' should be understood to include TNCs. Being rather broad, such interpretation has gained support from the UN and Amnesty International, although it lacks international recognition²⁴.

Recent achievements in the present context were taken by various international organisations. Their initiatives are widely recognised and implemented, but still they do not impose legally binding obligations on corporations. They fall within the category of either self-regulation (e.g. Global Reporting Initiative, UN Global Compact, Kimberley process) or soft law (e.g. OECD Guidelines for Multinational Enterprises, the International Labour Organisation Tripartite declaration of principles concerning multinational enterprises). One of the most important achievements is the Report of the Special Representative of the Secretary General on the issue of human rights and transnational corporation and other business enterprises, John Ruggie, named 'Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and Remedy' Framework'²⁵. These principles do not cre-

²³ Mahmood Monshipouri, Claude E. Welch, Jr., Evan T. Kennedy, Multinational Corporations and the Ethics of Global Responsibility: Problems and Possibilities, Human Rights Quarterly, 2003, vol. 25, p. 983

²⁴ Saulius Katuoka, Monika Dailidaitė, Responsibilities of Transnational Corporations for Human Rights Violations: Deficiencies of International Legal Background and Solutions Offered by National and Regional Legal Tools, JURISPRUDENCE, 2012, 19(4), p. 1304

²⁵ A/HRC/17/31, 21 March 2011 (Report of the Special Representative of the Secretary-General on the issue of human rights and transnational corporations and other business enterprises, John Ruggie. Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework)

ate new international legal obligations but elaborate existing standards and practices both for states and business. Of particular importance in the context of TNCs is the concept of due diligence which implies that corporations commit themselves to respect human rights; to identify, prevent, mitigate and account for how they address their impacts on human rights; and to enable effective remediation of any adverse human rights impact²⁶. Nevertheless, being important achievements, all these initiatives are of a voluntary nature and lack monitoring and enforcement mechanisms.

FORUM TO CHALLENGE TNCs FOR INTERNATIONALLY WRONGFUL ACTS

In addition, as there are (almost) no legal obligations for TNCs under international law, there is no court or tribunal up to date which would have jurisdiction over corporations for their serious offences. An attempt thereof was made in 1998 when the Rome Conference came close to provide the International Criminal Court (hereinafter – ICC) with the jurisdiction to try both natural and legal persons for the offences listed in the Statute of the ICC. However, in the end the proposal failed²⁷.

International law, entailing obligations in the areas of human rights and environment protection, is implemented by states into their national law which puts responsibilities of corporations. Thus, the misconduct of TNCs can be challenged in national courts. Mainly, these are civil lawsuits brought by victims of corporate abuse. However, victims usually face different legal hurdles which make them reluctant to seek justice (main obstacles include the search of the competent court, problem of choosing applicable law, imputability of corporations as well as lack of legal knowledge and experience and costs to engage in the proceedings). In addition, such wrongful acts of TNCs are often conducted in developing countries that lack effective enforcement mechanisms and

states themselves are reluctant to challenge TNCs in order not to lose their investments.

It is important to mention the 1789 Alien Tort Claims Act (ATCA) in the present context. ATCA makes it possible to bring a civil claim to US courts against ‘an alien for a tort only, committed in violation of the law of nations or a Treaty of the United States’ (28 USC §1350). ‘It is clear that courts must interpret international law not as it was in 1789, but as it has evolved and exists among the nations of the world today’ and therefore law of nations includes contemporary international law on human rights (Filártiga v. Peña-Irala, 1980)²⁸. However, only customary international law is recognized as covered by ATCA (Sosa v. Alvarez-Machain, 2004)²⁹. ATCA was considered to be applicable to corporations by the US federal district court in Los Angeles (Doe v. Unocal, 1997)³⁰. However, this was the decision of the district and not Supreme Court.

The most important and the most recent relevant case in the current context, Esther Kiobel et. al. v. Royal Dutch Petroleum Co. et. al., is currently pending in the Supreme Court of the US. Decision delivered by the Court of Appeal states that ATCA does not apply to corporations since corporations are not subject to customary international law. Therefore, the decision of the Supreme Court will be crucial and will answer the question whether ATCA is applicable to corporations and whether it has extraterritorial effect³¹.

TNCs AND DEVELOPING COUNTRIES: RACE-TO-THE-BOTTOM PROBLEM

Also another problem with the TNCs is that they often influence the host state, demanding for low labour and environment standards³². Since TNCs

²⁸ Filartiga v. Peña-Irala, Court of Appeals (2nd Circuit), 30 June 1980

²⁹ Sosa v. Alvarez-Machain et. al., Supreme Court of the United States, June 29, 2004

³⁰ John Doe I, et. al. v. Unocal Corp., et al, United States District Court for the Central District of California, March 25, 1997

³¹ In previous cases considered under ATCA there was some link to the US, however, in the Kiobel v. Shell case the claim was brought by Nigerian nationals against Dutch and British corporations accusing them of allegedly helping the Nigerian military and police officers to commit human rights violations (torture, killings, crimes against humanity and arbitrary arrest and detention) in Nigeria. Therefore hardly any link to the US can be seen. If extraterritorial effect will be recognized by the Supreme Court, that will mean ATCA is applicable to situations where no link to US is available.

³² Menno T. Kamminga, Corporate Obligations under International Law, 71st conference of the International Law Association in Berlin on 17 August 2004, access: <http://www.google.com/url?sa=t&rc=j&q=&esr c=s&frm=1&source=web&cd=1&ved=0CDAQFjAA&url=http%3A%2F%2Fwww2.ohchr.org%2Fenglish%2Fissues%2Fglobalization%2Fbusiness%2Fdocs%2Fkamminga.doc&ei=RXxJUYWrL6qa0QXY64HIDQ&usg=AFQjCNGI00GYtkmNm17DVUcFb7hcOe0dig&bvm=bv.44011176,d.d2k> (accessed 20.03.2013)

²⁶ Guiding Principles on Business and Human Rights: Implementing the United Nations ‘Protect, Respect and Remedy’ Framework’, principles 11 – 15

²⁷ Menno T. Kamminga, Corporate Obligations under International Law, 71st conference of the International Law Association in Berlin on 17 August 2004, access: <http://www.google.com/url?sa=t&rc=j&q=&esr c=s&frm=1&source=web&cd=1&ved=0CDAQFjAA&url=http%3A%2F%2Fwww2.ohchr.org%2Fenglish%2Fissues%2Fglobalization%2Fbusiness%2Fdocs%2Fkamminga.doc&ei=RXxJUYWrL6qa0QXY64HIDQ&usg=AFQjCNGI00GYtkmNm17DVUcFb7hcOe0dig&bvm=bv.44011176,d.d2k> (accessed 20.03.2013)

bring large capitals in developing countries, the latter are interested in creating such conditions that would attract corporations and encourage them to enter their market. In such conditions a situation occurs when a host state is unable or unwilling to hold companies to reasonable minimum standards. This leads to the race-to-the-bottom, when host states lower their taxes, labour and environment standards. The problem is the absence of the internationally recognised minimum standards for states under which they cannot go lowering all burdens for TNCs.

In addition, even when there are appropriate standards in the national law, developing countries may lack resources for their effective implementation and enforcement. This will lead to the situation, when TNCs will merely disregard such standards.

FUTURE DEVELOPMENTS ON THE WAY TO HOLD TNCs LIABLE FOR INTERNATIONAL MISCONDUCT

Thus, what we have today is (1) the governance gap, meaning that no international law obligations are imposed on TNCs and no monitoring mechanism of TNCs’ activities is available; (2) there is no forum to challenge TNCs’ actions breaching international law³³; (3) there is a problem of race-to the bottom between developing countries competing for creating more attractive conditions for TNCs. Therefore, decisive actions are needed to be taken by international community.

In general, the problem of governance and accountability gap can be resolved in three ways: (1) by means of civil lawsuits brought by victims of TNCs’ abuses (bottom up approach)³⁴; (2) by developing multi-stakeholder initiatives (intermediate approach)³⁵ and (3) by international regulation (top down approach)³⁶. First option faces obstacles

³³ When international law is implemented into national law, corporations can be sued in national courts. However, most accidents and violations occur in developing countries with low standards and where ineffective enforcement mechanisms and high level of bribery are in place. Thus, victims cannot count on fair justice and judgment’s enforcement

³⁴ E.g. Kimberley Process (access: <http://www.kimberleyprocess.com/>), Extractive Industries Transparency Initiative (access: <http://eiti.org/>), accessed 20.03.2013

³⁵ This approach, however, is not an action taken by international community

³⁶ Menno Kamminga, Legal Remedies against corporate abuses, Lecture on Corporate Social Responsibility, Maastricht University

and is not of high level of effectiveness in practice (reasons thereof provided above in Part ‘Forum to challenge TNCs for internationally wrongful acts’). Intermediate approach faces the problem of legitimacy³⁷. Self-regulation and soft laws are inadequate to ensure corporate responsibility (mainly, they do not impose legal obligations and any enforcement is available, however, there are some exceptions as provided in footnote 22). Therefore, a comprehensive international treaty aimed at directly addressing corporations is highly required. It should:

- determine what a TNC is to avoid any ambiguity as to what legal entities fall within its scope³⁸;
- envisage obligations in the areas of human rights and environment protection imposed on TNCs and sanctions to be used in case of TNCs’ misconduct;
- cover all types of corporate abuses, namely, direct and indirect (e.g. abuses in the supply chain) and failing to speak out against state abuses³⁹.

The purpose of such an instrument would be to supplement and not replace the obligation of states⁴⁰. It is likely that developing countries will not be willing to sign and ratify such kind of a treaty since it will prevent them from a possibility to provide the standards below minimum aimed at attracting TNCs. Therefore, the treaty should cover the parent companies of the State-Party and its subsidiaries acting in other states (irrelevant of whether these other states are parties to the treaty or not). Thus, the principle of foreign direct liability should be integrated. This will encourage the parents to be aware and exercise effective control of what their subsidiaries are doing. Meanwhile, the race-to-the-bottom will be prevented as corporations themselves will not wish to act under

³⁷ Initiatives at issue are usually established by few stakeholders. Who should then decide who falls within the scope of the scheme? For instance, if a corporation does not want to become part of the Kimberley Process, this does not mean that it will be excluded from the trade in diamonds

³⁸ Here all existing definition of TNCs (provided in Draft United Nations Code of Conduct on Transnational Corporations, 2011 OECD Guidelines on MNEs, national corporate laws) should be examined and further developed and elaborated in one comprehensive definition

³⁹ Covering indirect abuses will help to overcome the problem of complicity-based abuses. Such abuses take place today when corporation fuel the violation of human rights conducted by host states by means of bringing its capitals to the country. Such types of abuses were determined by Menno Kamminga (Legal Remedies against corporate abuses, Lecture on Corporate Social Responsibility, Maastricht University)

⁴⁰ It should be intended to ensure protection of human rights in cases where states failed to act, thereby widening the scope of applicability of international human rights law by including situations where corporations have de facto greater influence than states. The same was the intention of the drafter of well-known 2003 Norms. Pini Pavel Miretski, Sascha-Dominik Bachmann, The UN Norms on the Responsibility of Transnational Corporations and Other Business Enterprises with Regard to Human Rights: A Requiem, Deakin Law Review, Volume 17, No.1, p. 20

standards below minimum for the fear of sanctions.

Such a treaty should be based on previous attempts in the area of holding corporations liable. This includes both soft law and self-regulations mechanisms and other instruments such as, for instance, 2003 Norms on the Responsibility of TNCs and Other Business Enterprises with Regards to Human Rights or 1972 Code of Conduct for TNCs of the International Chamber of Commerce. Thus, the idea should be to summon up, further elaborate and make legally binding and enforceable standards that already exist.

In order to secure that TNCs obey the treaty, a monitoring mechanism should be established. It can be a specialised agency within the UN framework with the power to monitor the activities of TNCs and impose sanctions in case of breach of their obligations. It would be useful to grant an observer status to NGOs and enable them submit evidence and the results of their own researches on allegedly illegal actions of TNCs.

Such an agency should also have the authority to act as a tribunal to adjudicate corporate wrongdoing, consider claims submitted by affected persons. Therefore, international law should be used to bind corporations and lobby for an instrument analogous to the Rome Statute of the ICC that will impose international law directly on corporations through an international adjudicative body⁴¹. Currently many victims are reluctant to sue parents or subsidiaries of TNCs because of the main hurdles, being the competent court, applicable law and imputability. Such a tribunal should overcome these problems by having jurisdiction over corporations and setting out clear rules. It should also provide a system of legal aid to victims and ensuring their access to it at no or relatively low costs (to avoid the problem of lack of resources of victims). It is important to grant NGOs a possibility to submit amicus curiae briefs, providing relevant information on TNC and evidence of its misconduct.

The world's 200 largest TNCs are incorporated in just ten states, including the USA, Japan, the UK,

⁴¹ David Kinley, Justine Nolan and Natalie Zerial, 'The Norms are dead! Long live the Norms!' The politics behind the UN Human Rights Norms for corporations In *The New Corporate Accountability*, Doreen McBarnet, Aurora Voiculescu and Tom Campbell (eds), Cambridge University Press, 2007, p. 469

Germany, France etc.⁴², which means that if those ten states can reach an agreement on encouraging TNCs to act diligently and with respect to human rights and environment protection and on imposing liability for wrongdoing on TNCs, it could greatly affect the situation on a global scale⁴³.

CONCLUSION

TNCs have become important actors of international relations. Their cumulative capitals are commensurable with aggregate largest world economies. Nowadays they have the same (or sometimes even a higher) level of influence as do national governments. However, while states bear responsibility for their illegal actions under international law, TNCs remain free due to the absence of any supranational regulation of them. Governance (accountability gap) results in the absence of liability of TNCs for their internationally wrongful acts. International law generally does not directly impose obligations on corporations (with some exceptional cases). Self-regulation and soft law mechanisms have proved to be inadequate to ensure the protection of environment and human rights by TNCs. Therefore, new international legally binding mechanism, involving effective monitoring and enforcement procedures, is highly needed.

⁴² Sarah Anderson and John Cavanagh, Top 200: The Rise of Global Corporate Power, Global Policy Forum, Access: <http://www.globalpolicy.org/component/content/article/221/47211.html>

⁴³ It may happen that because of binding obligations in these developed states corporations may wish to move their seats to developing countries. And this is where it appears important to introduce minimum standards for developing countries to prevent race-to-the-bottom

SOME ASPECTS OF SUSTAINABILITY DEVELOPMENT AND EFFECTIVE USAGE OF OLYMPIC LEGACY AFTER XXII OLYMPIC WINTER GAMES AND XI PARALYMPIC WINTER GAMES 2014

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Abstract: On the eve of the XXII Olympic Winter Games and the XI Paralympics Winter Games of 2014 in Sochi, the problem of observance of the principles sustainable development and effective usage of the Olympic Legacy is extremely urgent and requires innovative approaches and innovative solutions.

The article describes the notion, direction and purpose of the current sustainability management system, the impact of sustainability management system on the formation of Sochi as comprehensive tourist destination, consider an example of successful implementation of the principles of sustainable development and effective usage of Olympic legacy in one of the pilot projects of Olympic infrastructure.

Keywords: XXII Olympic Winter Games and the XI Paralympics Winter Games of 2014 in Sochi, sustainable development, sustainability management system, an Olympic Legacy, Legacy of the 2014Games.

INTRODUCTION

After the Games, and conclusion of the activity the Organizing Committee begins an important new stage - Legacy of the Games. At this phase, all the economic, social and environmental changes brought about by the Games are fully revealed and manifested. As practice shows, the impact of the Games becomes fully apparent only 3-5 years after the conclusion of the Games, while some long-term effects can be seen only after 10 years or more. As previous experience shows, the Games have a significant impact on various aspects of the future development of the host city, region and country of the Games.

For the next ten years Russia will step in embodiment of the unique opportunity: to use to accelerate the development some victories in the struggle for the right to host several global events.

The country will host the Universiade-2013 in Kazan, the Winter Olympic Games - 2014 in Sochi and soccer World Cup - 2018. Their hosting can be considered as a breakthrough in the field of sports, but this series of global events in a much more broad sense leads to new opportunities for economic development, infrastructure, social projects, allows to realize the potential of the human capital of the country.

But only with proper planning and the successful hosting they will allow ensuring the long-term development of the host cities, to present them at a new level and enhance its international prestige, thereby making a substantial contribution to the overall economic growth of the state. Such a long-term perspective is possible only if existence of a common strategy in the framework of the principles of sustainable development.

DATA AND METHODS

The main data for writing the article were come from the materials specified in the references. Also has benefited scientific conferences and seminars materials. To solve the problems raised in the article were used modern methods of scientific research: a systems approach, monographic, and structural and functional methods.

In 1987, the United Nations released the Brundtland Report, which included what is now one of the most widely recognised definitions: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." [1]

In international practice, the concept of sustainable development is applied at the organization of sports events of various levels and scale, including national and domestic competitions and world championships. The practice of implementation of sustain-

able development initiatives in the organization of the competition is becoming increasingly common, and takes into account economic, social, cultural and environmental factors. [2]

Russian conditions and the current model of state governance open up real opportunities to use an integrated, systemic approach to managing sustainability activities in the organisation and staging the Games. Taking sustainability principles into account when implementing the major national project is significant not only for the Games and the formation of their legacy, but is also a valuable experience for the entire country.

In terms of formalizing and organising activity, The Sochi 2014 Organizing Committee has developed a Sustainability Management System (SMS)

SMS is a results-oriented system that sets objectives and ensures an integrated approach to their achievement together with key interested parties, and calls for transparent performance reporting for both internal and external audiences. SMS was developed in accordance with international standards and covers all stages of the Plan – Act – Analyse - Improve cycle; it is designed to combine accumulated experience and cutting-edge achievements.

The main stages of functioning of the SMS include systems of planning, project management, performance assessment and monitoring activities, reporting which, if necessary, ensure adjustment activities and measures for improvement (Fig.1)

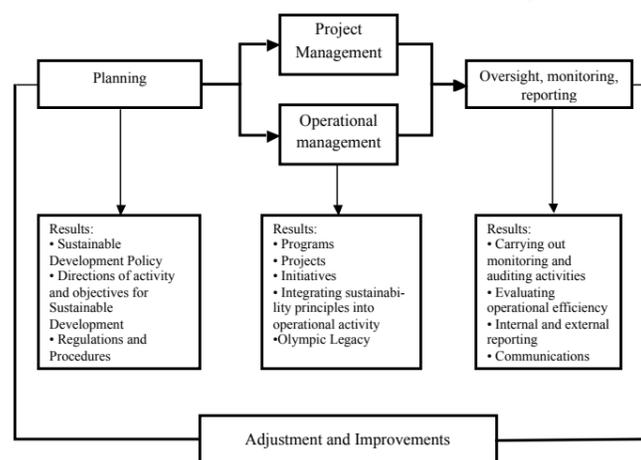


Fig. 1: SMS functioning scheme

The SMS life cycle is closely linked to the overall life cycle of the Games organising and staging process. In other words, it is expected that the performance objectives will be achieved in 2014. At the same time, given the importance of creating the Sochi 2014 Legacy, work must be carried out after 2014 as well.

The development of SMS began with an analysis of the bid obligations, and IOC, IPC and regulatory requirements, and an analysis of the expectations and main interests of interested parties.

The goals of SMS are aimed at comprehensive use of the Games' transformational potential and opportunities to create long term positive social, environmental and economic change at the regional and national levels, as well as efforts to foster the effective use of the Sochi 2014 Legacy. [4]

Key interested parties were identified, and their current practices and expectations were analysed in terms of the organisation, staging and creation of a lasting positive Sochi 2014 Legacy. [3] Based on this analysis, and taking into account the concept for the long-term social and economic development of Russia up to 2020, six basic sustainability priorities areas and goals were identified:

1. Healthy Living- promoting mass - and professional sports, and a healthy lifestyle, developing professional sports medicine, improving the accessibility and quality of medical services at mass public events, and ensuring the health and safety of workers and participants in mass public events

2. Harmony with Nature - rolling out a comprehensive approach to natural resource management and environmental protection, adhering to the principle of Zero Waste Games, staging the Games with a minimal carbon impact as well as biodiversity conservation and promotion of environmentally responsible behavior

3. Barrier Free World - ensuring universal access to the Games and the involvement of youth, local and national communities and people with a disability in the preparations for the Games, forming a unique positive experience and atmosphere for Games guests and participants, creating equal opportunities for the participation of diverse social groups in the Games, and ensuring the recruitment, hiring, engagement and development of employees and vol-

unteers from diverse social backgrounds [6]

4. Economic Prosperity - promoting sustainable economic and labour market development at the local and regional levels, and promoting the development of Sochi as an Alpine resort and international sports centre

5. Modern Technologies - applying of advanced and innovative technological solutions, developing a legal and regulatory framework, promoting high technology and intellectual services, improving current approaches and practices for managing major, nationally significant projects, establishing a centre for promoting best practices in sports and mass public events.

6. Culture and National Values - developing a sense of national pride and unifying the peoples of Russia through sport, developing a volunteer movement, promoting cultural diversity, and preserving cultural heritage

SMS includes long-term goals in three interrelated areas, the society, economy and environment, as well as the tools necessary for achieving these goals.

- forming of Sustainability Policy, determination of priorities and goals
- successful realization of tactical plans, functional operation plans, venue plans, specialized programmes and projects
- oversight, monitoring and adjustments
- the effective use of the Sochi 2014 Legacy

Examples of projects and activities in the field of sustainability in the preparation and hosting the Games are represented by opening of the Russian International Olympic University, the discovery of 26 volunteer centers, the development of "green building" standards, a program of procurement of the Organizing Committee "Sochi 2014" in accordance with the principles of sustainable development, a program of activities of The Sochi 2014 Cultural Olympiad. Many of these initiatives have already been implemented or are being implemented in close cooperation with stakeholders. [5]

SMS in the development of an integrated destination of Sochi could become a reference point for creating year-round world-class resort after the 2014

Olympic Games. The development of the Olympic infrastructure will allow to neutralize factor of seasonal prevalence in the city by creating of two mutually counterbalancing clusters - coastal and mountain.

Coastal cluster - which has traditionally been a place of beach and spa tourism with a peak of occupancy from May to October.

The most promising direction in the development of the coastal cluster will be a sightseeing and cultural tourism, aiming to familiarize tourists with the Olympic Legacy.

There is no doubt that in accordance with the concept of usage Olympic Legacy program, the Olympic Park will be one of the largest and most modern centers of business activity and the venue for international exhibitions, conferences, sporting events, owing to the multifunctional buildings and venues, hotels and infrastructure, which will remain in use as a Legacy of the Games.

Mountain cluster - through the development of infrastructure and sports venues in preparation to the Games, Krasnaya Polyana from underdeveloped mountain resort, which is represented by the separate hotel complexes and three ski lifts and three ski slopes areas, would evolve into comprehensive resort destination which is similar in structure to the famous Alpine ski resorts and can create to them in the future worthy competition.

On a background of the rapid development of some major hotel complexes in Krasnaya Polyana and creating opportunity of high class accommodation and modern conference rooms, destination will also be ready to accept large business and official events that will enhance the popularity and attractiveness of the resort in the low season.

The comprehensive development of the coastal and mountain clusters will create in the city of Sochi two peaks of seasonal resort occupancy due to even distribution of tourist traffic - from May to October in the coastal cluster with a focus on beach and spa tourism, and from December to April in the mountain cluster with a focus at the ski tourism. In the period of low and "death" season it's critically necessary to intensify the work aimed at the attracting in the city the maximum share of MICE - tourists segment.

According to statistical data of the Administration of Sochi already today we can observe a small winter occupancy peak of the resort through the season of skiing and there is every reason to believe that in the following years the off-season in the whole city will be very short.

An integral part of the concept of sustainable development is the post-Olympic usage of the Sochi 2014 Legacy - sports venues, transport and hotel infrastructure.

Owing to the Games in the city are creating pilot projects which are focus on approbation the latest techniques and approaches to ensure the development and functioning city of Sochi as year-round alpine resort.

One of these pilot projects aimed to the development of the Mountain Cluster is the mountain tourist center "Gazprom" and the infrastructure adjacent to them. This is one of most dynamically developing tourist centers with established traditions and management system.

Mountain tourist center "Gazprom", 5-star hotel complex Grand Hotel Polyana, combined Biathlon and Ski Complex are represent altogether essentially autonomous tourist destination, fully adhering to the principles of sustainable development.

Constantly developing infrastructure of tourist center provides new jobs in the region and currently headcount is more than 3000 employees with a stable, high wages.

It should be noted that none of the categories of staff during the low season is not dispatched on leave without pay, which certainly allows to maintain the high qualification personnel, to use the potential of each employee to the maximum extent, to maintain loyalty to the company and the pursuit of professional growth.

The issue of personnel shortage in the high season is solved by partial outsourcing and trough the close cooperation with c Moscow State University of Technologies and Management (MSUTM) and Sochi State University (SSU), whose students regularly to pass an internship at Grand Hotel Polyana, thereby forming the capacity of HR base of hotel

complex for the future.

Owing to the principles of sustainable development at the stage of designing of the hotel complex, was laid down infrastructural base, allowing to compete with coastal cluster hotels during low season and off-season and allowing it to achieve a stable occupancy for the entire calendar year. In this direction have been taken two types of strategic and organizational decisions.

The first part was aimed to attract individual tourists through the development and promotion of SPA services. On the territory of Grand Hotel Polyana were constructed two indoor and two outdoor pools, one of which is built in compliance with the Olympic standards. This allows attracting additional guests in the summer season and largely neutralizing the competitive advantage of hotel complexes located on the coast and offers a beach rest.

Availability of 50-meter Olympic-standard swimming pool allowed to use of "Grand Hotel Polyana" as a base for domestic and international competitions in swimming and synchronized swimming for several years in a row, which certainly increases the prestige and recognizability of the hotel complex as a whole.

Another very important direction abided during the process of the designing was the orientation of a hotel complex on one of the most profitable and fastest growing sectors of the global tourism - MICE industry.

"Grand Hotel Polyana" has 12 conference halls equipped with all modern facilities and a team of professionals who able to implement large-scale projects of international scope.

Over the past several years in the hotel complex in addition to the ordinary large MICE events were held such significant projects as:

1. Finish ceremony of Silk Way Rally 2010
2. Finish ceremony of Silk Way Rally 2011
3. IOC Official Debriefing of the Vancouver 2010 Games in Sochi
4. World Press Briefing Sochi 2014
5. The 6th edition of the Peace and Sport International Forum in Sochi
6. International Olympic Committee's Coordination Commission (CoCom 5-8) and etc.

These events were carried out at the appropriate

level, which indicates the willingness of the complex to enter the international market and the existence of sufficient experience in the field of MICE, which was accumulated over five years of trial and error and exploring the advanced technologies in the field of business travel.

The development this direction of activity can not only raise awareness of the "Grand Hotel Polyana" in particular, but also promotes the recognition of the Mountain Cluster of Sochi as a center of business activity in southern Russia. This, in turn, will allow in the future partially neutralize the seasonal character of the business in the whole city and to compensate insufficient occupancy of Coastal Cluster in winter season and the Mountain Cluster in summer.

Above mentioned actions which implemented on sustainability principles has find evidence of its effectiveness in an annual increase of profitability of the hotel. To evaluate the results and prospects of the hotel, we will analyze the structure of occupancy of "Grand Hotel Polyana" for the last two years (Tab 1)

Table 1: Dynamic of hotel occupancy 2011 - 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2012	4194	3633	1791	1155	1078	2456	1125	1556	1274	1267	873	1728	22130,0
2011	2532	2365	1621	921	614	1586	928	967	854	1088	652	1265	15393,0
% of increase	65,6	53,6	10,5	25,4	75,6	54,9	21,2	60,9	49,2	16,5	33,9	36,6	43,8

Occupancy of "Grand Hotel Polyana has a clearly pronounced seasonal pattern, different from coastal cluster hotels. The peak season is in winter period, so-called "death season" we can indicate from late March to mid-May, the "high" season are the summer months, "low" - the period from October through December. For greater visibility let present data in a graphical form (Fig. 2):

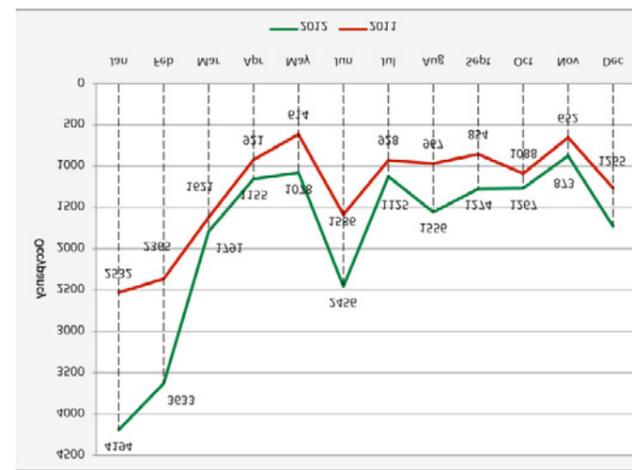


Fig. 2 Comparative graph of hotel occupancy 2011 - 2012

On both we can observe the tendency of proportionate occupancy on all considered time periods, which is explained by the hotel policy for maintaining the stability of the complex as a whole.

Over the past two years in the "Grand Hotel Polyana" was changed the structure of demand. Observed an equivalent increase in the business and professional travel, tours to rest, leisure and recreation.

For a more complete understanding of the structure of income of the hotel complex and planning development strategy, it is important to have a clear understanding of proportions of individual tourists, visitors in organized tourist groups and business clients coming from tour operators and travel agents in the total sales of hotel services. A more detailed breakdown of revenue by segment is shown in Table 2

Table 2: Segmentation of hotel revenue 2011 - 2012

Segment type	Room night's	nmb of tourists		Total revenue (RUR)	%
		adult	kids		
2011					
INDIVIDUAL	7116	4536	835	128 156 218	46,23
MICE	5739	3354		103 357 017	37,28
TRAVEL AGENCIES	2538	2991	366	45 708 331	16,49
2012					
INDIVIDUAL	10739	5987	1025	177 118 589	48,53
MICE	8672	4321		143 027 508	39,19
TRAVEL AGENCIES	2719	3215	423	44 844 533	12,29
Total 2011	15393	10881	1201	277 221 565	100%
Total 2012	22130	13523	1448	364 990 630	100%

Total revenue of "Grand Hotel Polyana" in 2011 amounted to about 277,221,565 rubles, in 2012 this figure increased to 364,990,630 rubles, or about 31.6%, which means the great dynamics of development of hotel complex.

It can be argued that the MTC "Gazprom" is a prime example of effective usage of the created Olympic Legacy not only after, but also before the Games. Owing to the strategic potential of the complex, designed with the principles of sustainable development, all the infrastructure confidently go to self-sufficiency and bringing income.

MTC "Gazprom" will not become a "white elephant" – hotel complex already found his consumer and will only grow. It is a successful example of how the right approach to work for intensification of marketing efforts and diversification of tourist products brings tangible benefits.

Tendency to increase of occupancy and profitability, of course, will be kept also after the Games, which will allow to use the Olympic Legacy maximum efficiently and to comprehensively develop it in the future.

CONCLUSION

Implementation of the Olympic megaproject will provide to the city a unique opportunity which is measured not only by hundreds of billions of rubles of investments, but also the energy of thousands best managers of the country and the world, aimed at solving the task of the development of Sochi and decent preparation for the Olympic Games.

For the first time in many years the urban infrastructure is updated, creating venues which meet the international quality standards, from scratch is constructed a new city on 70 thousand people, increased the level of service and the quality of staff in establishments of the city. Obviously, the scope of the requirements and expectations of the International Olympic Committee, to be met by host city, set new standards for Russia urbanism, where the city's infrastructure comprehensively evaluated in terms of comfort of living.

But there is serious risk that the potential generated by the Olympic mega-project, will be excessive for the city, and it will cause the shortage of the existing internal resources of the urban environment for the

harmonious integration of the Olympic Legacy in development trajectory of Sochi. In that case created modern infrastructure and the Olympic venues that meet international quality standards, can become the unused "white elephants" and will produce a significant burden on the annual budgets of all levels.

Therefore today is extremely important to give full attention to detailed elaboration of the Sustainability Management System and the program of Olympic legacy usage for the years ahead in order to avoid similar negative effect of the Games.

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THE MENTOR APPROACH TO SOCIAL SUSTAINABLE DEVELOPMENT

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Abstract: Arguably, any societal construct, which has ever hoped to be successful on even the short term, has had to provide a comprehensive strategy for sustainable improvement of quality of life of its citizens, so-called sustainable development.

The Brundtland commission defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The needs of future generations will always be a result of the lives and values of their predecessors. We can always try to predict what areas of knowledge will be crucial in the future, but will never know for sure.

Looking back, values that has been passed on has resulted in technological and scientific development being the main driver for western societies. The social sustainable development has been lacking, which has led to social unrest.

As a result from the Agenda 21 Earth Summit, the idea of Education for Sustainable Development (ESD) emerged, a mindset on how to educate future generations in how to live in a rapidly changing world. ESD holds content and practice equally important. In this sense, the interplay between the three deciders of sustainable development, ecology, economy and social aspects, is in focus.

In this paper the concept of mentorship is introduced as a means to create local space for discussion and reflection on sustainable social development. The concept is understood in context of the Zone of Proximal Development (ZPD), introduced and developed by Lev Vygotsky and others. Thus, mentorship becomes a means for implementing ESD.

INTRODUCTION

The concept of sustainable development is a social construct and takes shape as a tripod; a three legged phenomenon. Ecological, economical as well as

social aspects needs to be taken into account when we discuss a sustainable future, and when one of the aspects are favoured or neglected, it affects the other two aspects as well. As Colantonio(2009) states, the emphasis in sustainable development has shifted during the past 30 years. In the 80's, the environmental dimension was dominating over social and economic aspects. The 90's were characterised by economic and ecological factors being equally important whereas the social factors were still being overlooked. Colantonio poses a hope for the future, for the tripod to be in balance.

One of the most used definitions of sustainable development is the Brundtland commissions: "*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*"

When educating the new generations, values are passed on, the new generation learns how to survive in a society created by the teaching, previous generation. Though, the teaching generation does not know what the future holds. Today we talk about the polar caps melting and what ecology our grandchildren will grow up in. We talk about the economic bubble in the US. We talk about the revolutions in the Middle East. Maybe we have enough knowledge to make a plan for sustainable development, or maybe a grand master plan is too much to ask for. Different times calls for different focus, and it is always those in that place and that time that are to try and make the best decision possible. Space shuttles, computers, micro-loans, Facebook and antibiotics have already been invented. Who knows what the next generations will come up with? And how do we educate them without limiting their creativity and strive for a better world?

After the Earth Summit in Rio 1992, education was identified as an important means to create sustainable development. The field Education for Sustainable Development (ESD) emerged, a mindset on how to educate future generations in relating to a

rapidly changing world, both in terms of technology and values. When it comes to the view of man, ESD states that people should be seen as agents of change rather than a problem (Tilbury, 2011).

Experiences from The non-profit organization Intize (see Appendix) in Göteborg, Sweden has led to the idea of mentorship being a means for ESD. Mentorship can be a bridge for curriculum knowledge but also between individuals from different socio-economical groups, races, religions, disciplines and professions. The pedagogic core of mentorship is based on the social constructivist view on learning, and its perks are well described by Lev Vygotskys concept "Zone of Proximal Development" (ZPD) (Glick, 2011); what a child can perform with the help of another, more skilled, person. Intize provides mentorship in mathematics, but turns out to bring about a change in attitude towards the university as an institution as well as an interplay and even friendships between students from different disciplines, ages and backgrounds.

This paper looks in to why and how the social dimension of the sustainable development-tripod can be strengthened through a mentor approach.

1. SOCIAL SUSTAINABLE DEVELOPMENT

1.1 Why social sustainable development?

Colantonio states that the social dimension of sustainable development has been under-prioritised during the past 30 years. Simultaneously, the meaning of social sustainability has changed in itself. The change is illustrated in Table 1.

Table 1: Colantonios (2009) comparison between traditional and emerging views on sustainable development

Traditional	Emerging
Basic needs, including Housing	Demographic change (ageing & international migration)
Education and skills	Empowerment, Participation and Access
Equity	Identity, Sense of Place and Culture
Employment	Health and Safety
Human rights	Social mixing and cohesion
Poverty	Social Capital
Social justice	Well being, Happiness and Quality of life

Whereas the traditional view is rather technical, the emerging view demonstrates softer values, that

are more difficult to measure and proves that what makes us feel good as humans is much more complex than the amount of money in our pocket.

Durkheim states that a society can not survive without some kind of solidarity (Hermann, S., 2004). One obstacle is however the "division of work", where each of us has a speciality of our own when it comes to, e.g., profession. The integrity of each individual is built around this guild formation, and identities are defined through differences, not similarities. If sustainable development really should be described as a tripod, collaboration between economic, ecological and social actors should be the key to a society with knowledge integration. That collaboration is not necessarily easily accomplished, when meeting over disciplinary boundaries, one part will always be more of a specialist in certain areas, and the other inferior in this respect, a master-apprentice relationship of sorts. According to Durkheim, the inequality of any master-apprentice will lead to conflict rather than cooperation. It's not only enough to put people together to cooperate – both parties need to see the purpose of the collaboration (Hermann, S., 2004).

1.2 Identity as a factor of social sustainable development

The only way that collaboration over "boundaries" can be successful, is if the individual has had the option to choose freely what to do in life, according to Durkheim (Hermann, S., 2004).

In Sweden today, we are moving towards a society with focus on the individual, but can we really choose freely? Swedish gymnasium merits specialising in languages or mathematics – a specialist focus is preferred over a broader "allmeingebildung" approach. If some choices are more rewarded than others, we do not have a completely free choice. In a Durkheimian approach, this means we will not be able to cooperate successfully over disciplines, which is necessary for the work for a sustainable future. But is it possible for a society to offer a completely free choice? Is it up to the government? Or are societies depending on grass root movements or intermediary organisations to fill the gaps?

Sustainable development is a broad field about relating to the future, and it requires knowledge about the interplay of ecological and technological advancement, human needs and the social aspects

of what keeps a society together. This all boils down to people working together towards a common goal. We identify ourselves with what we do, as Durkheim says. Any community that strives for sustainability would want their citizens to identify with and be loyal to that community and fellow citizens. One way to organise this transfer of values is through educational systems, as with sustainable development.

2. EDUCATION FOR SUSTAINABLE DEVELOPMENT - ESD

2.1 What apparatus is the educational system – and what do we want it to be?

Today academicians all over the world align their curricula and we see an increasing importance of global standards such as TIMSS and PISA. We rank countries and have an international competition based on these criteria. But what knowledge is it really that we encourage through this? When introducing standards, a position is taken regarding what valuable knowledge is. When reproducing these values, might there be something that we are missing? Education for sustainable development takes another approach.

"Learning' for ESD refers to what has been learnt and is learned by those engaged in ESD, including learners, facilitators, coordinators as well as funders. Often learning is interpreted as the gaining of knowledge, values and theories related to sustainable development but, as this review indicates, that ESD learning also refers to: learning to ask critical questions; learning to clarify one's own values; learning to envision more positive and sustainable futures; learning to think systemically; learning to respond through applied learning; and, learning to explore the dialectic between tradition and innovation" (Tilbury, 2011)

The Tilbury report defines learning in the ESD context is not something restricted to the traditional learners, the students, but also facilitators, coordinators and funders. In order to achieve the goals on the learners' curricula, course managers and learning facilities need to be clear on their own values and priorities. Tilbury also states that the issues of sustainable development has led to several thematic educations such as e.g. peace, environmental and global education. However, what these all have in common is a shift in educational view, from learning being considered as passing on knowledge to understanding problems, encouraging values clarification rather

than teaching what values should be held. The core view on people is that we are agents of change instead of seeing us as the problem, and that participatory learning is a key factor.

2.2 Freires critical pedagogy

"In order to follow me it is essential not to follow me!" Freire, (Kirylo 2011, p.121).

The unifying theory of Freire's is the incompleteness in it; a mix of theories and practices that is necessary in order to be critical. Freires critical pedagogy is a response to the undemocratic conditions in northern Brazil in the 1900's. Critical pedagogy "a never ending process that involves struggle and pain but also hope and joy shaped and maintained by a humanizing pedagogy" (Kirylo, 2011, p.215). In practice, critical pedagogy poses all the difficult questions; why do we know what we know, how can we know that it is so and why is certain knowledge more accepted than other forms of knowledge.

In critical pedagogy, knowledge is negotiable, not reestablished. *"Critical pedagogy takes language form the radical – radicals must do."* (Kirylo, 2011, p.215)

2.3 Education for sustainable development should be critical

Defining sustainable development has proved difficult, and no solution that equally satisfies social, economical and ecological aspects has yet been implemented. One way to approach SD is to start with the Bruntland definition and what sustainable development is not. Sustainable development could be differentiated from sustainability. That something is sustainable implies something static, and we can only know what will endure under present circumstances. Sustainable development, however, has inherent the uncertainty of the future. A sustainable development is something that takes uncertainty into account. Perhaps there cannot and should not be one ultimate solution. Citizens of the world need to be prepared for a world in constant change, where the reality of our children will not be the same as ours.

As Zinchenko said – *"consciousness creates consciousness"* (Gonzales Rey, 2011, p.36).

3. THE MENTOR APPROACH

3.1 The formal mentor

Durkheim describes the human being as both individual and social being. This perspective works well with the Vygotskian concept of ZPD. Every individual has his or her own ZPD in relation with others. The other, the "more skilled person", can be a friend, teacher, parent. These might have interests in what values and lessons are passed on to the learner, like parents envisioning a certain career for their children or the teacher trying to impose her own ideology on the learner. Here, a mentor can take a different role. Intize (see Appendix), shows how mentorship can be differentiated from coaching. Coaching comes from the word coach, a wagon driven by horses that took travellers from point A to point B. Coaching in modern terms is a method for personal development, where one person is supported to achieve his or her goals. A coach is like a consultant; appointed to solve a problem. In contrast to this, the mentor is more of a travelling companion, the facilitator of a meeting. A mentor is the one to set the agenda but then draws back to take the role of the active listener, and together with the mentee discovering more of the landscape of the topic at hand. The role of the mentor is not to judge, only to broaden the perspective, to ask questions about dimensions that might otherwise become overlooked. Here mentorship becomes a cultural tool to introduce the mentee to a new setting; may it be a new workplace, country or area of knowledge. The mentor is, when it comes to the subject of mentoring, the more experienced one, but can also be the one to bring the question without the agenda of directly providing an answer. But the mentor cannot be a mentor without the mentee. Hence, the mentee teaches the mentor how to mentor just by being there, and in that way, the mentee expands the ZPD of the mentor.

As mentee you can be a person who is very interested and in search for new ways to be intellectually stimulated as well as someone struggling with and in need of guidance. A crucial criterion is that the mentee takes part of the mentorship voluntarily (Intize, 2012).

Both mentor and mentee develops skills in asking critical questions, explaining current understanding and clarifying the obvious.

3.2 The mentor approach

Assigning a mentor for every person in each transition stage in life, for every possible question is neither a realistic or wanted action. Yet, the mentor approach can be used as a cultural tool for self reflection and empowerment. Since the mentor-mentee relationship is based on taking consideration to the prior knowledge of the mentee, not until you have an idea of the understanding of the learner can you lead on. The mentor's goal is not to grade, assess or in any other way formally value the knowledge of the mentee. The relationship is and should be based on the mentor providing tools for questioning and also, together in dialogue, finding new ones with the mentee. This mindset is something that can be implemented in any instance in society, an openness and willingness to finding new solutions.

The Swedish free school system provides another example of why voluntary mentorship could have a societal value. In Sweden, parents can choose which school their children will attend. This means that going to school does no longer ensure that children with e.g. different socioeconomical background meet. Mentorship can fill a function of not only expanding curriculum based ZPDs but also social ones. It provides an approach and a language for facing problems and tackling motivational ups and downs due to other factors than whether a hobby or a school subject is fun or not. It gives an example of how people can meet and agree to disagree and to be curious of one another. The mentorship approach encourages curiosity and mutual learning, the mentor and mentee creates a mutual understanding and together state what rules and behaviour is accepted and sought for in the mentor-mentee relationship. Mentorship can hence be used to override socially constructed boundaries.

Who should or could be the organiser of mentorship? A mentor is not necessarily active within the public sector, but could be an actor in a what Durkheim (Hermann, 2011) calls a corpse intermédiaire; an intermediary organisation, somewhere between the government and the civil society. There are several intermediary organisations that has an impact on education today. In the US, the Gates foundation is financing education (Lipman, pp100-119), in order to secure the competencies of the workforce of tomorrow. In Sweden the Chamber of Commerce is

working with lobbying regarding educational politics, in order to ensure that Swedish companies will be able to find the competencies they need. The non-profit organization Intize (see Appendix) provides mentorship in mathematics, free of charge, envisioning a more equal society.

4. SUMMARY AND CONCLUSION

The traditional view of social sustainability is somewhat bureaucratic and technical in how it is formulated, the aspects are easily measured but at the same time, people are reduced to statistics. As the meaning has shifted into this emerging view, social sustainability today is defined in terms of softer values, much more difficult to measure but making it easier to remember that social sustainability is about human beings and our quality of life.

Critical pedagogy – no point in reproducing, better to take uncertainties for granted and behave thereafter. The mentor approach is to be an active listener, and as it is based on voluntariness, those seeking themselves to mentorship are connecting learning to their identity. Those taking part in mentorship, regardless of whether they are mentors or the mentees, can bring with them a mindset in which it is encouraged to ask and to meet people from different contexts.

Demographic change is one dimension of the emerging view of social sustainability, something occurring on a daily basis due to the social unrest in the world, but also because of education, identity and coincidence. To be an immigrant means entering a new sociocultural environment where unfamiliar codes and behaviours need to be decoded. It means development. Immigrants develop as they enter a new country. However, as the world changes, technologically, politically, socially and ecologically, a person does not always have to move in order to find herself in a new environment. And even when meeting to find ways towards sustainable development, a not so unlikely scenario could be a biologist, economist and a sociologist to meet. Each of them introduces the others to a new context and their perspective on sustainable development.

The mentor approach can be used in schools as a pedagogic tool, but from a Freirean perspective I see advantages with a society where mentors are organ-

ised as a corpse intermédiaire as well, hence encouraging individuals to find alternative ways to learning and meeting others from different contexts.

But can there be risks with an attitude that asks too many questions? An inherent issue of sustainable development is the balance of diversity and conformity. This results in a tug-o-war since when educating for sustainable development, work methods should be democratic. That means we will be allowed and encouraged to think differently, and coming to a conclusion might take time. But if we diverge too much from each other, can we ever move forward, towards a sustainable future? Or is it through the divergence that tendencies cancel each other out and we just end up with either nothing or a golden middle path?

Mentorship is just one approach, and different approaches are appropriate during different circumstances. Crisis might require a firm hand and immediate action/reaction. However, if the aim is a more equal world that takes care of people as well as the environment, many different perspectives can and should be taken into consideration.

Irregardless of whether we are discussing environmental or economic actions, human beings are the ones to carry them through. Social sustainable development is therefore a prerequisite for a sustainable development over all. Mentorship can be a means to create interpersonal, intercultural and interdisciplinary understanding, and to once more quote Zinchenko; "consciousness creates consciousness". And even more important, to quote Freire: "To follow me, it's essential not to follow me!"

What do you think?

Appendix: Intize mentorship in mathematics

The non-profit organization Intize has been providing mentorship in mathematics for pupils ages 13-19 since 2005. The mentors are university students that volunteer to meet once a week with pupils taking math classes in the Swedish gymnasium and higher elementary school. The mentorship is free of charge for the pupils.

Intize has about 90 active mentors in Göteborg and Trollhättan, and 300 mentees travel About 90 mentors in Göteborg and Trollhättan. 300 mentees

travel to university campuses every week to meet with their mentors.

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COUNTERACTING THE LACK OF TRUST IN GLOBAL BUSINESS: Creating Economic and Social Value with Stakeholders

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Abstract: Year after year we are reminded of how badly business organizations are seen in large parts of the world. For example, in survey done by the research firm Edelman in 2012, less than 30% of the French informed public trusted business organizations and their leaders to do "what is right". With the exception of some excellent examples, the low trust and legitimacy of business is a problem that prevails throughout the G20 members and most countries where the trust level is measured. With the general critique towards large corporations in society, and with the recurring corporate scandals and reports of executive greed, this is perhaps not surprising. But the implications of this problem are important not only in the societal debate, but for how these organizations function. Trust is connected with engagement, which in turn is connected to performance in what we can call the trust-engagement-performance cycle. Hence, in the general case, a low level of trust is connected with low performance both in terms of people's engagement and the financial performance of corporations. In a study with 20 CEOs of large transnational corporations selected out of their ability to create both financial and social value (we call them "Higher Ambition"-companies), we try to understand their strategies for increasing trust with stakeholders in the markets that they are active in, engagement among their employees and external partners, and thereby performance. In doing so, the leaders of these corporations have to deal with a larger set of dilemmas and paradoxical choices that arise from the global complex nature of the transnational corporation as well as the double sided nature of their ambition to create economic as well as social value. Hence, instead of focusing on what global corporations do badly (which is the common way of analyzing the issue), we try to understand what they do well. The paper outlines the challenges, the resulting dilemmas/paradoxes, the strategies for handling them and discusses the implications for global business.

BACKGROUND

The confidence in American business has gone down since the early 1970's has gone down dramatically during the last decades (www.gallup.com). The trust in Western business in general has been continuously very low during the last decade (Edelman, 2011, 2012)¹. For example, as Figure 1 shows, only 28% of the "informed public" (well educated, high income, high social engagement) recently surveyed in France trusted business to do what is right, and the same pattern is repeated for trust in CEOs of global firms (ibid.). The low figures are not repeated in other parts of the world, however. The trust in business to do "what is right" is much higher in the BRIC countries, for example (see Figure 1).

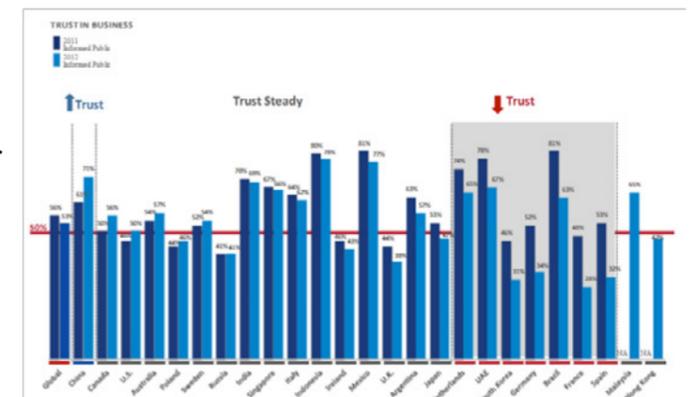


Figure 1 Trust in business to do "what is right" (picture taken from the presentation of the Edelman TrustBarometer©, 2012)

The lack of trust is a problem with major implications. The main drivers of production and employment in most of our societies are business organizations, and the main drivers of their continued growth and success are the people within them.

¹ Edelman (ibid.) uses an online survey with >30 000 respondents aged 25-64 in 25 countries with a bias towards the "informed public"

Another private research firm, BlessingWhite, makes large scale surveys on the levels of engagement at workplaces around the world. When they measure the correlation between trust for managers (both local and top management) and the engagement level, they see that people that feel more engaged also trust their managers more. That this is the case for local managers may not be surprising (the level of trust for local managers is generally higher than for top management), but engagement correlates even stronger with the trust in senior management of the organization (BlessingWhite, 2011). The findings are consistent with academic research studies that describe the relationship between trust and engagement (or commitment) in business organizations (Beer, 2009; Beer, Eisenstat, Foote, Fredberg, & Norrgren, 2011; Chughtai & Buckley, 2008). There is also a connection between engagement and performance. This has been validated through numerous studies, both academic (Benkhoff, 1997; Davis, Schoorman, Mayer, & Tan, 2000; Ruppel & Harrington, 2000) and done by large research firms (www.gallup.com). Indeed, these results have been consistent for a long period of time (Beer, Eisenstat, & Spector, 1990; Burke, 2011).

The link between trust, engagement and performance seems to hold true also for stakeholders outside the firm. Studies suggest that business organizations that adopt sustainable practices are more trusted by outside stakeholders and also more successful in the long run (Baron & Hannan, 2002; Eccles, Ioannou, & Serafeim, 2011; Sirgy, 2002). The reports from Edelman (2012) also suggest that socially sustainable activities contribute significantly to trust.

The rather obvious question is why there is a problem. In a rational world, given the amount of evidence suggesting that trust and engagement among internal and external stakeholders is beneficial for organizational performance, and given that most transnational corporations need to continuously be profitable to survive and please their owners, should not trust and engagement be valuable instruments also for the most hard-nosed capitalist imaginable?

The answer is (at least) two-fold. First, it is actually difficult to know how to create trust and engagement throughout an organization. A more participative management style is generally better in promoting

engagement and performance (Burke, 2011). But how to apply this in the international context of an integrated transnational corporation is problematic, especially with the diversity of both activities and geographies that it needs to handle. Second, a business organization's culture, strategy and staffing practices almost by definition emanate from the head office, and are thereby likely ethnocentric and the corporation may not see the need to create higher levels of trust/engagement in their markets. Another issue that may deeply interfere with the ability to create trust and engagement is the self-centrism of the CEO (Lubit, 2002; Peterson, Galvin, & Lange, 2012) which tends to be connected with a non-participative management style.

The challenges of transnational organizations that want to create higher levels of trust and hence engagement and performance in the global context are in the same way twofold. First, they need to establish practices to handle the complexity of their large organizations. Second, they need to establish practices that make the organization generate multiple outcomes – both financial and social value, and this is something that needs to be done in the global setting.

METHOD

The paper investigates practices of transnational corporations to create trust and engagement in their large organizations. There are no generally applied measurements of trust and engagement. Instead, for the study here, the 20 included transnational corporations (Table 1) were selected out of their ability to create both financial and social value. We call them "Higher Ambition"-corporations (they were also included in a larger sample, see Beer et al., 2011). The sample criteria were the following:

(a) the corporations needed to have operational activities on more than one continent (not only sales offices). The sample was restricted to Europe, North America and Asia.

(b) the corporations needed to show above average CAGR of listed stock for the CEO tenure (for one privately held corporation, corresponding indicators were used). The choice meant that the selected companies needed to be sustainably successful.

(c) since there is no broadly applied measure of social value to enable comparisons between companies, the research team used other ways to find trustworthy indications. In addition to first-hand knowledge about firms gathered through a long periods of time, we searched through (i) executive search firms, (ii) rankings such as "Best Company to Work For"-lists, (iii) earlier research in academic papers/reports, (iv) teaching cases, (v) networks of academic and industry partners, (vi) annual reports and (vii) the business press. An organization needed to show indications in at least three of the channels. In addition, the CEO needed to express aspirations for creating both economic and social value.

The 20 transnational corporations analyzed in this paper are found in Table 1.

Table 1 Companies in the study

Alias	Industry	Headquartered in Region	Size (no of employees)
Dresses Corp.	Apparel	Europe	50000-100000
Professional Holding	Conglomerate	Asia	>100000
Variety Inc.	Conglomerate	Asia	>100000
Building Inc.	Construction	Europe	50000-100000
House Inc.	Construction	Europe	20000-50000
Advisor Prof.	Consultancy services	North America	20000-50000
Money Bros.	Financial services	Europe	50000-100000
Cookie Company	Food, Nutrition	North America	20000-50000
Cake Inc.	Food, Nutrition	North America	20000-50000
Bread Assoc.	Food, Nutrition	Europe	>100000
Communicate Corp.	IT/Telecom	Europe	50000-100000
Speaker Corp.	IT/Telecom	Asia	>100000
Container Co.	Logistics	North America	20000-50000
Machine Inc.	Mechanical	Europe	>100000
Engines Co.	Mechanical	North America	20000-50000
Hospital Corp	Medical equipment	North America	20000-50000
Wards Inc.	Medical equipment	North America	20000-50000
Emergency Assoc.	Medical equipment	North America	10000-50000
Writer Co.	Publishing	Europe	20000-50000
Store Co.	Retail	Europe	>100000

The research team (see Beer et al., 2011) made semi-structured interviews with the CEOs lasting on average 2 hours. The intention with the interviews was to understand the CEOs espoused aspirations, motivation, and the practices that he or she used to create action in the organization. The discussion departed from the journey of the CEO – how had he/she led the company? Additional case data to validate the CEOs' claims was gathered. The interviews and case data were systematically analyzed with the help of qualitative analysis software.

RESULTS

As suggested earlier, transnational corporations that want to create higher levels of trust, engagement and performance need to establish practices to

1. handle the complexity of their large organizations

2. make the organization generate both financial and social value

Note that if a transnational corporation would be satisfied with acting as a holding company without any significant corporate centre, it would reduce complexity, but also lose the power of the transnational organization. If it only wants to be profitable, it will lose trust from stakeholders, and if it only wants to contribute with social value and hence trade off profitability, it will likely not survive. The obvious problem indicated by the Edelman, BlessingWhite and Gallup surveys suggests that common practice among transnational corporations is to not meet both criteria.

From the interviews with the CEOs and the case studies of the Higher Ambition corporations, we noted that they created a system of activities combined of five things:

- a higher purpose (and actions that support it)
- an engaging strategy (and a process for involving people in it)
- an organizational structure (and mechanisms for reinforcing it)
- a strong social fabric (and activities for creating it)
- a deep societal anchoring (and an ongoing exchange with the communities)

The Higher Ambition CEOs spoke about the importance of transforming the transnational corporation to a community with a higher purpose. A higher purpose, they felt, transcends the organizational boundaries and goes beyond standard vision and mission statements. This greater sense of meaning, its value and how to achieve it was expressed in various ways. For Store Co., for example, a social ambition is at the core of their business idea - to improve the living standards of the world. If people can unit around a higher purpose, this gives them common ground to talk to one another regardless of the geographical, cultural, and topical barriers that separate them. As such, it does not reduce complexity, but is a way to handle it.

The CEO of Store Co. pointed out the necessity to also make the strategy emotionally relevant, so that people in vast parts of the organization can, just as with the higher purpose, feel connected to it. Indeed, the CEOs argued that a strategy needs to consist head (be analytically reasonable), heart (be

emotionally relevant), hands (make use of what the company knows), and stomach (be daring). Moreover, the process of creating the strategy needs to involve masses of people. It is important to note that the strategy processes are a way to create alignment about what the organization and its people are going to engage in.

The corporations in the study naturally include many different cultures. A higher purpose is central as a means to get employees across continents to unite around something that transcends national cultures. This is less important, however, if the organization is not reliant on the possibility of international collaboration. But almost all of the organizations we studied had matrix structures in which each local unit in the line organization belonged to both a geographically organized division and a product oriented division. They all struggled with their ability to make this organization function properly. An involving strategy discussion was one way, we noted. Another way is to have focused ways of making ideas travel. For example, the CEO of Money Bros. spoke about “global products with a CV” which is a way to “recognize people for not just coming up with good ideas, but being smart in picking them up and running with them. Rewarding the picking up is quite important. Because otherwise you only reward people who come up with ideas in the first place.”

But a strategy and a structure that demands international collaboration does not work without a foundation of internal trust. The CEO’s believed that creating a strong social fabric is fundamental to the health of the organization and to its financial success. The strings of this fabric – the social relations between people – drastically shorten the psychological distance between parts of the organization that otherwise would be far apart because of geography or function. By creating a higher purpose, involving often hundreds of people in strategy making, having a matrix structure that supports collaboration and by establishing immense presence for the strategic discussion, the CEOs drastically shorten the psychological distance between the centre and the periphery.

In the case of Money Bros, we noted a focus on creating this social fabric to enable more effective collaboration – in their case along trade lanes, and between their global product lines of business and their country organizations, as it is reliant on the pos-

sibility to help the same global organizations in different parts of the world. Money Bros made focused efforts to make people get to know each other. To make people connect, they did not simply organize business meetings. Instead, they created cultural festivals, dance competitions, and other things than normally would seem like mainly nice things to have, and a thing to boost employee morale. But the business strategy of trading along corridors, and the matrix structure of Money Bros made the cultural festivals have a real business value.

The CEOs we spoke with were enthusiastic and energized by the ability of their organizations to make a contribution to the world that went beyond their business objectives. Serving as a good corporate citizen was one of the elements that built broad trust in the brands and reputations of these firms. The trust that these firms instilled made it easier for them to do business in a range of countries and cultures. But the commitment to making a larger social contribution went much deeper than just enhancing external reputation. The CEO of Engines Inc. explained for their employees that, “why they want to be here is because they can do more with broader stakeholder groups than just make money.” The CEOs of Professional Holding and House Inc. both argued that they felt a strong obligation to help improve living standards where they are active in the world, both as a way of giving back, but also as an investment in being a long time player in those markets. Money Bros. has focused its community work in a few areas to increase its impact. For example, it has achieved remarkable success with a charitable program expanding from an initial target of saving 28,000 people from a kind of disability (one person for every employee at the time) to having helped over 31 million people. In addition, they identified that NGOs on the local level in rural communities can offer the practical side of help, but need support in handling funding, something that Money Bros could do well. The CEO’s view is that this has not just been good for world, but also good for Money Bros. It has unleashed huge amounts of energy and has created a model that they can use to raise managers’ aspirations for what is possible when the whole organization works together as an integrated community in any area.

DISCUSSION

What we see in the study is different from common knowledge about transnational corporations. The common understanding is not that corporations create social value because of their own interest, but that institutional pressures create a need for corporations to create higher degrees of social value (Husted & Allen, 2006), and that governmental action is the way to get corporations to become more socially responsible (Monshipouri, Welch, & Kennedy, 2003). The possibly special cases that are described in this paper are corporations that look upon the dual purpose of creating financial and social value as calling and as a business imperative. They seem to look at local programs as investments, consistent with the view of Gardberg and Fombrun (2006). The described model where higher purpose, strategy, structure, social fabric and societal anchoring need to be in sync is a way to understand how “higher ambition” transnational corporations (Beer et al., 2011) work to create that possibility.

There are several lines of development that help explain this. One is the so-called “war for talent” (Chambers, Foulon, Handfield-Jones, Hankin, & Michaels III, 1998) that makes it necessary for organizations to offer something more than simply rewarding tasks and a paycheck – people want more meaning in what they do, and the international war for the best people around has intensified this pressure. Another line of development is the new possibilities for coordinating via information and communication technologies, which makes the traditional organizational hierarchy less attractive as a coordinating mechanism in corporations – it thus has importance for the structure and social fabric of the corporation. The impact of ICT is most likely the biggest when it comes to transnational corporations (simply because they have the most impactful coordination problems). A third line of development is transnational corporations in the Western world need to view actions in the faster growing areas of the world as strategic investments, rather than a way to lower labor costs (Venkatesan, 2013). This necessitates a different form of societal anchoring than what traditionally has been the case.

As these leaders and their organizations aspire to create trust and engagement, they need to handle a larger set of dilemmas and paradoxical choice of what

to focus on, for example between local adaption and global processes, financial and social performance, between national and international identity and between top-down and bottom-up initiatives.

By creating a community of purpose in which people create relations to others across the globe, they bring countries, cultures and continents closer together. Both vertically and horizontally, they manage to reduce distance and complexity to create environments that seem more tight and connected than one could imagine. The often enormous organizations that these CEOs lead are almost the size of small nations (and if you would count the total number of people that rely on them, they would be). The size itself makes it able for them to make a distinctive contribution, as the CEO Machines Inc. suggested:

“Name any nationality, any background, any religion —we have them at [Machines Inc.]. We see them and treat them as colleagues. We, as companies, have a great opportunity to contribute to the development of societies, because we have a much simpler case of integration than most societies do and most political leaders are faced with. We have a really good way of measuring whether we actually succeed as working in a diverse group. And, we can celebrate our success, or we can say we did not succeed.” In that way, he believes that the corporation can be helpful in building a global community.

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SHIFTING RESILIENT PRODUCTION STRATEGY FOR SUSTAINABLE ECONOMIC GROWTH IN RUSSIA

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Abstract: The Russian industry is characterized by a lack of balance, low velocity and limited manufacturing know-how. Many companies have high storage and overheads. At the same time, the share of outsourcing in production is constantly rising. There is a need for a deep understanding of the dynamics and adaptive behavior of manufacturing systems and their resilience in the changing face of crisis, recognizing that steady-state sustainability models are robust and simplistic. However, assessing the lasting impact of structural policy is a challenge, as exemplified in life-cycle analysis of the emerging technologies. For this reason, it is necessary to seek systems engineering innovations to improve high-tech enterprise performance in real-time.

The paper will help advance understanding how to capture the voice of enterprise transformation through a new method of systems engineering and dramatically accelerated transition to sustainability. It has been discussed a new index of sustainable development using as a calculation base rates of systems engineering and statistical model of high-tech enterprise transformation.

Key-words: systems engineering, resiliency index, sustainable development, enterprise transformation profile, microeconomic reform, robust analysis

INTRODUCTION

In a crisis the economy a key factor in accelerating the innovation process is the creation of an efficient technology of anti-crisis management. The new way of problem solving is associated with the emergence of such a phenomenon as system engineering, where the focus is transferred to the real-time business process, to the full set of actions, which creates something of value to the customer. Systems engineering approach is used extensively today in best practice anti-crisis management, combines the existence of market mechanisms for measuring and evaluating the economic efficiency of microeconomic reform. Companies use this approach for modeling and anal-

ysis of the linkages between product requirements, functional subsystems, complex structures and components, as well as optimizing critical business processes across the enterprise architecture. According to the forecasts of most system engineers, closure of feedback loops for large enterprises will be possible after 8-10 years, but active research and development in this direction has been going on now. System design innovative productions, which have a high added value, determines the success of new product in terms of cost and delivery dates, as well as the ability to meet resiliency requirements.

By D. Hitchens (Hitchens, 2003), in a classic cycle of system engineering to establish different levels of knowledge of the system, from the most high – institutional engineering to elementary – design and testing of individual elements. The hierarchy of requirements to understand the system is the basis of its functional architecture for simulation of action for creating a unique product and determining the list of critical technologies needed to implement the desired functionality. System design is implemented using the methods of scientific knowledge and simulation customers and markets. Tested in real conditions, the model can be used for logical grouping of functions and components manufacturing subsystems, as well as the physical implementation of logical structures.

In the domestic economy, such a mechanism is still emerging; however, additional empirical study of the possibility of adapting foreign experience in the Russian economic conditions is necessary. Specifics of high-tech industry, due to the complexity of R & D, the nonlinear dynamics of business processes and the uncertainty of demand for technical and scientific products, requires clarification of characteristics of existing relationships between elements of anti-crisis management. On the existing problems in understanding the dynamics of economic entities and the report indicates the National Academy of Sciences of the USA (Haltiwanger et al., 2007).

The emphasis in the western statistical system has traditionally placed on inter-sectoral aggregation, whereas in this approach is not possible to accurately measure the business activity of enterprises and individual enterprises and assess their role in global dynamics. In the understanding and managing systems that are characterized by complex behavior, the key role played by the factor of time. If the perception and presentation of problem situations in the managerial environment is too slow or the solution is generated too late, the response in the high-tech industry may be inappropriate and counterproductive. On the other hand, when there are delays in dynamical systems, there may be an imbalance in which the reactive responses are exaggerated. For example, in controlling high-tech enterprise, as a rule, there is a delay between the time of the release of new products and the time when the production cycle reaches a target value. Lack of understanding of the nature and duration of such delays can be perceived in the management environment, as the lack of systemic response, and lead to a change in the appropriate configuration of business processes, which may require additional efforts and lead to large delays. In this situation, reactive responses can destabilize the system.

Designing systems eventually forms the structure that links into the single unit requirements to functional subsystems, the organization of production processes and product structure. Such a symbiosis of projects / products and processes / operations is a key success factor for sustainable development of production systems and directly connects the high-level product strategy with operational plans of action. Integration of current and future processes is a key element in the development of digital strategies for systems engineering. It provides an opportunity to test the designed business processes and products through the closure of the technological cycle at the time of development and the cycle of continuous improvement. This is crucial for initiatives to improve the efficiency of production, such as lean production, and reduce wastage.

The introduction of lean production did not and does not aim to get instant control over business innovation, moreover, is often complicated by a lack of trust between management levels and the lack of uniform information space. Lean production implementation – a process-oriented cycle, which requires careful and time-consuming, material and human

resources. While the actual outcome of a successful system integration techniques of lean manufacturing can be seen in several years. Companies often act proactively in crisis because they're under pressure to move very quickly. But setting many strategic priorities does not have to take a long time: in our experience, an initial transformation program can be planned in a month, and a fully integrated and balanced one can be launched-and begin to deliver results-in one year. To move both effectively and proactively, high-tech enterprises doing a special emphasis on the implementation of the strategy to reduce the time-scale business processes. Nevertheless, even a system of real-time control does not guarantee today a sustainable competitive advantage in an aggressive high-tech environment. In such circumstances, it is necessary to seek system engineering innovations to improve performance real-time systems.

Fundamentals of proactive management laid down in Lorne Plunkett and Guy Hale (Plunkett and Hale, 1982). The authors introduced the concept of «proactive» management or control, based on the prediction of potential problems and proactively developing ways to address them. Today, this area of management has become widespread and has even become a separate sphere of scientific knowledge in the form of engineering, proactive support systems of varying difficulty with appropriate methods, models and tools (Marquez, 2007). The results of the research team of scientists at the Massachusetts Institute of Technology in the supply chain have shown the vulnerability of the business processes of leading global corporations, to various kinds of failures: budget overruns, variations in consumer demand, a break in the performance of suppliers, failure of management information systems (hardware, software, networks), hardware failures (explosions of boilers, demolition industrial sites, fire), economic downturn, uncompetitive cost structure, fluctuations in interest rates and exchange rates, adverse changes in the rules of corporate law, etc. (Sheffi, 2007). The same study shows an interesting example from Toyota. The earthquake in Kobe on Jan. 17, 1995 at the plant Sumitomo Metal Industries stopped supply of brake pads for all domestic cars Toyota. Because Toyota was guided by the principles of lean manufacturing, it had no stockpile of parts. Due to lack of brake pads on most automotive manufacturing plants throughout Japan Toyota has stopped because

stocks of components to quickly dried up. Toyota lost production due to lack of parts and components according to rough estimates amounted to about 20 000 vehicles (which meant a revenue loss of approximately \$ 200 million). This example proves once again the hypothesis that the “lean processes” without fine-tuning is no longer the subject of an absolute competitive advantage for their implementation. Need a comprehensive indicator of the production system engineering, which integrates the key factors affecting the cost of new product development. Such an index could be built in the shape of the resiliency index of production (manufacturing resilience index, MRI):

$$MRI = T_p \times (T_c - L_t)$$

Where T_p – process takt time;

T_c – time cycle process;

L_t – lead time;

n – number of periods in which the cycle time of the process (without delay) is the tact of the process.

MRI index includes new indicators derived from the principles of systems engineering and time-based value added new product. In addition, this index provides an opportunity to link the rate of operative (T_p) and strategic (L_t) anti-crisis management. The combination of the two indicators is the flexibility of the enterprise system and its ability to automatically recover in crisis with the maximum economic effect.

To measure the delay in the system management of enterprise can use the index of the target run-time processes (Gerst, 2004).

$$L_t = \frac{Q_t}{C_p}$$

Where L_t – lead time;

Q_t – number of transactions in a process;

C_p – throughput process.

This indicator measures the time required to perform all of the new product development. As a general rule, reducing the lead time increases the speed of system response to changes in customer requirements, requires less working capital, helps to reduce overheads and the number of failures/disaster. For

example, to shop floor for computer assembly, at the required load of 3 units, with a «bottleneck» 20 seconds to assemble a computer and installed capacity of 6 computers per minute, lead time of 30 seconds.

At each stage of new product development is measured by relevant cluster metrics:

$$T_s = \frac{T_{rt}}{S_c}$$

Where T_s – system planning takt;

T_{rt} – response time;

S_c – system capability.

$$T_r = \frac{ERI}{R_c}$$

Where T_r – research takt;

ERI – early research involvement;

R_c – research capability.

$$T_d = \frac{EDI}{D_c}$$

Where T_d – design takt;

EDI – early design involvement;

D_c – design capability.

$$T_f = \frac{E_t}{D_p}$$

Where T_f – technological takt;

E_t – available machine time;

D_p – instruments demand.

$$T_t = \frac{T_w}{D_w}$$

Where T_t – closed-loop production takt time;

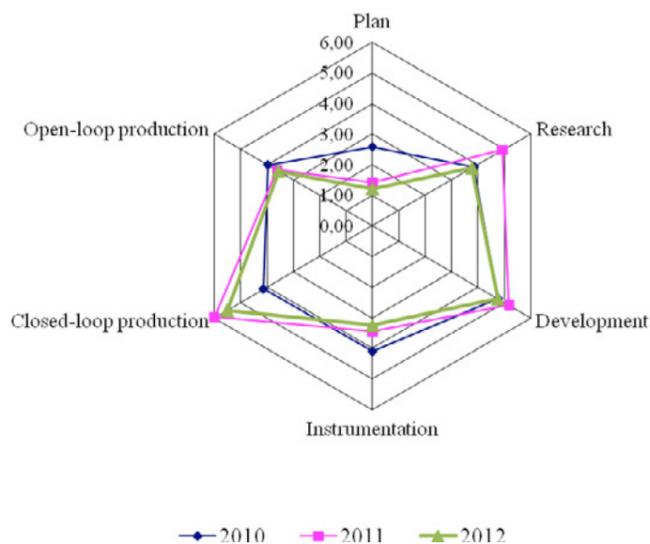
T_w – working hours;

D_w – consumer demand.

$$V_p = \frac{TTT}{VAT}$$

Where V_p – open-loop production takt time;
 TTT – available working time;
 VAT – value added time.

Indicators of creative system engineering (Sobkiw, 2008) correspond to the seven basic requirements by Michael Hammer on developing relevant metrics (Hammer et al., 2007): the unique identity of the object of measurement; high accuracy; focus on timely response to customer needs; low cost measurement process; robustness; system integration into an organization of business processes; promotion of corporate culture dimensions. The new index of sustainable development, reflecting the proactive criteria for resilience of the production system, can be used as a tool for robust analysis. Given its multidimensionality, we can build profiles of high-tech enterprise transformation.



Graph 1. High-tech enterprise transformation profile based on index of resiliency

Graph 1 shows the dynamics of the index MRI in stages of new product development in a large high-tech enterprise for the period 2010-2012 years.

Initial data for calculating the index of «resilience» was:

- manufacturing indicators: output, sales volume, work time losses, production capacity;
- voice of the customer metric: time of first contact with the customer, requirements engineering

time, early research / design involvement;

- information technology infrastructure metric: CPU utilization, queue time, downturn time, time of process delivery;

- lean production metric: loading equipment, planned downtime, the specification of parts and assemblies, parameters of the production operating model;

- r&d performance metric: design-time prototypes, the number of product models, research design time, the rate of innovation.

Obviously, the resilient strategy for high-tech enterprise should focus on reducing the time delay at each stage of new product development. During the period from 01.01.2010 to 31.12.2012 the minimum cycle time of process delivery observed at the stage of the «Plan». The share of delays in the planning cycle for the period under review amounted to only 4.50 %. In addition, continuous improvement of IT-governance procedures by introducing elements of anti-crisis management for end-users allowed to dramatically reducing planning takt and organizing documentation in a management information system «just in time». On the other hand, for the same period, the delays in closed-loop and open-loop cycles amounted to more than 50 %, and the time of the design cycle of almost 2 times higher than the production cycle. Thus, huge potential for improving process performance and reduce cycle time in the high-tech enterprise system exist, respectively, in the production and research. Strategic focus of the ideal profile converges to one point and corresponds to the operation without delay, the whole anti-crisis management system high-tech enterprise, organized in real time. Such a state can only be achieved through continuous improvement in the capacity of business processes and reduce the time of their delivery.

Table 1. Creative system engineering indicators for high-tech enterprise

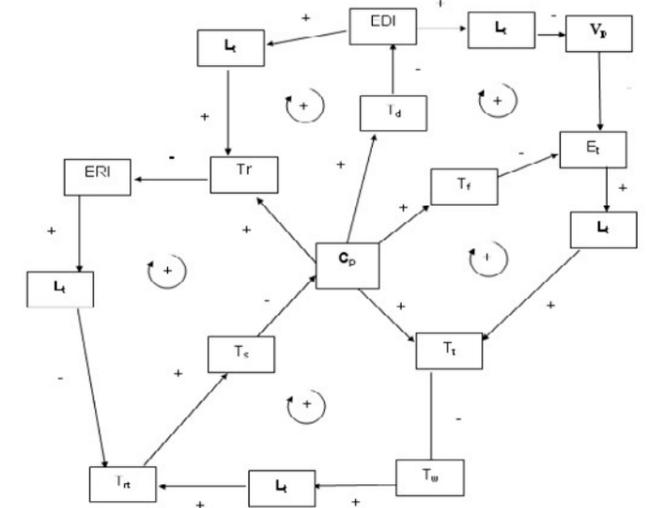
Each indicator provides systems engineering performance metrics, which signals that achieved a

Indicators	2010	2011	2012
Plan			
Processing time (T_n), min.	11.00	8.00	7.00
System capability (S_c)	29	40	41
System planning takt (T_s), min.	0.38	0.20	0.17
Time cycle of «Plan» (T_c), min.	1.80	1.70	1.62
Lead time of «Plan» (L_t), min	0.06	0.06	0.04
Number of periods in which $T_s = T_c - L_t$	390	428	450
MRI of «Plan»	257.40	140.38	121.39
Research			
Early research involvement (ERI), min.	25.00	32.00	18.00
Research capability (R_c)	5	5	4
Research takt (T_r), min.	5.00	6.40	4.50
Time cycle of «Research» (T_c), min.	16.01	16.00	9.00
Lead time of «Research» (L_r), min	3.19	5.00	3.00
Number of periods in which $T_r = T_c - L_r$	6	7	14
MRI of «Research»	384.60	492.80	378.00
Development			
Early design involvement (EDI), min.	29.00	28.00	19.00
Design capability (D_c)	10	9	10
Design takt (T_d), min.	2.90	3.11	1.90
Time cycle of «Development» (T_c), min.	15.00	13.09	13.00
Lead time of «Development» (L_d), min	4.05	3.85	2.10
Number of periods in which $T_d = T_c - L_d$	15	18	23
MRI of «Development»	476.33	517.44	476.33
Instrumentation			
Available machine time (E_t), min.	60.00	60.00	60.00
Instruments demand (D_p)	24	27	31
Technological takt (T_t), min.	2.50	2.22	1.94
Time cycle of «Instrumentation» (T_c), min.	6.86	5.99	5.70
Lead time of «Instrumentation» (L_t), min	3.05	3.00	3.00
Number of periods in which $T_t = T_c - L_t$	45	54	60
MRI of «Instrumentation»	428.63	358.80	313.55
Closed-loop production			
Working hours (T_w), min.	494.00	555.00	566.00
Consumer demand (D_w)	145	167	175
Closed-loop takt time (T_t), min.	3.41	3.32	3.23
Time cycle of «Closed-loop production» (T_c), min.	7.00	8.00	7.00
Lead time of «Closed-loop production» (L_t), min	4.57	3.26	3.30
Number of periods in which $T_t = T_c - L_t$	50	38	46
MRI of «Closed-loop production»	413.94	598.60	550.48
Open-loop production			

certain goal. This metric can be measured only after the fact and, therefore, called an indicator of delay. In addition, the composition of indicator systems engineering is the metric of efficiency, indicating that perhaps a general goal. This metric can be measured to give results, and, therefore, is called «lead indicator». According to the theory of system dynamics, the set of variables that exist in complex systems, have a causal link in the chain of feedback, continuously interacting. Searching for new patterns in the anti-crisis management high-tech enterprise with a lot of feedback involves the formulation of a new

hypothesis of its development. System capacity is constantly increasing as the synergies of the factors of influence (Graph 2).

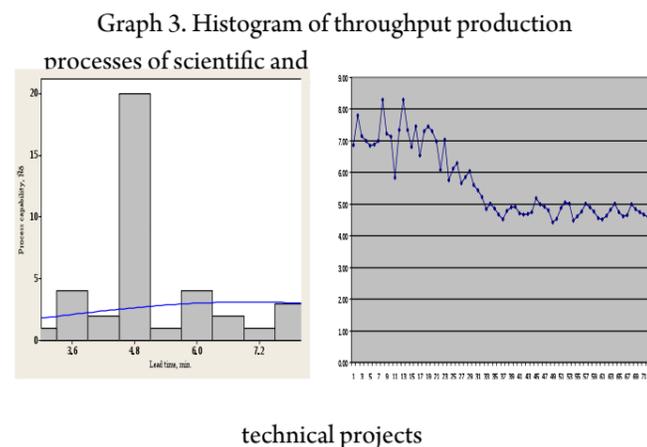
Graph 2. Sequence diagram of high-tech enterprise transformation



Systemic relationship between feedback loops make up the structure of the system, which is a major determinant of behavior throughout the organization as a whole. For example, research and industrial organization attracted to innovative development of subcontracting in the early stages of manufacturing layouts - this allows the maximum shorten a new product that contributes to the continuous sliding planning the next development on the basis of successful product analogs and new markets. Thus, the variables measure planning (T_s), while early involvement of the customer in designing (EDI) and the capacity of the production process (C_p) are connected in a circuit gain of positive feedback. If during production on the market an innovative product demand exceeds supply, it will lead to even greater growth in high-tech production cycles and increase the influence of factors on each other. Graph 2 shows the five loops of positive feedback, the order of interaction which leads to a rigorous structuring of high-tech industry around the life cycle of new product development.

The purpose of this representation structure of the system is to provide anti-crisis management capabilities is premature to understand the complex patterns of development to ensure the functioning of the production system without delays at each stage of the life cycle of new product development in the framework conditions target systems engineering. Framework

should be set taking into account the specificity and nature of the interaction of all the key components of the system architecture with the exception of those which do not affect the behavior of the system. After that, it is assumed that all significant fluctuations occur in the interaction of the components inside the system boundaries. Within these same boundaries may be new loop of positive or negative feedback, as well as unique substructure. It is important to note that the nomenclature of controlled system parameters may change over time as the transformation of elements. Empirical study show that the total of 50 scientific and technical projects the average delay time of high-tech enterprise during the observation period 2010-2012 was 4.8 min. with a standard deviation of 3.720 and has a strong tendency to decrease (Graph 3).

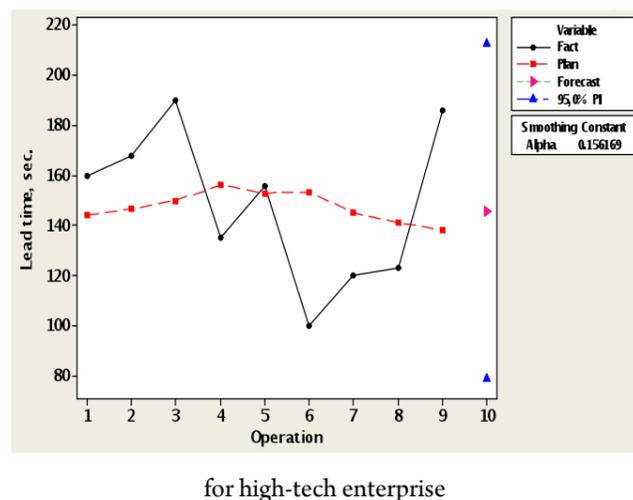


A deep understanding of the laws of the functioning of complex systems and probabilistic nature of the innovation opens new horizons for the anti-crisis management of resources and capabilities of companies, as well as the development of recycling programs, high-tech industries. Difficulties associated with the development of such programs lead to the need to provide the desired pattern in the language of system dynamics using simulation models. Such models will clearly define what the feedback loops are critical for the life of the system and anticipate the negative impact of any type of delays that may occur in the system. During the simulation experiment, managers can assess the impact of possible interference in the functioning of the system under which they may directly influence it for maximum return in terms of organizational goals. Sometimes it may require, for example, violations of the existing links or adding new feedback loops.

Using as a parameter to optimize the time delay

makes it a great success dampen cyclical fluctuations in the system of knowledge-intensive production (Graph 4), but also opens up new possibilities for in-depth study of hidden regularities of its functioning on the basis of high-performance machine learning algorithms. These algorithms in real time analyze retrospective and prospective data to predict, prioritize, and optimize critical processes in the high-tech industry.

Graph 4. Lead time dynamic forecasting technology



CONCLUSION

At the present stage of Russian high-tech production system development response time is one of the fundamentals of engineering systems, this measure is intended to help decision maker to initiate a system of anti-crisis management of scientific and industrial organization, timely response, an adequate clock frequency of the development of an innovative product. It's especially important when using the new generation of control systems that can fully exploit the potential of cognitive distributed business processes. In a crisis, high-tech enterprises are not ready to invest in the development of strategic management, focusing on solving current problems in the restoration of financial balance. Thus, considering the lean production as a crisis measure in the short term, we can conclude that the introduction of systems engineering management is a prerequisite for sustainable development. In the long term we can speak about the use of systems engineering as anti-crisis technology, and as a result – on success of innovation.

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INTERNATIONALIZATION AND DOMESTIC POLITICS: Analysis of the Impact of Foreign Direct Investment on Local Governance in China

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Abstract: China has been experiencing a high-rate growth of FDI in recent years. Can the foreign capital bring changes to China's politics? Based on a self-constructed panel data covering 31 provinces across 2000 to 2008, this research empirically examines the relationship between FDI and corruption. The empirical results support FDI's positive role in constraining corruption in contemporary China. We argue that the positive anti-corruption role of FDI is mainly driven by both the direct pressure from foreign investors and the internal competition for capital among Chinese local governments. We also find that its role changes along with different level of FDI saturation in different provinces and different times.

Key Words: FDI; Corruption;

1. INTRODUCTION

During the past several decades there has been a steady growth in the importance of inward foreign direct investment (FDI) to the developing countries' economies. By 2010 over 35% of all inward FDI is directed to the developing countries. In the same year, FDI constitutes 27% of the GDP of developing countries and 33% of that of the transition economies (Figure 1). The effects of FDI are usually questioned in terms of the host countries' policy independence, economic and social development and etc. However, since many of the developing and transition countries are unstable democracies or even under authoritarian rule, it is equally pertinent to survey the political influence of the growing FDI on the recipients.

As a case in point, China is among the most popular destinations of foreign capital inflow while in the meantime remains one of the world largest authoritarian countries. China's external financing is also characterized by the unusually high share of direct investment, which is believed to render the host government least operational discretion (Huang 1998). Thus this paper proposes to study whether FDI expedite or impede political development in China. The

seminal works of Gallagher (2002) and Zweig (2002) contend that FDI inflow has strengthened the government and delayed democracy in China. However, while fundamental overhaul is unlikely in the near future, the next hope is that FDI may have led Chinese local governments to improve governance, accountability and transparency. Hence this paper is motivated to study whether FDI promotes good governance in China. Specifically, this paper proposes to empirically test if FDI reduces corruption among Chinese localities and to explore the possible mechanisms.

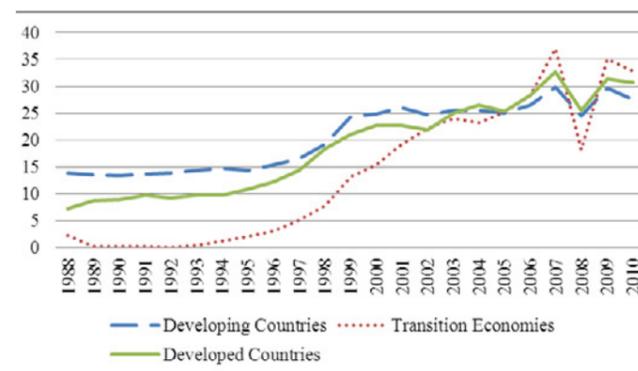


Figure 1. The share of FDI in GDP (%)

Source: Self Calculation Based on UNCTAD 2011

2. LITERATURE REVIEW

2.1 The general debates on FDI's political impacts

Is FDI bane or boon to political development in the host countries? This issue has been fiercely debated while a consistent answer has not been reached to date. On the one hand, competition for foreign capital is thought to discipline governments to adopt liberal economic policies (Montinola, Qian, and Weingast 1995; Stiglitz 2000), to improve political accountability (Jensen 2003; Qian and Roland 1998), and to conform to international norms (Buthe and Milner 2008). On the other hand, Sun (2010)'s cross-national study demonstrates negative effects of overall FDI on democracy in developing countries. It is also found that authoritarian regimes provide more

favorable returns and policies to attract foreign investors (Oneal 1994; Rodrik 1999) and FDI may in turn reinforce authoritarian rule (Gallagher 2002). Moreover, the disciplinary effect of capital competition is thought to have mixed implications on governance in host countries, as the focus on competing for capital investment may distort government priorities and divert resources on non-productive public goods provision to excessive infrastructure investment (Cai and Treisman 2005; Cumberland 1981; Keen and Marchand 1996; Rodrik 1997; Schulze and Ursprung 1999).

2.2 FDI and political development in China

As China's reform and liberalization decisions are mainly considered to be domestically driven and dominated by the state (Harding 1987; Lieberthal 1995; Shirk 1993; Zweig 2002), inquiries on FDI in China often adopt the regulatory state perspective and focus on its influence on the gradual liberalization of economic policies in China (Gallagher 2002; Guthrie 2002; Pearson 1991; Yang 1997; Zhang 1998). In this realm of study, FDI is found to influence China's liberalization policies in mainly two ways, that is, direct pressure from the foreign investors and their home countries (Pearson 1991; Zhang 1998) and internal competition among regions and companies in China (Gallagher 2002; Yang 1997).

More importantly, democratic transition, a topic of great interests to political scientists (Huntington 1991), is highly relevant in the study of political effects of FDI in China, as the rapid economic growth that foreign capital spurs is considered by many classic theories to be the precursor to political liberalization (Lipset 1959; Przeworski and Limongi 1997). However, opposite to the theories' prediction, Gallagher (2002) points out that instead of bringing about democratization, FDI has actually delayed democracy in China, because foreign investors entered China earlier and thwarted the emergence of powerful local business that will demand political liberalization in the short run. Similarly, in his classic study on internationalizing rural China, Zweig (2002, p.109) discovers that as it is the state and local governments who take the initiative in the opening process, they hold the control over foreign access and consequentially "deeper the foreign penetration, the more stable the communist party system". With these understandings, it is worthy of studying how FDI shapes local governance in China.

As discussed previously, this paper looks at the level of corruption as the key indicator of governance.

2.3 FDI and Corruption

It is often taken for granted in popular press that foreign investors are averse to risk factors among which corruption is a major concern. However, a simple glimpse on China's outstanding FDI performance and rampant corruption problem reveals that this relationship is likely to be more elusive. In the scholarly research, the relationship between FDI and corruption is usually studied in the larger query of what influences FDI inflows. As Huang (1998) points out, FDI is not simply a function of a place's economic fundamentals. Rather, the relative advantages, such as state policies and investment environment, as opposed to the absolute notion of locational advantages are more pertinent. In this vein, the relationship between FDI and corruption has attracted some scholarly attention and indeed they have found mixed results.

Wei (2000) and Smarzynska and Wei (2005) established the negative association between corruption and FDI. For example, studying the effect of taxation and corruption on FDI location decisions with data on 14 source countries and 45 host countries, Wei (2000) concludes that an increase in the host country's corruption level will have statistically negative effect on the incoming FDI level. In contrast, Wheeler and Mody (1992) fails to establish that US investors' aversion to a risk factor index which includes corruption level is statistically significant. Similarly, Henisz (2000) examines the effect of corruption among US MNEs. Counter-intuitively, the result not only fails to show any statistically negative effect of corruption but some specifications even demonstrate a positive correlation.

Not only the effect of corruption on FDI is controversial, but the influence of FDI on corruption has not reached a consensus either. Using a cross-national data set covering years from 1970 to 1994, Larrain and Tavares (2004) argue FDI as an indicator of openness can decrease corruption. In contrast, Robertson and Watson (2004) find that FDI does not affect corruption but changes in FDI lead to higher perceived levels of corruption in a country. Different from both of the two studies, Pinto and Zhu (2008) claim that the effects of FDI on corruption are conditional on the host country's underlying economic

and political climate. Given these mixed findings, we generate a hypothesis which needs empirical examination under the Chinese setting.

Hypothesis: FDI decreases corruption in China.

3. EMPIRICAL STRATEGY

3.1 Data

Our data are from various statistic year books in China. We measure corruption with the number of annual recorded corruption cases per ten thousand inhabitants, which is collected from the Procuratorial Year Books of China (Zhongguo Jiancha Nianjian). Data for FDI and control variables are from Statistics of 60 Years of the New China (Xin zhongguo liushi nian tongji huibian).

There are mainly two kinds of measurements for corruption, that is, subjective and objective. However, corruption perceptions actually reflect individuals' impressions of the intensity of corruption rather than the corruption level itself (Treisman, 2007). Hence, we will use an objective measurement in this research. One potential problem of this measurement, however, is that the annual recorded corruption cases may reflect local anti-corruption strengths rather than the reality of corruption. Unfortunately, there are few other available datasets which can offer objective measurements for corruption in China, thus it is the best efforts that we can now make for the research on China's corruption. Moreover, we will show that it is actually a good measurement in the following discussions.

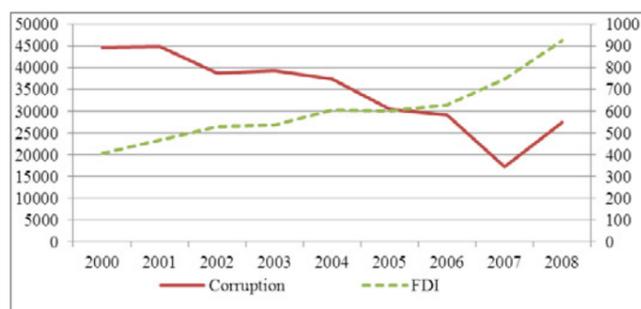


Figure 2. FDI and Corruption in China, by Year
Source: Statistics of 60 Years of the New China, 2009
Note: The unit for FDI is ten million US\$; the unit for corruption is number of corruption cases

Figure 2 shows the raw correlation between FDI and corruption in China. We can see that FDI grows stably in the period. Meanwhile, we can also observe

a decline in corruption during the period. It is worth noting here that the big decline in corruption in 2007 may be due to measurement error. We do not have exact number of corruption in 2007, and obtain the number of corruption in 2007 through using a five-year record of corruption minus the number from 2003 to 2006. To address this problem we will run a separate regression with 2007 dropped to see whether the result is consistent.

$$\text{Ln}(\text{Corruption})_{it} = \beta_0 + \beta_1 \text{Ln}(\text{FDI})_{it} + X_{it}'B + \alpha_i + \varepsilon_{it}$$

3.2 Econometric Model

The dependent variable is the logarithm of provincial number of corruption per ten thousand citizens. The independent variable is the actual provincial FDI per capita at the end of the year. For more information about measurement construction, please see Appendix. X' is a vector of control variables, including number of college students which measures local education level, fiscal expenditure and number of government employees which measure local government size, local juridical expenditure which measures local force of anti-corruption, local GDP per capita which measures economic development and average wage of local government employees which measures the opportunity cost for corruption.

As discussed previously, we expect a negative association between FDI and corruption. As to control variables, we expect a negative relationship between education and corruption since education decreases the tolerance of corruption (Dong & Torgler 2010; Serra 2006; Treisman 2007); we expect a positive relationship between government size and corruption since a big government size is always a warm bed for corruption (Goel & Nelson 1998); and we expect a positive relationship between GDP and corruption (Treisman 2000 & 2007) since more developed economy provides more rents and more opportunities of corruption.

3.3 Main Estimation Results

Table 1 shows that FDI is playing a positive role in constraining corruption in China. Specifically, 10 percent increase in FDI per capita will decrease corruption by 0.53 percent (Model 3). Model 1 shows that FDI, a single variable, is very powerful in explaining variations of corruption since the R-square reaches 1.14. In Model 2 and 3, we control many other variables, and the significant finding holds.

Table 1. Estimation Results of FDI on Corruption

VARIABLES	Fixed Effect			
	Model 1	Model 2	Model 3	Model 4
Ln (FDIpercapita)	-0.113*** (0.019)	-0.057** (0.024)	-0.053** (0.024)	-0.055** (0.025)
College Students		-0.315*** (0.069)	-0.278*** (0.075)	-0.291*** (0.082)
Fiscal Expenditure		0.085*** (0.018)	0.104*** (0.022)	0.109*** (0.023)
Juridical Expenditure		-0.323 (0.213)	-0.721** (0.312)	-0.623* (0.331)
Ln (GDPpercapita)		0.009 (0.152)	0.218 (0.232)	0.283 (0.257)
Ln (Average wage)		-0.078 (0.153)	-0.064 (0.208)	-0.155 (0.220)
Government Employees		-0.000 (0.000)	-0.001 (0.001)	-0.001 (0.001)
Year Dummies	no	no	yes	yes
Observations	252	252	252	233
R-squared	0.142	0.349	0.380	0.368
Number of provinces	31	31	31	31

NOTE: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

As to control variables, we find that the increase of college students and juridical expenditure decrease corruption and the increase of fiscal expenditure increases corruption. Though not statistically significant, we find that GDP per capita is positively correlated with corruption while the average income of government employees is adversely correlated with corruption, both of which are consistent with our previous expectations. In Model 4, we drop the year 2007, the main results are very similar to Model 3, suggesting that the measurement errors in 2007 do not seriously bias the estimation results.

As discussed above, some people may be concerned that using the number of recorded corruption cases per ten thousand citizens may just reflect the anti-corruption force of local government rather than corruption itself. However, in Model 3, we find a statistically significant negative association between juridical expenditure and corruption. If the challenge is holds, we should see a positive correlation rather than a negative one. This suggests that the number of recorded corruption cases per ten thousand citizens can be a good indicator of local corruption level.

3.4 Possible Mechanisms

First of all, there could be capital substitution effect. The investment substitution perspective ar-

gues that foreign capital is different from domestic capital. In particular, FDI should be less corrupt because of their home country legislations or corporate rules such like the US anti-bribery laws instituted in 1977. However, we argue that this effect should be minimal for two reasons. First, according to Huang (1998, p. 22), the relationship between foreign capital and domestic capital is mixed. Foreign investment may substitute or crowd out domestic capital, but it could also induce domestic investment and the latter effect appears to be larger in China. Moreover, Hines (1995) examines US firms' behaviors after the implementation of the anti-bribery laws and finds a significant reduction in the presence of US firms in countries where bribes are very important.

Instead of simple capital substitution effect, we argue that the positive influence of FDI on anti-corruption in China is mainly resulted from governmental behavior change which has more profound implications on Chinese societies. We further argue that FDI pushes the local governments to reduce corruption through two mechanisms: direct pressure from foreign investors and the internal competition for capital among Chinese localities.

There is no doubt that foreign investors and their home countries have substantial bargaining power with Chinese local governments which allow them to exert influence. For example, Pearson (1991) explains how the dual strategy of attracting and rigidly controlling FDI that Chinese reformers initially conceived has failed due to the pressures from the existing foreign investors and the competition for potential capital inflows. In particular, she noted that China's FDI policies assumed a unidirectional path toward liberalization as opposed to cyclical swings in the domestic reforms, which demonstrates the influence of foreign pressures on the policymakers' decision making (Pearson 1991). Similarly, Zhang (1998) concludes that China's foreign economic policy changes are shaped by the negotiation between China and foreign interests with respect to their relative bargaining powers.

We then argue that internal competition among regions in China constitutes the second mechanism of how FDI influences local governments' behavior. Yang (1997) highlights the competitive nature of Chinese local governments and conceptualized a "competitive liberalization" model to explain Chi-

na's rapid liberalization. Similarly, local governments compete for FDI through improving governance efficiency and decreasing corruption. There are considerable anecdotal evidence in the popular press which illustrates how local governments endeavor to improve government efficiency and cater to foreign investors' demand in order to attract foreign direct investment. For example, understanding the need for fast logistics of their giant foreign investors in Shenzhen, Shenzhen customs cooperated with Shenzhen Kaifa Technology Co., Ltd and implemented electronic monitoring which greatly reduced the time the company's products flow through customs and gave the company a competitive edge in the global market. Impressed by the governmental efficiency, two US IT companies and one Hong Kong IT company have decided to invest in Shenzhen with 3.26 hundred million US dollars (Sina, 2004).

4. EXPLORATION OF FDI'S INFLUENCE ON CORRUPTION

As discussed above, FDI exerts positive influence in constraining corruption in China. Then a natural question is whether FDI's positive role is evenly distributed across different regions. In response, we conduct several explorations in this part.

We hypothesize that the FDI's role is conditional on the situation of FDI's saturation within the province. For those provinces where FDI has saturated, the local governments would not have more incentives to attract FDI, thus they would not control corruption to achieve this goal. However, for those provinces where FDI has not yet saturated, the local governments may have strong incentives to attract more FDI to promote local economic growth, and accordingly they would control corruption and improve governance efficiency to achieve this goal.

We construct a simple measurement of FDI's saturation degree by dividing FDI with local GDP. The logic is that if FDI accounts for a big share of GDP, the situation is closer to saturation. In contrast, if FDI just accounts for a small portion of GDP, it suggests that FDI has not saturated and still has room for future growth. Based on this, we divide all the provinces in different years into three categories, that is, low FDI saturation, middle FDI saturation and high FDI saturation.

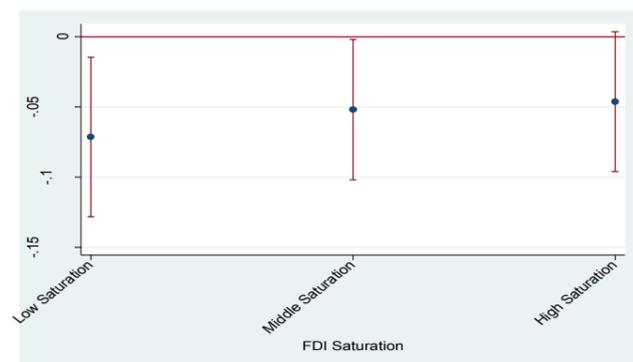


Figure 3. FDI's Role Conditional on Saturation Level

As Figure 3 shows, along with the saturation level increase, the negative coefficients of FDI increases, suggesting the negative effect is decreasing. It means that in low saturation provinces, FDI's anti-corruption effect is much stronger. The figure supports our hypothesis about the changes of FDI's role with its level of development.

CONCLUSION

In this research, we examine the effect of inward FDI on corruption in China. Based on a self-constructed panel data covering 31 provinces from 2000 to 2008, we find 10 percent of increase in FDI per capita would decrease the number of recorded corruption cases per ten thousand inhabitants by 0.53 percent. The finding is robust when we add more controls into the regression model. The anti-corruption role of FDI is mainly driven by both the direct pressure from foreign investors and the internal competition for capital among Chinese local governments. Especially, the competition for capital among Chinese local governments pushes the local governments to improve governance efficiency and decrease corruption to attract more FDI.

We also find that its role changes along with different level of FDI saturation in different provinces and different times. Specifically, in FDI more saturated regions, its anti-corruption is weaker, which may be attributed to the lower incentives of local government to improve governance and decrease corruption so as to attract more FDI.

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APPENDIX

Table. Measurement Construction

	DEFINITIONS
Corruption	Annual No. of corruption cases per ten thousand citizens within each province
FDI Per Capita	Provincial FDI per capita (US\$) at the end of year
College Students	No. of hundred students in colleges or above per ten thousand citizens at the end of year within each province
Government Employees	No. of hundred government employees per ten thousand citizens at the end of year within each province
Fiscal Expenditure	Annual fiscal expenditure per ten thousand citizens within each province (<i>yuan</i>)
Judiciary Expenditure	Annual judiciary expenditure per ten thousand citizens within each province (<i>yuan</i>)
Average Wage	Average annual wage of government employees within each province (<i>yuan</i>)
GDP Per Capita	Provincial annual GDP per capita (ten thousand <i>yuan</i>)

THE BANKING SECTOR WITHIN THE FINANCIAL MARKET OF KAZAKHSTAN

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The destabilization in financial system of any country leads to disruption of key components in economy, national security and loss of its fiscal sovereignty. Depending on the dominance of a particular source of financing to the real sector of economy, three types of financial system can be defined. The financial system in the Republic of Kazakhstan has a mixed type of system since banks influence the economy. Thus, all changes in the banking sector are reflected on the state of economy in the country as a whole.

The relevance of research into the banking sector lies in the necessity to stabilize this sector of the economy since the stability and future growth of the economic potential, separate economic sectors, as well as strengthening position on the international market depend from its effective functioning and well chosen methods.

As for today, banking sector is strategically important structure of the economy in all developed countries in the world. The banking system determines the effectiveness of savings transformation into investments, country's economic competitiveness and contributes to exercise basic social functions of a state.

Furthermore, a proper organization of banking system is necessary for normal functioning of business in a country. Banks are directly involved with day to day functioning of national businesses on every level of management. Through this, the satisfaction of economic interests is met for the participants from production process. In this case, banks as financial intermediaries attract capital from economic bodies, population savings and other available resources which are released in the process of economic activities. Then, those are given to borrowers for temporary use, conduct cash transactions and provide many other services for economics, thus directly affecting the efficiency of production and circulation of social and domestic products.

Despite the presence of foreign banks, the banking sector in Kazakhstan is distinguished by high level of concentration. There are five big and dominating bank in the country: "Kazkommertsbank" JCS, "Halyk Bank of Kazakhstan" JCS, "BTA" JCS, "Bank Center Credit" JCS, "ATF Bank" JCS. [1]

These banks hold 65,3% of total market. These banks have control for almost the same proportion, over the pension, insurance and leasing markets through its subsidiaries and affiliate structures. When there is high dependency of domestic market on such a small group of banks, this potentially influences the stability of banking system during economic crisis. It also reduces the quality of services due to the lack of competition between large and small banks.

Presence of banks with foreign participation has a significant impact on the market competitiveness with Kazakhstan banks since there is an advantage of transferring innovative technologies from parent banks in the field of automation and business process reengineering. Moreover, these banks have access to cheaper resources of funding (capital from parent banks) and accordingly, put pressure on cost reduction for credit products on the Kazakhstan market.

One of the important factors for national development of Kazakhstan economy is the banking sector, which is the essential source of financial resources for business and households and therefore they have a particular bank interest. It should be noted that the development of banking sector in the last decade has been at rapid pace that build all the key indicators, from the size of assets to economy lending.

Table1.Dynamics of banking sector indicator, Kazakhstan, bn. KZT [2]

Financial Performance	01.01.2008	01.01.2009	01.01.2010	01.01.2011	01.01.2012
Assets	11 685	11 890	11 557	12 032	12 818
Liabilities	10 260	10 437	12 537	10 715	11 515
Equity	1 425	1 453	-980	1 316	1 303
Retained profit for current year	217	11	-2 834	1 420	34
Loans	8 868	9 238	9 639	9 065	10 473
Deposit	6 424	6 873	7 799	6 851	7 797

Source: Prepared by the author, based on the CFN NB RK

The world financial system crisis which began in 2007 has made changes, affecting the dynamics of development of the financial system in Kazakhstan. The most painfully it affected the banking system of the country which has resulted in the integration of banking system into the world mechanism to relocate capital flow.

Before the economic crisis, Kazakhstan's large banks have achieved high results among the CIS and Central Asian countries. However, with the background of financial instability caused by the global liquidity crisis, rising cost of foreign loans and limiting access to external sources of funding, Kazakhstan banks have been deprived from the growing and active lending source.

Furthermore, the crisis has led to the fact that external capital markets are virtually closed for Kazakhstan banks. For them, the main source of new funding became the domestic financial resources and the first is deposit. Whereas the total amount of bank investments, both physical and legal people in a time of crisis not only not decreased but also increased.

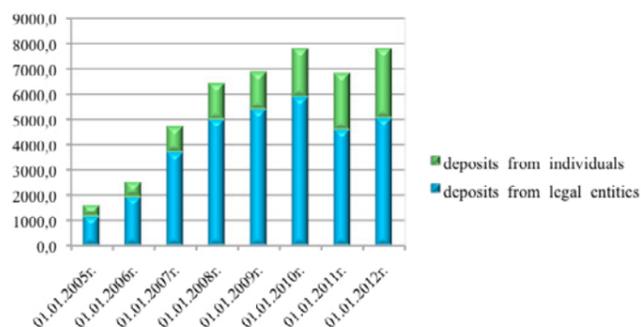


Figure 1. Dynamics of changes for deposit volume in second-tier banks.[2]

Source: Prepared by the author, based on the CFN NB RK

The above mentioned data shows that despite economic crisis, deposit volume to the second-tier banks continues to increase. First of all, this growth is achieved due to increased amount of deposits from legal entities. The Government of Kazakhstan strongly recommends to the national companies, businesses and other large corporations to support domestic banking system by placing temporarily surplus funds on accounts in commercial banks.[3]

Despite increased public mistrust to the financial system and banking sector in particular, preference to invest money in second-tier banks is preserved. This can be explained by the lack of viable alternative for deposits, since investments into the real estate have become unattractive, investments in mutual investment funds are low-yielding and risky. Also, it should be noted that the deposit rates risen sharply in August and September 2007, with the first signs of economic crisis when external capital markets suddenly closed their doors for Kazakhstan banks or at least, became not readily available.

Furthermore, during the use of funds attracted by commercial banks from their clients, other banks, from monetary and financial markets, as well as bank's own resources in order to get profit, produce various types of investments and its aggregate constitutes to their active operations. In active operations, Kazakhstan banks accounted for the bulk of credit operations. The dynamics of credit volumes to legal entities and individuals presented at Figure 2:

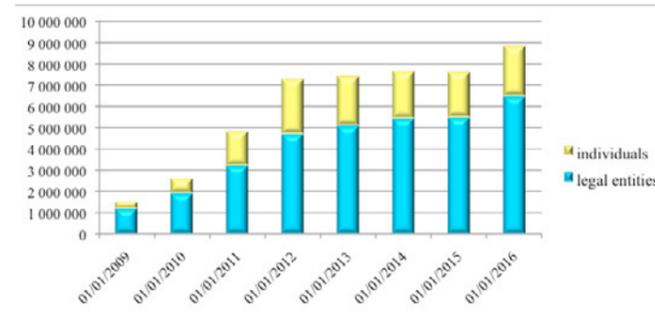


Figure 2.Dynamics of credit volume to legal entities and individuals [2]

Source: Prepared by the author, based on the CFN NB RK

From January 1, 2012, loans to legal entities and individuals were given by Kazakhstan commercial banks in the amount of 4616429 and 2118924 million Kazakhstan tenge respectively. [2]

Also, state government is actively participates in the development of mortgage lending, particularly for rural areas, giving out loans in this specific sector on preferential terms. From 2010, there are already 4747 users of so-called "rural mortgages" who received loans to buy housing under 0,01% for up to 15 years, for the total amount of 6 billion KZT.[2]

Considering objects and goals for loan services, it can be said that the most popular are the short-term and long-term loans for current assets, refinancing existing debts of a company and purchasing fixed assets.

Since the beginning of 2010, corporate lending market shows intensively growing trend. In 2011, the volume of loans granted to legal entities exceeded 4,6trillion KZT, increasing by 45,8% if compared to 2010.[2]

The global financial crisis did not only identify key deficiencies and weak spots in the banking sector, but also served as the beginning of a new stage of development of the banking system. It was the crisis which showed what ill-conceived credit policy can lead to and how important the contemporary role of risk management is. The consequence of ill-conceived policy has been the rapid growth of overdue debts and non-performing loans. The pursuit of profit by commercial banks under a weak system of risk management led to the lowering of the quality of loan portfolios. Today a tendency is observed for the banking system's credit portfolio to deteriorate in quality; this is caused by the accumulation of distressed loans over the course of several years.

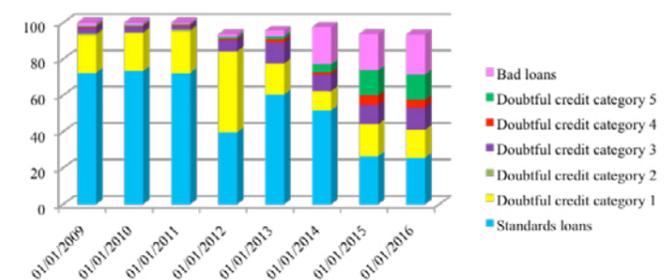


Figure3.Dynamics of quality loan portfolio of the banking sector in the RK (million KZT) [2]

Source: Prepared by the author, based on the CFN NB RK

The significant part of the total credit portfolio consists of loans and its share on January 1, 2011 was equal to 30,07% and similarly in the period of 2012 it increased up to 34,48%. These share of formulated provisions slightly increased from 30,95% to 31,95% in loan portfolio. The impairment of bank's total loan portfolio is due to the overall decline in business activities in the country and the decline in effective business entities and population.[2]

For non-performing loans in the credit portfolio in 2011, continued to grow mainly due to the lack of bad loans replacement which is newly issued by standards loans. Banks preferred to hold these loans on the balance sheet primary by unresolved problems of taxation income from recovery of provisions for writing off bad loans for balance. Number of measures for stimulating taxation to write off the loans, as well as creating centralized subsidiary in NBK organization, which will specialize on buying the problematic bank assets, then in 2012 it can be expected to get better quality in bank's loan portfolio.[4]

Further, under the current practice in Kazakhstan, under non-performing loans means the sum of loans classified as doubtful and loss category 5, and provisions created for homogenous credits. Thus, in Kazakhstan, used definition of non-performing loans is broader than the meaning used in the international practice (loans with past due over ninety days).

If in 2008-2010, there was in significant growth of credit portfolio due to extremely conservative lending policies in the banks, then starting from 2011-2012, number of renewed lending processes has began.

Share of loans past due over ninety days increased from 23,7% to 29,4% because of the increase in share of these loans in bank credit portfolio, which completed in 2010 the restructuring of the external debt. Still, bank's contribution in first group for the growth of non-performing loans and past due over ninety days loans came to 58,9% and 73%, respectively. [4]

This current dynamics of quality in the loan portfolio is due to not only the migration of credits and loans from highly classified categories during lower and reduced credit worthiness of borrowers, but also extremely low intensity of substitution process in

non-performing loans granted by conventional loans. During growth of the total volume of non-performing loans to the amount of “working”, since the generating stable financial flows from credit portfolio has not been changed from the beginning of 2012.

Interestingly, for the past two years (October 1, 2009 to October 1, 2011) there was a slight decrease in the loan portfolio coverage by provisions connected to the reclassification of loans which are past due over ninety days as a result of their restructuring. In general, the banks in this period indicate decrease from 0.79 to 0.67.[4]

Many banks have difficulties in dealing with problematic loans and credits. Credit default largely explained by the weak control by banks during its issuances and use. It is important to take into account that during credit process even under the safest pledge, one should not neglect to rate the borrowing capacity of a client. It has to be the cornerstone for the credit policy in banks.

Moreover, a significant part of the retail portfolio in the banking system accounts for mortgage loans. It should be noted that most of the loans are secured by real estate where the market price for today is significantly lower than the value of indicated price at the peak of the credit boom in 2007, which also adds to the quality of loan portfolio.

If to take a look at other lending, for example mortgage lending, it remains at high risk but a small increase in demand is still observed. Numbers of banks renewed their programs for mortgage lending but seriously consider the monetary policy, such as credit limits, terms of repayment, collateral requirements and interest rate. However, banks still continue to work on reducing period of loaning applications, opportunity for credit redemption by individual schedule and favorable terms for customers with good credit history. Currently, banks conduct socially directed events to support customers in difficult financial situation.

Thus, banks are still dependent on the real estate market. It is worth considering that a large portion of credits were given in 2006-2007, when real estate prices were at the highest point. Therefore, the current value of pledge by this credits significantly decreased. Credit structure by the type of provision is displayed in Figure 4.

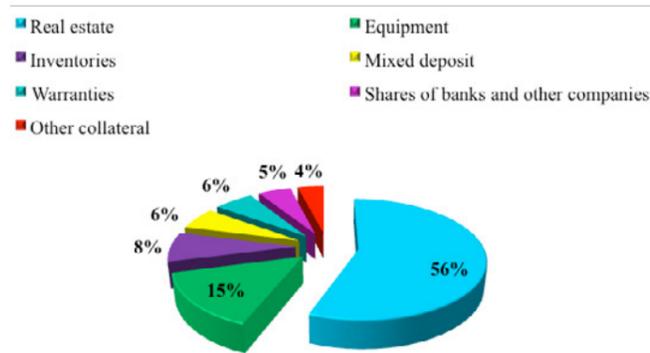


Figure 4. Credits by the type of provisions, 4 leading Banks
Source: Prepared by the author, based on the CFN NB RK

With the goal to better the situation in the banking sector, in April 2012, the Distressed Assets Fund (DAF) has been created under the National Bank of RK. It is designed to buy out banks which are not related to real estate loans, at irreversible state and has doubtful credit category 5, and where there are 100% and 50% of provisions, respectively. It is expected that in the event of success by DAF, Kazakhstan banks' balance of second level or commercial banks will be “cleaned” from problematic and troubled assets for a total of \$2 billion.

Currently, bank system does not correspond to such indicators as the ratio of volume in financial area for the production of goods and services; pace of funding the advanced sectors and industries to the average rate of financing the economy and etc. Also, there is lack of readiness to the adaptation reaction to the global trends and rapid response for financial sector (as well as industry, government system for regulating financial flows) to the changes of priorities in the development. It is obvious that under acute phase of crisis, accompanied by a sharp decrease in prices of raw commodities and natural resources assets, there should have been a rapid reconstruction of priorities in economic development and to shift the accent from production of raw materials to the more modern, whereas this is not happening.

Also, timely and necessary is the transition to international standard of banking supervision, which is Basel 3, in order to improve quality of supervision and risk management in the banking sector. New standards for capital, leverage (debt ratio), liquidity and introduction of “buffer capital”, will require Banks to increase the size and quality of capital, compared to the current conditions and requirements of

Basel 2. New indicators and measures for leverage and liquidity will complement the minimum capital requirements based on risk since it's a way to provide funding during crisis without facing risks.[5]

With the goal in mind to comply with the requirement of Basel 3, all Banks at current time have to take necessary actions to provide to the financial divisions and departments of risk managements, easy and quick access to the centralized, verifies and accurate data. This information has to reflect credit, market, operational risks, and risk concentration, decrease of credit quality and liquidity of bank risk. Also, it is necessary to calculate increased capital, new liquidity ration and debt ration which are already in 2013 would start reporting to the local regulatory authorities by the complete set of form which are required by various state regulators.

Requirements for Basel 3 to the data management are important. In order for bank, the regulator and market could get a clear picture on the situation of the bank, the data must be fresh, accurate, and consistent. This problem cannot be solved efficiently if the data is stored in scattered forms in several departments of the bank. In addition, it must be carefully structured. Proper data management should ensure getting faithful and accurate calculations of capital adequacy ratios, the ratio of debt to equity and liquidity. This requirement, coupled with significantly increased standards of Basel 3 -in terms of details and frequency of reporting- means that data management in the Basel 3 standards required to perform more work than ever. Quality, relevance and on time reporting of the data is the most important criteria for determining the success to implement Basel 3.

Basel III standards are both an opportunity and a challenge for banks. These standards can provide a solid foundation for future developments in the banking sector and will ensure that in reality, the excesses observed in the past, can really be avoided.

Furthermore, for banks to consider standards of Basel 3 as an opportunity to improve its position in the first place, it is necessary to choose the right technical architecture that will be used to support the framework. In such technical architecture, the scope and structure should be considered, as well as process and geographical coverage of the bank that need to blend in the scale and scope of the rules. The solution must be flexible, so it will meet the needs of the bank, and be open enough to accommodate changes in the business and regulations

The complexity of regulations and requirements of Basel 3, and the level of expectations from the commercial sector in the banking sector require flexible solutions to manage standards of Basel 3. To give a competitive advantage, such solution must provide the speed, accuracy and productivity. Then, banks that implement the best solution, not only have the perfect platform to meet the standards of Basel 3; also, they will have a solid foundation for the future business development.

In stabilization of banking system, a big role is given to the regulators of the banking market. Their work has to be directed to create stable financial system in the country and creations of conditions and norms which contribute to the equal balance for developing all sectors in the financial market.

Applicable to the sustainability of domestic financial system to the increasing global instability, seems appropriate to define the following qualitative characteristics of development:

- minimizing dependence from external financing and the availability of the reserve base to overcome external shocks;
- the ability to support domestic economy in terms of international financial crises and to replace external sources of financing;
- the ability to resist attempts of external expansion from foreign competitors in the global financial crisis.

In conclusion, considering that the banking sector depends on global trends, economic turmoil, internal control and regulation by the state, it is necessary to modernize the national banking systems in the areas of risk management and the regulatory framework. Also, to increase resistance to stress of the world economy in the case of crisis, we need to unite the efforts from all countries, especially developed states. It concerns a preventive regulation of financial and trade relations on the international arena, the establishment of international system for forecasting future economic crises.

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THE EUROPEAN RADICAL LEFT AND THE INTERNATIONAL ECONOMIC CRISIS: OPPORTUNITY WASTED?

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The international financial-economic crisis that began in 2007-8 has drastically recast Europe, but in ways that are still shifting and whose permanent effects are as yet unclear. Governments have risen and fallen, the Euro has repeatedly balanced on the brink and politicians have sought increasingly desperate measures to stave off economic collapse, let alone return Europe to stable growth. Populations have been traumatised by the widespread rise in unemployment, inequality and poverty.

Nevertheless no new politico-economic paradigm has arisen. Despite precipitate drops in support for the EU across the continent, manifold demonstrations and national strikes, as well as widespread disaffection both with pre-2008 economic policies and the post-2008 austerity remedies, the political panorama across Europe in 2013 looks remarkably familiar. With Italy's technocratic Monti government as the main exception, most European governments are still dominated by mainstream conservatives, Christian and social democrats or liberals, rather than newer parties formed in the wake of the crisis.

Yet one of the more remarkable, but least noticed, political consequences of this crisis has been the rise of European radical left parties, i.e. those to the left of social democracy. The most dramatic example is in Greece, where the Syriza party shot from 5 per cent of the vote to 26 per cent in 2012, narrowly missing forming the government. But elsewhere in 2012 (e.g. in France and the Netherlands), radical left parties have polled strongly. Nor is this phenomenon confined to the West: 2011/12 elections in Russia and Ukraine have shown previously moribund communist parties experiencing electoral rebounds.

However, this 'rise' has been profoundly paradoxical. On one hand, the idea that the radical left was somehow historically doomed after the collapse of the USSR can be decisively rejected: parties such as the Dutch Socialist Party, German Left Party and Icelandic Left-Green Movement appear stable fix-

tures in their party systems, whose vote has recently hit historic highs. The average vote for the radical left across Europe in 2000-11 was 8.3 percent, not so far behind radical right parties' average vote of 9.6 percent. Remember that, if we are to believe some analysts, the radical right's 'stellar' performance means that it will soon threaten the European continent¹!

On the other hand, shouldn't the radical left be doing much better? Shouldn't the crisis of neo-liberalism, rising unemployment, inequality, failing austerity measures and the travails of the Euro be a 'perfect storm' for parties who have long made replacing neo-liberalism their *raison d'être*? From this perspective, the 'success' of the radical left is remarkably patchy: for every Syriza, there is a 'Pythonised' party, whose fate is to end in recrimination, division and electoral collapse². Moreover, despite the recent softening in support for austerity measures in many elite quarters including the IMF, attributing this to the rise of the radical left, or indeed demonstrating any major policy successes for such parties, would be stretching credibility.

A new 'Rainbow left'?

The contemporary radical left is admittedly a very broad church. It encompasses post-communist 'new left' eco-socialist formations, such as the Portuguese Left Bloc and the 'Nordic Green Left' parties, nostalgically Stalinoid groups such as the Greek and Russian communists, anti-Stalinist 'reformed' communist parties like the Italian Communist Refoundation, not to mention a number of post-Trotskyist populist groups like the French Anti-Capitalist Party and Irish United Left Alliance.

These parties can be grouped as a coherent party family because they are united by a wish to radically transform and not just reform contemporary capi-

¹ Author's calculations from www.parties-and-elections.eu

² The phrase refers to the 1979 film Monty Python's *Life of Brian*, in which a fictional Judean People's Front parodied sectarian splits among the radical left

talism, although there are clear differences between parties mainly opposing neo-liberalism and those utterly rejecting private property and profit incentives. Similarly, although old distinctions between 'reformists' and 'revolutionaries' have elided – most of today's parties are self-evidently reformist – there are still distinctions between radical parties (critical of elements of liberal democracy) and extreme parties (rejecting liberal democracy in favour of Soviet or workers' democracy).

Certainly, this is a far more inchoate party family than in the Soviet era, when the definition of 'communist' was codified in the Comintern's 'Twenty-one conditions' and reinforced by the power, prestige and often direct interference of the Soviet Communist Party. This fuzziness has both advantages and disadvantages. On one hand it has allowed radical left parties to bridge their historical differences via a number of domestic and international alliances: it's now usual to find former Stalinists, Maoists and social democrats in the same groups. It has allowed the party family to become much less ideological and more pragmatic and flexible.

On the other hand, particularly as radical left parties make themselves more coalition-able, their positions are sometimes difficult to distinguish from competitor parties such as social democrats and Greens. Overall, the main USPs of the radical left are their commitment to political-economic transformation, their outright opposition to Euro-Atlantic institutions (the IMF, World Bank and NATO) (whereas the Greens and social democrats remain predominantly Atlanticist) and their 'Euro-scepticism'. This commonly-used term is very misleading however, concealing a kaleidoscope of critiques of the really existing EU.

OPPORTUNITIES FOR THE RADICAL LEFT

It was widely believed in the early 1990s that the collapse of the USSR would be the death-knell of the radical left. However, that these parties might actually recover in the wake of the Soviet collapse is less surprising than at first view. There are a number of opportunities that they have exploited:

The (partial) end of stigma

The end of Soviet support obviously deprived many smaller parties of a vital umbilical cord. How-

ever, for many it has allowed them (often very tentatively) both to be accepted as legitimate coalition partners and to adapt their policies towards national traditions. After all, real or perceived dependence on Moscow was an increasing weakness in the late twentieth century, reflected in French Socialist Guy Mollet's view of the French Communist Party that the party 'isn't on the left but in the East'. It is little coincidence that those parties most independent of Moscow in their domestic policies (e.g. the Italian PCI or Cypriot AKEL) were the most electorally successful prior to 1991.

The crisis of social democratic parties

The 'crisis' of social democracy since the late 1970s is interlinked with the broader 'modernisation crisis' engendered by the declining ability of the state to protect the economy and welfare against globalised financial and population flows. Structurally, this has weakened social democrats' links to traditional electorates and affiliated organisations like trade unions. More damagingly still, it has left social democrats' traditional Keynesian solutions at the mercy of neo-liberal financial markets, central banks and ratings agencies, leading to the neo-liberalisation of social democracy itself (at least prior to 2008).

The 'Third Way' policies promoted by many social democratic parties opened up a niche that radical left parties have been only too happy to fill. Many have adopted former social democratic policies, while still aspiring to systemic transformation beyond mere opposition to neo-liberalism. Often, the use of the 'Left' appellation rather than 'Socialist' (such as with the Left Party in Germany and Left Bloc in Portugal) is quite deliberate. Such parties try to act as a 'real left' or 'conscience of the left', appealing to disaffected social democrats who think that their own parties have abandoned them. The Greek Syriza is the most successful example of a radical left party exploiting the complete reputational, ideological and educational debacle of the social democratic party (PASOK) to present itself to former social democratic voters and cadres as a credible left governing alternative.

The dominance of Realos

The great debate among the Greens in the 1980s was between policy purist Fundis and more pragmatic Realos. The Realos won out and a similar process is slowly but surely underway on the radical left. Many

of the more successful parties (e.g. Dutch Socialists, Portuguese Left Bloc) are led by pragmatists who focus less on abstract Marxist theory and more on practical campaigns that try to attain concrete gains and to build support broader than the party. Parties such as the Scottish Socialist Party and the Irish ULA might be less obviously pragmatic, but have always been campaigning organisations through-and-through (e.g. the ULA's current campaign against the Household and Water taxes, to be introduced in Ireland in 2014). Similarly, most parties, even the more pragmatic, have become more 'populist' in terms of addressing broader strata within the 'people' rather than a narrowly-defined proletariat.

New governing aspirations

Similarly, many radical left parties now want to become relevant rather than redundant. This was hardly a feature of traditional Leninist parties, who often put policy purity before effectiveness! This is clear in their rekindled desire to govern. Most parties will at least consider joining coalition governments rather than adopting the Leninist policy of 'the worse, the better' and using parliaments as tribunes simply to disown their competitor parties. Currently radical left parties are in coalition in five European countries (Finland, Denmark, Norway, Iceland, Ukraine) and govern alone in one (Cyprus). Governing causes huge challenges, as it does for all smaller party families, but many parties consider that they will lose more if they don't take such opportunities when they arise.

The post-2008 economic crisis

Radical left parties have certainly benefited electorally from the crisis, as shown in Table 1 below. Taking the collapse of Lehman Brothers (September 2008) as the full onset of the crisis, it can be seen that on average, vote shares have increased by 30%. This is not surprising: parties such as the Greek Syriza have long critiqued national and EU-level governments for leading elitist neo-liberal projects imposing unacceptable sacrifices on an unwitting population. While in the first post-crisis years, many electorates (however grudgingly) accepted the right's arguments for belt-tightening to prioritise paying off national debts, the promises of austerity have proved meagre. Arguments such as Syriza's now look less like ideological fantasy and more like hard fact. Nevertheless, it is not surprising that the increase in vote share has not reg-

istered much in political consciousness – many parties are still so small that the increase in vote barely increases their political weight. Above all, Syriza is still very much the exception, and vote increases elsewhere scarcely amount to a breakthrough. It is more surprising that radical left parties haven't done better, sooner, and more often.

POST-CRISIS CHALLENGES

In fact, the post-crisis landscape is far less propitious than it appears, presenting a number of challenges for radical left parties. These are mostly long-standing challenges that the crisis has done little to alleviate.

Inelasticity of the electorate

Intra-party competition is rarely positive-sum. In normal circumstances, there are upper limits to the left-wing electorate and competition between different left-leaning parties rarely adds to it. Although they can gain new support from non-voters, protest voters and even right-wing populists, radical left parties predominantly recruit among those who might otherwise vote for social democrats and Greens. Thus, a strong radical left vote can paradoxically weaken the left overall by damaging a social democrat party's ability to form a government. Moreover, the more a radical left party fishes in other parties' electorates, the more volatile its own vote. Its own support proves particularly vulnerable if the main social democratic party can demonstrate it is a better 'useful vote' to defeat the right. This phenomenon was demonstrated most clearly in the September 2012 Dutch elections. When Labour leader Diederik Samsom outperformed the Socialist Emile Roemer

Table 1. Radical left parties' electoral performance, September 2008-December 2012

Country/Party	Post-crisis performance	Post-crisis vote change	Percentage vote retained post-crisis
Cyprus (<i>Progressive Party of Working People, AKEL</i>)	32.7 (2011)	+1.6	105.1
Czech Republic (<i>Communist Party of Bohemia and Moravia, KSČM</i>)	11.3 (2010)	-1.5	88.3
Denmark (<i>Red-Green Alliance, EL</i>)	6.7 (2011)	+4.5	304.5
Denmark (<i>Socialist People's Party, SF</i>)	9.2 (2011)	-3.8	70.8
Finland (<i>Left Alliance, VAS</i>)	8.1 (2011)	-0.7	92.0
France (<i>Left Front, FdG</i>)	6.9 (2012)	+2.6	160.5
Germany (<i>Left Party, LP</i>)	11.9 (2009)	+3.2	136.8
Greece (<i>Communist Party of Greece, KKE</i>)	7.5 (2009), 8.5, 4.5 (2012)	-1.4 (average)	82.9
Greece (<i>Syriza</i>)	4.6 (2009), 16.8, 26.9 (2012)	+11.1 (average)	350.0
Iceland (<i>Left-Green Movement VG</i>)	21.7 (2009)	+7.4	151.7
Ireland (<i>United Left Alliance, ULA</i>)	2.2* (2011)	+1.1	200
Latvia (<i>LSP</i>)	26.0* (2010), 28.4* (2011)	+12.8 (average)	152.9
Luxembourg (<i>The Left, LENK</i>)	3.3 (2009)	+1.4	173.7
Moldova (<i>Communist Party of Republic of Moldova, PCRM</i>)	49.5, 44.7 (2009), 39.3 (2010)	-1.5 (average)	96.7
Netherlands (<i>Socialist Party, SP</i>)	9.9 (2010), 9.6 (2012)	-6.8 (average)	59.0
Norway (<i>Socialist Left Party, V</i>)	6.2 (2009)	-2.6	70.5
Portugal (<i>Portuguese Communist Party, PCP</i>)	7.9* (2009/2011)	+0.3 (average)	104.0
Portugal (<i>Left Bloc, BE</i>)	9.8 (2009), 5.3 (2011)	+1.1 (average)	117.2
Russia (<i>Communist Party of the Russian Federation, KPRF</i>)	19.2 (2011)	+7.6	165.5
San Marino (<i>United Left, SU</i>)	8.6 (2008), 9.1 (2012)	+0.3 (average)	103.4
Slovakia (<i>Communist Party of Slovakia, KSS</i>)	0.8 (2010), 0.7 (2012)	-3.1 (average)	20.5
Spain (<i>United Left, IU</i>)	6.9* (2011)	+3.1	181.6
Sweden (<i>Left Party, V</i>)	5.6 (2010)	-0.3	94.9
Switzerland (<i>Labour Party/Solidarities (PdA/S)*</i>)	1.2* (2011)	-0.1	92.3
UK (Scotland) (<i>Scottish Socialist Party, SSP</i>)	0.4 (2011)	-0.2	66.7
UK (<i>Respect</i>)	0.1 (2010)	-0.2	33.3
Ukraine (<i>Communist Party of Ukraine, KPU</i>)	13.2 (2012)	+7.8	244.4
Overall average		+1.6	130.3

Key: * signifies in coalition. Source: author's calculation from www.parties-and-elections.eu

In leadership debates, this was enough to initiate the collapse of the SP vote. This inverse relationship between the electorates also implies that we are unlikely to see dramatic advances for the radical left unless something catastrophic happens to mainstream social democratic parties.

Weak links to movements

As Francis Fukuyama has noted, there is no 'Tea Party of the left' – a left-leaning populist movement strongly rooted in popular anger that can put its representatives in establishment positions³. Of course, until the 1980s, communist parties had links to a whole 'counter-society' of affiliated trade unions and social movements that multiplied their social weight. In most cases, this counter-society is his-

tory. Although radical left parties and activists have increased their extra-parliamentary activity since the instauration of the global justice and Social Forum movements, in general they still have tenuous connections to social movements and to trade unions; problems compounded by anti-party sentiment among wide swathes of activists (Subcomandante Marcos, the Che Guevara of the global justice movement, once famously expressed his disdain for organised Marxism by declaring 'I shit on all the Revolutionary Vanguards').

Latterly, as Mary Kaldor and others have shown, a new form of 'subterranean politics' most publicly represented by Occupy and the Indignados has arisen, which shares the radical left's demands for 'substantive, meaningful politics over markets'⁴. However, this has not yet demonstrably changed the fortunes of the radical left. Although radical left party activists have certainly participated, they are weakly embedded in this new politics from below. In part, this is because their own leaders often poorly understand it, but in the main it is because movements like Occupy are diverse umbrellas motivated by deep dissatisfaction with really existing democracy. Many activists still seek a new politics beyond parties and the Left/Right dichotomy. So, possessing only weak engagement with the extra-parliamentary realm, and as generally small parliamentary parties with limited governing opportunities, radical left parties are capable at most of influencing the political climate rather than fundamentally changing any state's policy direction.

Internal divisions

Although parties have made major efforts to overcome them, internal divisions still plague many parties and have on occasion proved fatal. For instance, the Italian Communist Refoundation auto-combusted in 2008, and the German Left Party has suffered protracted internal discord since 2009. In most countries, there are at least half a dozen radical left parties competing. No other party family has so many national representatives. Usually, these parties are infinitesimally small, but this certainly contributes to the 'salami-slicing' of a small electorate.

⁴ See Donatella della Porta, Lorenzo Mosca and Louisa Parks, 'Same old stories? Trade unions and protest in Italy in 2011', <http://www.opendemocracy.net/donatella-della-porta-lorenzo-mosca-louisa-parks/same-old-stories-trade-unions-and-protest-in-italy>

³ <http://www.spiegel.de/international/world/spiegel-interview-with-francis-fukuyama-where-is-the-uprising-from-the-left-a-812208.html>

This lingering factionalism is undoubtedly a legacy of Marxism-Leninism's obsession with correct doctrine and exegesis from a narrow range of 'classics' – some parties have never let their total lack of social influence get in the way of an elegant theory! It is also an organisational legacy: some communists cling to hierarchical forms of democratic centralism that regularly purge dissidents; conversely, many parties have rejected Leninist models but struggle to develop new forms of organisation that are both democratic and cohesive.

Some of the clearest divisions are over the EU. Indeed, radical left aspirations at European level have traditionally demonstrated 'Euro-Pythonisation' – a plethora of competing and largely irrelevant initiatives! Only since 2004 has the radical left tried to consolidate at European level via the European Left Party. Whilst this organisation has been a step forward after the complete absence of united communist policies towards the European Community in the 1970s/1980s, it still punches below its weight (being noticeably weaker in policy terms than the similarly-sized European Greens), and remains divided between 'sovereignists' and 'Europeanists'. The former regard the national state as the best way to combat global neo-liberalism, the latter aspire to use the institutions of the EU to radically reform it from within.

The Eastern vacuum

Another legacy-influenced weakness is in former communist countries. Here, the only significant radical left parties are communists. Many of these are electorally relatively strong (indeed the Moldovan Communists are arguably the most electorally successful communist party in free elections). However, outside the Former Soviet Union they are virtually absent (except in the Czech Republic). This weakness has deep roots: communism's legacy remains divisive and many parties have suffered legislative exclusion and repression. Moreover, the relatively fluid post-communist party systems have meant that radical left parties contend with a menagerie of 'social populist' parties using socially protectionist rhetoric alongside national-religious slogans (such as the Polish Self-Defence party), which make articulating a distinct message still harder. This weakness matters, because, the more that former Eastern Europe joins the EU, the weaker the radical left has become within the EU (it had 7.8 percent of European parliamentary

seats prior to the 2004 enlargement, just 4.8 percent today). Moreover, because of the vastly different significance of 1968 in both West and East, the Eastern parties are generally far less engaged with post-materialist and post-Leninist left traditions, adding another cultural and ideological cleavage to the existing heterogeneity of the European radical left.

Lack of the vision thing

Undoubtedly most debilitating for the contemporary radical left is how to develop a distinct vision relevant to contemporary Europe. A large part of this is the dominant narrative of TINA ('There is no other way'). Despite the evident crisis of neo-liberalism, most European political, economic and media elites appear to regard fundamental challenges to the neo-liberal consensus as impossible and radical left parties as dangerous and irresponsible populists/extremists. For instance, the number of media stories in 2012 describing the Dutch Socialist Party as a 'far left' party indicates the exceedingly narrow scope for publicly-articulated alternatives: the SP has actually moderated so that its policies are little different from a moderately Eurosceptic social democratic party! It is certainly legitimate to ponder how the essentially Keynesian solutions proposed by the radical left could work in a world of globalised financial flows, and this is a question to which the radical left has rarely had a coherent answer, but it is also worth asking whether such arguments do not need drastically rethinking when neo-liberalism itself has lost so much credibility.

It is not that (as is often proclaimed), the radical left does not have ideas or practical solutions. It has plenty of them, including models of participatory budgets and local democracy developed in Latin America and Iceland, amongst other places. Indeed, the Financial Transaction Tax, now a mainstream idea among European policy makers, is one that the radical left did perhaps the most to publicise. However, radical left parties themselves still face fundamental credibility issues. No radical left party has governed a large EU state. Most often, governing parties are small components of larger coalitions and struggle to demonstrate even to their supporters that achievements in office justify compromises necessary to get there. The only solely-governing radical left party in Europe, the Cypriot AKEL, has hardly demonstrated any ability to turn the tide. After all, AKEL made no complaint

in 2011 in adopting the EU fiscal treaty that imposes penalties if countries' budget deficits exceed 3 %, and has since begun negotiating a debt-restructuring deal with the IMF.

More problematic is that the radical left lacks a distinct meta-narrative now that this is no longer (for most parties) communism in any coherent sense. Radical left parties often fail to communicate their core messages in ways that resonate as much as anti-immigration or environmentalism, and so cede intellectual and electoral ground to the right and Greens. The diminution of their message is reinforced by red-washing (the appropriation of radical left parties' slogans and ideas by other parties), something been scarcely conceivable in the Soviet era! Since 2008, Greens and social democrats have increased their criticism of neo-liberalism, while radical right parties such as Jobbik and the True Finns have long claimed to be true workers' parties. Newer formations like the Pirate Party can often better appeal (although perhaps temporarily) to younger anti-establishment voters for whom parties in general and left parties in particular appear antiquated organisations.

CONCLUSION – WAITING FOR THE GREAT LEAP FORWARD?

Clearly, the radical left's impact on European politics has been less than the sum of its parts. There is demonstrably an increase in electoral performance. Radical left parties are more organisationally and ideologically consolidated and confident than they have been for several decades. Many have become stable actors in their party systems, and increasingly in government, and as such need to be reckoned with by political elites. They have been able to affect the political climate, and some of their long-articulated policies have entered the political mainstream.

The weaknesses of these parties are equally apparent and are long-standing and difficult to surmount. Historical legacy still looms large, evident in the absences of relevant parties in many European countries, above all in the East. Several parties still face internal ideological and strategic divisions, particularly over the balance to be struck between national and EU-level policies, and their international co-ordination, though increasing, still leaves much to be desired. Though far less doctrinaire than hitherto,

they still remain among the most ideological of party families, making the absence of a cohesive vision still more problematic. Overall, these parties remain on the defensive, the central strategic problem being first to successfully mount a rearguard defence of the Keynesian welfare state before even considering a more proactive transformation of capitalism, for which there still remains no credible blue-print.

Certainly it is likely that radical left parties will only increase in influence. The more protracted the crisis, the more recession becomes depression, the more unemployment and inequality become entrenched, and the more that traditional elites and parties become disconnected from the electorate, the greater the mobilisation potential for the radical left (although they face a crowded field with the Greens, a resurgent radical right and newer non-party movements). The more that EU and national elites propose economic solutions that drastically reduce the living standards of their populations, the less surprising that populist reactions of left or right must be. However, the principal caveat is that most radical left parties remain small actors that are barely the masters of their own environments. Greece remains exceptional, and only precipitate declines in economic and party system stability will give them dramatic opportunities for growth elsewhere. Accordingly, where radical left parties are established they may well get bigger, but where they are small they are likely to remain small, and where they are non-existent, they are unlikely to make major breakthroughs. Therefore, the most likely medium-term scenario is no 'great leap forward', but a succession of baby steps. But European elites beware: babies eventually learn how to run!

HOW TO REMOVE THE GEOGRAPHICAL DISADVANTAGES IN LANDLOCKED COUNTRIES: A CASE STUDY IN CENTRAL ASIA

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Abstract: Landlocked Countries (LLCs) are usually marked by low economic development. Most LLCs have lower steady-state incomes than coastal countries and hence report a comparatively lower economic growth. LLCs suffer from “remoteness” from large economic markets. This remoteness results in long and variable shipment times as well as high shipment costs. Furthermore, it renders products from LLCs less competitive in the global market. Given their geography, LLCs cannot directly access maritime transport in their own territories. In order to transport goods by sea, these countries must use land transport to reach the seaports of neighboring coastal countries. At least one border crossing is also required, and such crossings are widely recognized as bottlenecks that negatively impact shipment times and cost. This report discusses how to remove the geographical disadvantages in LLCs. A case study is two central Asian countries; Uzbekistan and Kazakhstan.

Keywords: Landlocked countries, Freight Transport, Cross borders.

1. INTRODUCTION

Nowadays in the globalization, maritime transport is one of the most important transport modes for international trade due to its high economies of scale. However, Landlocked Countries (LLCs) cannot directly access maritime transport in their own territories because of their geography nature. In order to transport goods by maritime transport, these countries need to use land transport such as road, rail and waterway to access to seaports in neighboring coastal countries.

LLCs are usually marked by low economic development due to their geographic conditions. Sachs and Warner (1997) revealed that, compared to coastal countries, LLCs have lower steady-state incomes, and hence lower economic growth. Gallup et al. (1999) concluded that being landlocked reduces a country's

growth by at least half a percentage point. According to the World Bank (2008), most LLCs have two problems: poor neighbors and remoteness from large economic markets such as the United States, Europe, or Japan. This remoteness results in long and variable shipment times and, consequently, high shipment costs because the shipment included need for passing through at least one border (Arvis et al., 2007). Border crossings are widely recognized as bottlenecks which violating shipment time and cost due to delay. For instance, Mackellar et al. (2002) revealed that the cost of a border crossing in Africa is equivalent to approximately 1,600 km of land or 11,000 km of maritime transport. It results in LLC products being less competitive in the global market, which has an adverse impact on the economic growth of these countries.

This report discusses how to remove the geographical disadvantages in LLCs. A case study is two Central Asian countries; Uzbekistan and Kazakhstan. The purpose is to identify problems of cross border freight transport of LLCs for both physical and institutional issues adversely contributing on them through field survey.

2. FIELD SURVEY

This section dedicates to illustrate the clarifying and confirming the problems related to haulage of LLCs learnt from field surveys (interview surveys and site visits) in Uzbekistan and Kazakhstan. Problems extracted from the surveys would not be only physical issues but also institutional issues that include binomial agreement between countries, multinomial agreement, other treaties facilitating smooth inland cargo flow, etc.

2.1 Overview of the Survey

The field surveys were conducted between the period of September 27th and October 3rd, 2009 in two

Central Asian countries, Uzbekistan and Kazakhstan. Interview surveys were conducted with seven state-owned companies and governmental organizations from Uzbekistan and two private companies from Kazakhstan. In addition to interview survey, site visits were conducted, such as Uzbekistan/Kazakhstan Border (Yallama), Railway Container Terminal in Tashkent, Kyrgyzstan/Kazakhstan Border, Almaty Railway Container Terminal, and logistics center of private company in Almaty.

Uzbekistan is one of the most severe-conditioned countries in terms of inland freight transport because of the geographical situation that the country is forced to pass across the border at least twice to access to seaport. Such countries are called as a “double” landlocked country. The number of border crossing has negative impact on shipment time, cost, and trade volumes. Considering above factors, field survey in Uzbekistan were conducted. Accompanying with Uzbek survey, Kazakhstan were also visited for more survey.

2.2 Routes of Inland Transport

In this section, routes for freight transport from/to Uzbekistan and Kazakhstan are addressed. Accompanying with the routes, several problems lied on the routes and haulage related treaties are presented.

The haulage between Uzbekistan and Russia, which occupies the largest portion of trading amount in terms of monetary term for Uzbekistan is normally operated by trucks through Kazakhstan. For transit in Kazakhstan and Russia by Uzbek truck, permission for truck operation is not necessary. Types of exporting goods transported to Russia are daily goods, cotton, agricultural products, and automobiles whereas those of import from Russia are wooden material and unavailable goods in Uzbekistan. Shipment time normally takes 2-5 days, 3 days can be variable for nearly 4,200km journey.

The haulage to China is normally conducted by rail transport through Dostyk/Alashankou border which is shown in Figure 1. In this route, total shipment time between Tashkent and Lianyungang seaport takes 14-20 days, which implies that 6 days can be varied. The types of export goods to China are mainly secondary materials such as oil, silk material, plastic, bottle, etc., whereas those of import from China is mainly daily goods, electrical goods, construction material,

machinery, etc. At the border crossing point, cargo inspection is required since China is not a member of the Federation of International Trade Associations but Uzbekistan is. Consequently, delay usually occurs at the border due to the several processes including cargo inspections.

Regarding the haulage from/to European countries, it is dominantly conducted by truck through Kazakhstan and Russia. Railway operation for freight transport in this route is minor. The permission for Russian transit is not required according to the bilateral agreement. The attractive point of haulage by trucks is shorter shipment time, which takes 5days-1week, whereas shipment cost takes 4,000-5,000USD per one truck. The possible maximum variability of this route with two border crossing is 2days. In case of seaport access from Uzbekistan, the route through Iran is normally chosen. In this case, Bandar Abbas seaport in Iran is normally used, and Caspian Sea route is also rarely used. In case Iranian route, shipment time gets longer, approximately 20 days to Europe, however, shipment cost is lower than Russian route, which takes 2,500-3,000USD per a truck. This is rational since maritime transport is lower cost in general. The final destinations of Iranian route are; Greece, Bulgaria, and Italy in general. In case of Caspian Sea route, goods rarely transported till France but it is very few amount. Karachi seaport in Pakistan is not used mainly due to the reason that Afghanistan transit is impossible so far.

In case goods are transported to/from South East Asia, the route is normally passing through Bandar Abbas seaport using maritime transport. The reason to use this route is that the shipment cost of land transport is relatively higher through China. The shipment time till Bandar Abbas seaport is to be approximately 7-10 days by truck. Between Uzbekistan and East Asia, Japan and Korea, it is normally relayed Vostochny (Vladivostok) seaport in Russia or Lianyungang seaport through Kazakhstan using China Land Bridge (CLB). The route through Bandar Abbas seaport is not used. The haulage to Afghanistan, which is neighbor country, is operated for transporting the goods such as daily goods, military goods, metal, oil, etc. The border is limitedly opened between 8am till 5pm.

Next, the route from/to Kazakhstan is addressed. As for from/to Russia, railway transport through

Novorossiysk is mainly used for food products. The final destinations are normally large cities such as Moscow and Saint Petersburg. The distance transported between Almaty and Moscow is approximately 4,000km and shipment time is accounted as 3-4 days for trucks. In this case, shipment time variation is 1 day. Shipment cost is approximately 1.5 USD/km in average, however, it is varied depending on insurance, scale of companies, etc. The shipment time between Almaty and Moscow by railway takes approximately 10-12 days. Regarding shipment cost using container, it costs 1.5 times higher than non-container haulages.

The shipment time between Shanghai and Dostyk by railway transport, it requires approximately 1 week. One needs to take 1-3 days for transshipment for 500-600 rolling-stocks at the border Dostyk/Alashankou due to the differences of gauge size. The opening time of the border is limited between 8 am and 8 pm. In regard to haulage from/to Europe, Russian route by truck is the most common. To Japan, it is same route as haulage from/to Uzbekistan. They are using CLB for accessing to Lianyungang seaport.



Figure 1: Location of Each Point in Central Asian Cross Border Freight Transport

2.3 Treaties related to Freight Transport

Treaty and agreement related to freight transport of Uzbekistan and Kazakhstan surrounding CIS (Commonwealth of Independent States) countries are summarized as following (1)-(6).

(1) TIR (TRANSPORT INTERNATIONAL ROUTIER)

United Nations Economic Commission for Europe (UNECE) manages TIR. After cargo are inspected and bonded at the departure location of the

number countries of TIR, TIR sticker is put on the trucks. The trucks with TIR sticker are no longer take cargo inspection within the member countries. In general, customs clearance is separately prepared for such trucks. TIR would contribute on the decrease in unnecessary delay at the border.

(2) AGREEMENT ON FREIGHT TRANSPORT

By this convention, cargo inspection process in the CIS country can be omitted in case more than two border crossing for one haulage. In the route of Uzbekistan-Kazakhstan-China, cargo inspection upon arrival at Kazakhstan is exempted. However, because China is not acceded to this convention, cargo inspection process is required upon arrival at China. This convention is also effective in terms of reduction in transit cost and tariff between CIS and Russia, who are members of this convention.

(3) FITA (FEDERATION OF INTERNATIONAL TRADE ASSOCIATIONS)

In order to export to countries in Central Asia from non-Central Asian countries, several numbers of procedures are required and authentication by FITA is required. In order to pass through countries non-FITA member countries, change of the carrier is required on all such occasions.

(4) SPECA (UN SPECIAL PROGRAMME FOR THE ECONOMIES OF CENTRAL ASIA)

SPECA is one of the regional cooperation framework led by United Nations Economic and Social Communication for Asia and the Pacific (ESCAP) and intended for integration of Central Asia into the global economy and the strengthening of regional economic cooperation in Central Asia. SPECA member is currently seven countries such as Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

(5) UNION OF COMMON CUSTOMS CLEARANCE

Union of Common Customs Clearance was jointly come into the force by three countries, Kazakhstan, Russia, and Belarus on January 1, 2010. It will finally become effective in June 2011. Among these unions, freight movement within the member countries is allowed one customs clearance thanks to com-

mon declaration form. Tajikistan and Kyrgyzstan is currently an observer, and are expected to be future members.

(6) OTHER COUNTRY-BASE AGREEMENTS

Kazakhstan and China:

In case exporting from Kazakhstan to China, it is prohibited to enter China by Kazakh trucks in principle. However, Kazakh truck can transport up to Urumqi and rail cargo can be transported up to Khorgos thanks to bilateral agreement of two countries. The border point is jointly managed as border cooperation center (neutral place).

Kazakhstan, Uzbekistan, and Turkmenistan (Treaty of three countries):

In case a foreign-flag truck (Kazakhstan and Turkmenistan) operated in Uzbekistan, it is necessary to declare transport route when entering to Uzbekistan. Subsequently, map with designated route will be distributed to truck drivers. The drivers are prohibited to drive non-designated route. There are similar treaties among Uzbekistan, Kyrgyzstan, and China.

2.4 Cross border Freight Transport Problems in Uzbekistan and Kyrgyzstan

From the interview survey, several freight transport problems which will contribute on additional cost which may be considered for their route choice are examined. Associated with freight transport problems in Kazakhstan and Uzbekistan for violating stable transport supply, major and minor problems are summarized. In the survey, potential freight transport problems, which are listed up prior to the interview survey, were asked. After that, other transport problems were answered by open-ended question method.

(1) MAJOR PROBLEMS

A. Failure of the rail vehicle is problematic although no failure on track line. Among total domestic freight by rail in Uzbekistan from the beginning of 2009 till September 2009, the vehicle broke down about 20 times. The total capacity of rail freight transport is approximately 240 million tons.

B. There is waiting time caused by congestion in rail transport. Approximately 5% of total train does not comply with the timetable.

C. Lack of equipment for scanning cargo at the

border is causing the long delay

D. Lack of resting place for drivers

E. In Kazakhstan, the problem is engine failure due to entering the desert sands.

F. Because of delays at the border affecting the fare increase, it should be improved. That delay occurs randomly, thus it is tough to predict the delay.

G. On the haulage to Mersin in southern Turkey facing the Mediterranean Sea from Uzbekistan, the driver's visa is sometimes expired due to the waiting time for the ferry.

H. Unofficial payment may be illegally collected by the customs officials and border guards. It happens mainly at the border.

(2) MINOR PROBLEMS

A. Damage on goods transported by railway container freight transport is few, in the case of cargo damage occurs, insurance can be applied

B. Cargo damage caused by vibration is few as far as following haulage regulation

C. The regulation change in rail freight transport is managed by Central Soviet Union Railway Company located in the Moscow office. The information will be noticed to the country. Therefore, the problems caused by a sudden rule change are few.

D. During the winter season, special container is used for transporting cargo in order to prevent freeze.

E. No damage on the cargo due to rain, snow, and water leakage

F. Lack of the container in Uzbekistan is only during the peak season, and can be coped with the problems by renting containers from Russia and Kazakhstan.

G. Pilferage of cargo is problematic, however, the loss due to the pilferage can be covered by insurance. In case it happens in rail transport, railway company takes responsibility on it.

H. The lack of space at the terminal is not problematic.

I. Negative impact due to language differences at the border is not also problematic.

3. SUMMARY

From the field survey in Central Asia, several problems were found. They can be divided into two types of problems which are major and minor problems. As an overall trend, it can be observed that minor problems are not regularly occurs in general, despite its impact. Also, they are normally covered

by insurance. On the other hand, major problems are related to delay due to the low reliability of the route.

Potential ways to remove the geographical disadvantages in LLCs is to facilitate border crossing. One of the effective measures is to enhance transport related treaties. For example, regarding the cargo inspection at the border, it can be exempted if both countries are members of TIR. In this case, quality of the infrastructure for cargo inspection does not matter to pass through the border. At the same time, treaties should be covered a wide range of countries. In the case of Kazakhstan-China transport, Kazakh truck can enter China till Urumqi by the bilateral agreement. However, cargo inspection is required at the border since China is non-member of TIR. Consequently, delay at the border occurred in spite of bilateral agreement. Unless effective treaties to facilitate border crossing exist, the process at the border needs to be facilitated physically. In general, required processes at the border are Customs clearance, Immigration, and Quarantine (CIQ). These processes would be facilitated several programs such as "one stop border post (OSBP)", "electrified data exchange", etc. Currently, several documents are required to submit for customs clearance as a paper format in Central Asian nations. In case these documents can be submitted as an electrified format, time taken at the border would be shortened dramatically. The use of an infrared Scanner would also be effective for cargo inspection.

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CHINA'S PRIVATE HEALTH INSURANCE MARKET DEVELOPMENT ANALYSIS—BASED ON PROVINCIAL DATA FROM 2003-2010

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Abstract: China's insurance market has expanded very quickly during the past 3 decades. However, the private health insurance market steadily stayed at a low level of 5%-6% market share annually. Soaring medical expenses did not seem to contribute to the consumption of private health insurance. Factors having an impact on the demand for private health insurance are explored. And New Medical Reform Policy's effect on private health insurance is also testified, by using provincial-level panel data on this topic. The regression results show that China's social health insurance is positively correlated to the commercial health insurance market, in contrast to the assumed crowding-out effect. And the overall effect of New Medical Reform has prompted consumption of private health insurance to a new level. Average hospital and income are significantly positive. The findings provide valuable insights for both insurers and regulators in China.

Over the past decade, China has enjoyed a rapid annual growth of 9.8%. With the economy expanding, China's insurance market has also gone into fast-growing period. From 2003-2011, the insurance premium has grown at 15.63% annually. China's commercial health insurance also embraced with 27.28% annual growth annually. However, the private health insurance market remains consistently at a low level, penetrating only 5%-6% of the insurance market. In 2011, the total premium for private health insurance was RMB 691.72 billion (approximately US\$10.96 billion), only 4.82% of total insurance premium in China. The relevant data are shown in Figures 1 to 3.

Nevertheless, as medical expenses soaring, the private health insurance shares only 1%-2% total medical expenses. In developed countries, like France,

Canada and Australia, where social health insurance covers most medical expenses, private health insurance can still share 10% medical expenses. There is a huge market potential for private health insurance in China. Relevant data are shown in Figure 4 to 5.

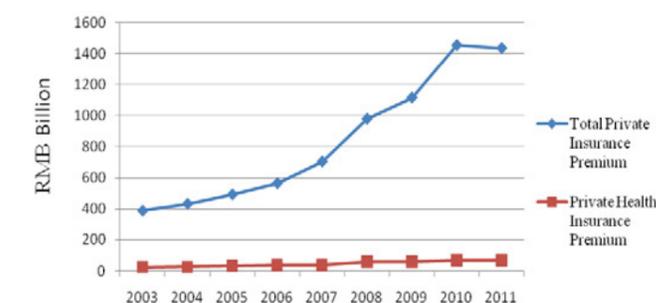


Figure1. Total Private Insurance and Private Health Insurance Premium volumes

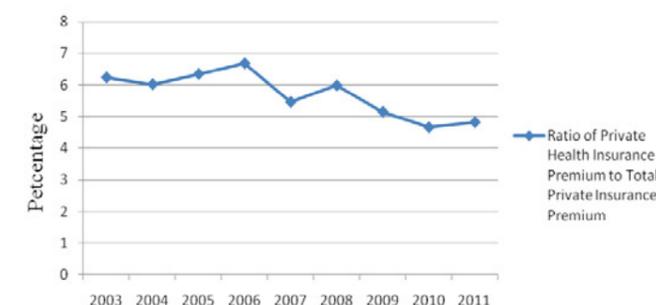


Figure2. Private Health Insurance market share

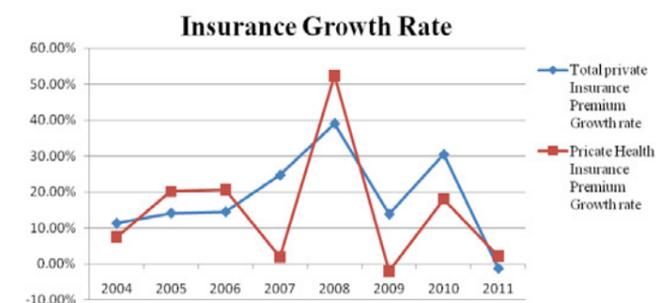


Figure3. Private Health Insurance Premium Growth rate and Total Private Insurance Premium Growth rate

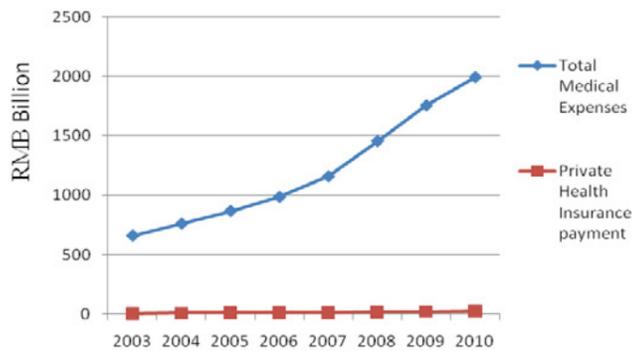


Figure 4. Total Medical expenses and Private Health Insurance payment

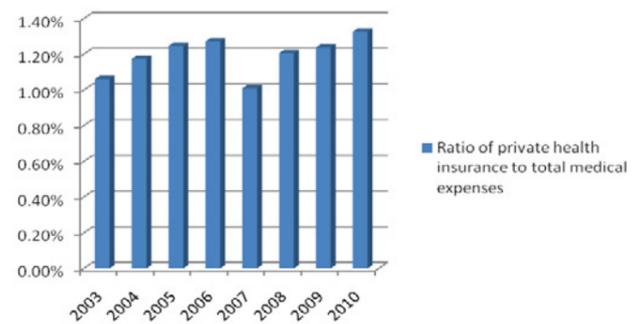


Figure 5. Ratio of Private Health Insurance to Total Medical Expenses

There are many reasons behind this underdeveloped health insurance in China. One of them may be the unclear definition of social health insurance and commercial health insurance. We need to explore their respective roles in dealing with people's medical expenses.

China's medical reform has been through 3 stages (Sun Qixiang, 2010). From 1978-2003, with the open-up policy, China established its special social-market economy, government has been cutting down its investments in hospitals and medical services are deemed as transactional goods, thus booms medical expenses. In 2003, SARS devastated destruction revealed potential defects in China's medical system. And soaring medical expenses heavily burdened people's life. Therefore, China's government spared all efforts in establishing and expanding a systematic medical insurance coverage. Also in 2003, private health insurance has begun to participate in the construction of medical insurance system. In order to clarify the relationship between social health insurance on private health insurance, we would start our data from year 2003.

With the implement of China's New Medical Reform from 2009, social medical system, hospitals, as well as private health insurance companies are reshuffled in this construction. Since private health insurance barely covers in rural areas, we would focus on urban areas. Therefore, Urban Basic Medical Care Insurance is used as a proxy for social health insurance. Figure 6 illustrates that they have both grown from 2003-2011.

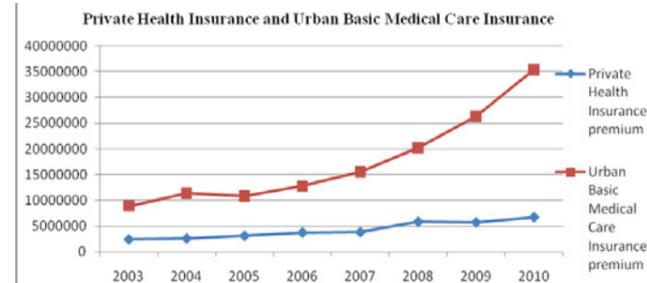


Figure 6. Private Health Insurance premium and Urban Basic Medical Care Insurance premium

DATA AND MODEL SPECIFICATION

Unlike prior macro studies, the present study explores the demand for private health insurance in China and mainly focuses on 2 aspects: 1) the relationship of private health insurance and social medical insurance; 2) the impact of New Medical Reform Policy on private health insurance, by in-depth empirical analysis using panel data at 31 provinces (i.e. not including Taiwan, Hong Kong, Macao) in China from 2003-2010 (248 observations). Panel data models are employed in the econometric analysis, which overcomes the unobservable heterogeneity problem in the estimation. Both random effect and fixed effect models are tested.

The effect of New Medical Reform Policy on private health insurance is testified. We take the dummy variables and split the year 2009 as a border to test and compare the different results after the implement of New Medical Reform. Because this policy has influenced both basic medical insurance coverage as well as the medical service supply, as the policy suggested. Therefore, we would consider the policy's direct impact on private health insurance as well as the indirect impact by influencing other explanatory variables.

In consistency with Wang Lu (2009)'s suggestion,

we will narrow our data to urban areas. Since urban residents' social medical insurance has not launched until 2007, we will choose urban employee's basic social medical insurance as a proxy for social insurance coverage. Unlike previous studies, we replace the direct amount with amount per person or proportional amount throughout our model, because they are more capable of representing the practical situation in China. Seven factors are specified to be explanatory variables in the model shown below:

$$\text{Where } \ln = \ln$$

$$\ln Y_i = \alpha + \beta_1 * \ln(\text{urban}) + \beta_2 * \ln(\text{income}) + \beta_3 * \text{elder} + \beta_4 * \text{hosp} + \beta_5 * D(\text{New}) + \beta_6 * D(\text{New}) * \ln(\text{urban}) + \beta_7 * D(\text{New}) * \text{hosp} + \varepsilon_{it}$$

(average urban area's private health insurance premium per person)

$$\ln(\text{urban}) = \ln$$

(average urban employees' basic social medical insurance payment per person)

$$\ln(\text{income}) = \ln$$

(average urban disposable income per person)

D(New) = Dummy variable that is before the implement of New Medical Reform Policy (0) or after the implement of New Medical Reform Policy (1)

elder = the proportion of elder population

hosp = the proportion of hospital per 10,000 person

= disturbance term

ε_{it}

The data sources are the China Insurance Yearbook, China Statistical Yearbook, China Health Statistical Yearbook, and other similar references.

The variable urban is the amount of basic employees' social medical insurance payment, rather than the premium received. Considering the influence of New Medical Reform Policy, D(New) is introduced in this model. However, this policy may also have an influence on both urban basic medical insurance and medical service standards. Therefore, D(New)*ln(New) and D(New)*hosp are also introduced. elder is a proxy for the population factor. hosp measures the average supply of medical service, as well as the average standard of medical service.

Finally, for robustness consideration, we would delete the data of Tibet. Private health insurance has not reached Tibet until 2007. If we remain Tibet data with 0 private health premium from 2003-2006, this may lead to unexpected negative amount () and increase the volatility of .

EMPIRICAL RESULTS

Sample Characteristics and Correlation Analysis

Table 1 lists the descriptive statistics of the variables used. The variance of all factors, despite dummy variables, are very small in effect. That means our application of logarithmic function effectively reduces the size of the variance.

The variance of elder is 1.749, indicating that in urban areas, elder people's population distributed more unevenly. And this is obvious with our observations: some western areas (such as Chongqing) elder population is twice the size of that in coastal areas (such as Guangdong), because millions of young workers flushed into coastal areas. Besides, the size of elder is also not even in coastal areas. For instance, Shanghai, the financial center of China, the size of elder people has been the largest over the years, shedding light on that with the economic development, someday China will have to support a large amount of elders. Thus, a systematic medical insurance is urgent and indispensable.

The correlation matrix in Table 2 shows that ln(income) are highly correlated with ln(y) and ln(urban). This is obvious because part of our income are spent on purchasing urban social medical insurance and private health insurance. Despite that, our model does not exist multicollinearity. That means variables introduced could explain the model effectively.

REGRESSION ANALYSIS

	M	SD	p50	kurtosis	Skewness	Min.	Max.
lny	3.984	0.705	3.975	3.515	0.312	1.585	6.094
ln(urban)	6.628	0.436	6.626	3.019	0.028	5.295	7.785
ln(income)	9.387	0.356	9.398	2.511	0.343	8.784	10.368
elder	8.935	1.749	8.656	5.337	1.123	5.375	16.804
hosp	0.396	0.160	0.383	4.676	1.107	0.149	0.988
D(New)ln(urban)	1.714	2.982	0.000	2.394	1.170	0.000	7.785
D(New)hosp	0.091	0.177	0.000	6.556	1.976	0.000	0.887
D(New)	0.250	0.434	0.000	2.333	1.155	0.000	1.000

Source: China Insurance Yearbook, Various years

	lny	ln(urban)	ln(income)	elder	hosp	D(New)ln(urban)	D(New)hosp	D(New)
lny	1.000							
ln(urban)	0.692	1.000						
ln(income)	0.702	0.694	1.000					
elder	0.433	0.408	0.374	1.000				
hosp	-0.141	-0.099	-0.493	-0.327	1.000			
D(New)ln(urban)	0.280	0.333	0.558	0.075	-0.107	1.000		
D(New)hosp	0.232	0.290	0.409	-0.017	0.116	0.898	1.000	
D(New)	0.266	0.303	0.552	0.067	-0.110	0.998	0.897	1.000

Source: China Insurance Yearbook, Various years

The OLS method shown in Table 3 takes cross-section time-series data as an independent specimen, so the results are just for reference. The table shows ln(urban) is positive but insignificant. And ln(income) is positively related and statistically sig-

nificant at the 5% level. $\ln(\text{income})$'s coefficient shows that $\ln(\text{income})$ is highly correlated with $\ln y$. Thus, there is a good chance that urban residents' income played an important role in the demand of private health insurance. elder is also positive and statistically significant at the 5% level.

According to the Hausman test, the results of the

	Coefficient	SE	t-ratio	p-value
<i>_cons</i>	-13.0028***	2.2031	-5.9000	0.0000
<i>ln(urban)</i>	0.2566	0.2658	1.4200	0.1650
<i>ln(income)</i>	0.9821**	0.4265	2.3000	0.0280
<i>elder</i>	0.0780**	0.0349	2.2400	0.0330
<i>hosp</i>	-0.4167	1.1367	-0.3700	0.7160
<i>D(New)ln(urban)</i>	0.0522	0.1805	0.2900	0.7740
<i>D(New)hosp</i>	0.3521	0.5785	0.6100	0.5470
<i>D(New)</i>	-0.6250	1.3460	-0.4600	0.6460

Adjusted R2=0.42679
F(7,29)=31.17 Prob>F=0.0000
Source: China Insurance Yearbook, various years.
*, **, and *** denote significance at the 0.1, 0.5, and 0.01 levels, respectively.

panel data model are more reliable. In our panel data model, the coefficient and SE of every variable is much lower than those in OLS model. In Table 4, the Hausman Coefficient is 0.00, indicating that a fixed effect model is more reliable.

As expected, $\ln(\text{income})$ is highly correlated with the coefficient 0.9788. It means that the income elasticity of private health insurance is 0.9788. That's why we have to narrow our scope to urban areas, because most of the consumption is done in urban areas.

Unlike the OLS model, $\ln(\text{urban})$ is significant at the 5% level, with a positive coefficient 0.2143. The coefficient of $D(\text{New})\ln(\text{urban})$ slightly reduces the portion of private health insurance (-0.1753). However, the overall effect after the implement of New Medical Reform Policy is 0.0390. No matter it is before or after the New Medical Reform Policy, it clearly illustrates that urban basic social insurance's payment per person has contributed to the private health insurance consumption, rather than the assumed crowding-out effect. That is to say, as a whole, social medical insurance's has prompted the private health insurance's development, or, we could say that the complementary effect is stronger than crowding-out effect. Also, it is a warning that in our New Medical Reform Policy, the excessive expanding of social medical insurance coverage does a slightly negative effect for private health insurance.

elder is positively related, but not statistically sig-

nificant. One plausible explanation is that nowadays, private insurance products can not meet people's needs. Another explanation involves the traditional way of treating elder people in China. As elder people tend to get coverage by other family members, seldom of them would turn to private health insurance for coverage if they get sick. In practice, most of the private health insurance policies are purchased by young or middle-aged men or women, and for them, enterprises would purchase private health insurance as extra benefits no matter they have elder people or not in their family.

hosp is positively correlated and statistically sig-

	Coefficient	SE	t-ratio	p-value
<i>_cons</i>	-7.4848***	0.9720	-7.7000	0.0000
<i>ln(urban)</i>	0.2143**	0.0934	2.2900	0.0290
<i>ln(income)</i>	0.9788***	0.1289	7.6000	0.0000
<i>elder</i>	0.0158	0.0117	1.3500	0.1880
<i>hosp</i>	1.8212***	0.3212	5.6700	0.0000
<i>D(New)ln(urban)</i>	-0.1753**	0.0745	-2.3500	0.0260
<i>D(New)hosp</i>	0.5543***	0.1797	3.0800	0.0040
<i>D(New)</i>	0.9932*	0.5256	1.8900	0.0690

Fixed vs. random effects(Hausman)=0.00 (prob.value=1.0000)
Source: China Insurance Yearbook, various years.
*, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

nificant. After the implement of New Medical Reform Policy, average hospital numbers' contribution is enhanced further. High standard medical service stimulates private health consumption. Therefore, private health insurance should cooperate with hospitals, in order to provide better medical services to consumers, as it will do good to customers and insurance company, as well as hospitals.

$D(\text{New})$ is positive and statistically significant. That means after the implement of New Medical Reform Policy, it improved the whole consumption level of private health insurance. It is also consistent with our conclusion that social medical insurance will prompt the development of private health insurance, instead of crowding-out effect. One plausible explanation may be that in China; most private health insurance is consumed by groups, such as urban employees' private health insurance. When companies are forced to purchase urban basic insurance, they will also include group private health insurance for supplementary coverage for their employees. Besides, basic social health insurance's positive external effect will be good advertisements for private health insurance companies. After owning their own basic

social health insurance, urban residents tend to know more health insurance information and thus, in turn, enhanced their insurance awareness, and the urge to buy private health insurance for extra coverage.

CONCLUSION

Private health insurance consistent low market share has been harnessing the whole medical insurance system in China. With the implement of New Medical Reform Policy, China's medical insurance was promoted to a new era. Major questions concerning factors hindered the development of private health insurance; the distinctive role of social medical insurance and private health insurance; New Medical Reform Policy's effect on private health insurance can find some clues in our empirical model.

Social medical insurance does contribute to the private health insurance development. Whether it is before or after the New Medical Reform Policy, social medical insurance will stimulate the consumption of private health insurance. Therefore, the question lies in how to combine social medical insurance and private health insurance into China's medical insurance system. In this New policy, governments encouraged enterprises to purchase private health insurance as a supplement for the basic social medical insurance, and authorize qualified private health insurance companies the right to manage various medical insurance services. This clarifies the position of private health insurance. However, how many percentage should private health insurance share as a supplement for basic social medical insurance? Our model shows reckless expansion of social medical insurance coverage has hurt the private health insurance market. The border of social medical coverage in China still needs further exploration.

Providing an easy access to private insurance information is of great importance. New Medical Policy future prompted private health insurance market to a new level. By mandatory expansion of medical insurance coverage, people's insurance awareness is further enhanced. Private health insurance companies should grasp this new opportunity and cooperate closely with government and hospitals to correct people's stereotypes toward insurance.

Companies should focus on launching diversified

products, like long-term-care products and dread disease products, so as to better meet people's needs. As the model shows, the size of elder population is not significant, which is not consistent with theoretical hypothesis. Indicating that in China, private health insurance are too immature to yet reflect the basic market principles. In reality, monotonous products, inconvenient medical payment procedures have contributed to this phenomenon.

China's medical insurance system has been quickly establishing since 2003. Private health insurance is indispensable in this construction. A more efficient medical insurance system should lie in the future development of private health insurance.

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CHINA'S BUSINESS NETWORK OF INTERLOCKS IN REAL ESTATE INDUSTRY

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Abstract: This paper examines China's business network structure of directorship interlock (hereinafter the business network of interlock) and its evolution, with a particular focus on the real estate industry. We ask the following research questions to explore the structuring of the Chinese business network: (1) To what extent is the real estate industry connected in Chinese business, and how the real estate industry, in particular, the state-controlled and private-controlled real estate firms differ in their business interlock? (2) How is the real estate industry structured in the whole business network, and how are the ego networks formed by the state-controlled and private-controlled real estate firms respectively? (3) Who are the big linkers, and how state-controlled and private-controlled real estate firms differ in their role in forming big-linker ties? We employ Freeman degree, component and ego network, and big linker analysis to examine the above questions. Results based on all the A share listed companies at three data points (2006, 2008, 2010) suggest that (1) The real estate industry firms have higher degree centrality than the averaged mean of the full sample, and the state-controlled real estate firms have higher degree centrality in the business network than private real estate firms; (2) In relative to private real estate firms, higher proportion of state-controlled real estate firms stay in the largest component formed in each year, and the state controlled real estate firms form more cohesive ego network than private-controlled real estate firms; (3) State-controlled real estate firms are more likely to be the big linkers. However, as time goes by, the proportion of private real estate firms as big linkers increase, and the two groups of firms tend to connect with each other in one single core.

Key terms: Directorship interlock, Degree centrality, Ego network, Big linkers, Chinese Real estate industry

INTRODUCTION

Directorship interlock happens when two or more companies share common directors (those common directors are also defined as interlocking directorates) (Mizruchi, 1996). Directorship interlock is found to be a key feature of the business groups during the late 1980s in China (Keister, 1998, 2000). It was found that the presence and proportion of interlocking directorates within Chinese large business group help enhance group member firms' financial performance (Keister, 1998). This research finding conforms to the resource dependence perspective, which suggests a positive effect of interlock on performance (Pfeffer & Salancik, 1978). Given that firms face predominant threats and opportunities as economic transitions go on managing the interorganizational networks are more and more important for Chinese firms' survival (Ren, Au & Birtch, 2009).

The real estate industry plays an important role in China's economic growth and development. It is generally assumed that firms in the real estate industry earn super-higher profits compared to others, and their economic development trajectory is characterized with a significant role of networking with the state and state-owned sectors. Because the state is the key resource allocator such as in land and capital, and tend to allocate these resources to the state-owned enterprises, in order to co-opt essential resources, private firms tend to form alliances with the state-owned enterprises or making themselves politically connected.

Companies also form network ties or alliances with other types of firms such as suppliers and customers. For example, when the Chinese government has enhanced the regulatory stringency in the loan policy and released many restrictive measures, many private firms form alliance with other private firms to jointly seek land and develop real estate products. Thus, in

the real estate industry, firms not only network with the state and state-owned firms, but also form various types of networks with other business partners.

The networking with the state and state-owned enterprises or with more broader types of firms may help private companies' seeking strategic resources and enhance firm performance, so far, there is little evidence on what kind of networks, under what conditions and to what extent are those different types of networks formed. In recent years, due to the influence of wider economic crisis and government's stringent regulations on the real estate industry, Chinese real estate enterprises are encountering more dynamic development trajectories. In the mean time, China has been gradually moving into a stage where the economic development relies more on the market than on the state, the real estate industry thus is the most salient example to look at the transition from one particular network form to the other, and to examine the roles of different types of firms in forming the business network. All these help provide a vivid experimental plot for examining the network capitalism of Chinese economy.

METHODS

Sampling

Our sample includes all the A share firms listed in Chinese stock exchange markets, with a special focus on real estate industry and a snapshot on three particular years: the 2006, 2008 and 2010. We select the real estate industry because the industry is closely related to the economic power distribution in China, and there is also rich industry dynamics along recent years. The reason of focusing on the three particular years is three folds. First, since 2006, the reform on Chinese firms' corporate governance becomes more intensive, and the transparency of the data is better than earlier years. For better data quality, we start our analysis from 2006. Second, the data covers 2008 because this year can provide us more vivid picture on how the real estate firm's interlock with each other under economic crisis happened in 2008. Third, the analysis ends with 2010 because we want to take a look at how the interlock network structure evolves two years later when the economic crisis in the real estate industry has ended and another round of high growth appears.

Data collection

We collect the network data from multiple sources

such as CSMAR (a commercial database company developing stock and security data), and CNlist, Sina stock, CNinfo, CAifutong software and companies' website. We use UCINET 6 and NetDraw to conduct Freeman degree, component and ego network analysis.

A general description of the sample and interlock distribution

The sample size, number of board of directors, interlocking directorates, proportion of interlocked firms and isolates and definitions of them are shown in below.

Year	Sample size	# of board seats	# of board of directors	# of interlocking directorates*	# of interlocking directorates	# of interlock firms**	# of isolates***
2006	1435	13793	12356	1053	0.09	80%	20%
2008	1603	15924	13989	1370	0.10	84%	16%
2010	2085	20329	17612	1826	0.10	87%	13%

Table 1: Sample and interlock in general

Definitions:

* *Interlocking directorates: They are directors who sit on multiple directorate seats of corporations.*

** *Proportion of interlocked firms: Interlocked firm means those who have interlocking directorates thus are connected to other firms. It is in relative to the total number of firms in each particular year.*

*** *Isolates: Isolates are those actors who have no tie with any other actors in a particular year.*

ANALYSIS AND RESULTS

The paper will present detailed network analyses to answer the following research questions. First, To what extent is the real estate industry connected in Chinese business, and how the real estate industry, in particular, the state-controlled and private-controlled real state firms differ in their business interlock? We conduct Freeman degree centrality analysis to examine the respective degree of interlock network connections by state-controlled and private-controlled real estate firms.

Second, how is the real estate industry structured in the whole business network, and how are the ego networks formed by the state-controlled and private-controlled real estate firms respectively? We conduct component and ego network analysis of all real estate firms to identify the global and ego network feature in general and in the two particular groups of firms, hence, state-controlled and private-controlled.

Third, who are the big linkers, and how state-controlled and private-controlled real estate firms differ in their role in forming big-linker ties? We identify those state-controlled and private-controlled real estate firms with degree centrality larger than five, defined as big linkers, with particular focus on how the big linker firms and their ego networks evolve as time goes by.

Freeman degree centrality

This part is to present the degree and normalized degree centrality of the overall sample in general, and the real estate industry in particular, and compared how the degree centrality differs across different samples. The results are shown in Table 2. From Table 2, we can observe that in general, real estate industrial firms have higher degree centrality than the averaged mean of the whole sample, which spans over varieties of industries. It also shows that state-controlled real estate firms have much higher degree centrality than private real estate companies.

Table 2: Freeman degree centrality across years

	Full sample*					
	2006		2008		2010	
	Degree ⁺	Nrmdeg ^{ree} ⁺⁺	Degree	Nrmdeg ^{ree}	Degree	Nrmdeg ^{ree}
Mean	2.80	0.02	3.43	0.03	3.84	0.03
Std Dev.	2.60	0.02	2.96	0.03	3.19	0.03
Sum	4016	25.39	5494	48.99	8086	49.21
Minimum	0.00	0	0	0	0	0
Maximum	21.00	0.13	20.00	0.18	25	0.18
Network Centralization ⁺⁺⁺	0.32%		0.15%		0.14%	
Sample size	1435		1603		2107	
Number of isolates, %	283, 20%		252, 16%		266, 13%	
Real estate industry**						
Mean	2.68	0.02	3.56	0.03	4.23	0.03
Std dev.	2.41	0.02	3.14	0.03	3.06	0.02
Sum	380	2.40	520	4.66	618	4.20
Minimum	0	0	0	0	0	0
Maximum	10	0.06	13	0.12	16	0.11
Sample size	142		146		146	
Number of isolates, %	30, 21%		27, 19%		12, 8%	
Private-controlled real estate companies***						
	Degree ⁺	Nrmdeg ^{ree} ⁺⁺	Degree	Nrmdeg ^{ree}	Degree	Nrmdeg ^{ree}
Mean	2.01	0.01	2.71	0.02	3.82	0.03
Std dev.	2.08	0.01	2.71	0.02	2.87	0.02
Sum	139	0.88	209	1.87	283	1.92
Minimum	0	0	0	0	0	0
Maximum	8	0.05	13	0.12	10	0.07
Sample size	69		77		74	
Number of isolates, %	21, 30%		23, 30%		10, 14%	
State-controlled real estate companies****						
	Degree ⁺	Nrmdeg ^{ree} ⁺⁺	Degree	Nrmdeg ^{ree}	Degree	Nrmdeg ^{ree}
Mean	3.55	0.02	4.62	0.04	4.74	0.03
Std dev.	2.50	0.02	3.32	0.03	3.24	0.02
Sum	238	1.51	308	2.76	327	2.22
Minimum	0	0	0	0	0	0
Maximum	10	0.06	13	0.12	16	0.11
Sample size	67		66		69	
Number of isolates, %	6, 9%		3, 5%		2, 3%	

and across samples

Key explanations:

+ *FreemanDegree is the number of vertices adjacent to*

a given vertex in a symmetric graph. In this paper, it is the number of direct interlock ties a company has per year.

++ *The normalized degree centrality is the degree divided by the maximum possible degree expressed as a percentage. It is for the purpose of cross sample comparison.*

+++ *Network centralization: For a given binary network with vertices $v1...vn$ and maximum degree centrality $cmax$, the network degree centralization measure is $\sum(cmax - c(vi))$ divided by the maximum value possible, where $c(vi)$ is the degree centrality of vertex vi .*

Notes on sample:

* *Full sample contains all the A share stock company listed each year. Full sample size is increasing each year since 2006 as new firms are listed in the stock exchange market.*

** *Real estate industry covers all companies listed in each year which conducting real estate developments business. Since 2008, four new real estate companies are listed in the stock exchange market.*

*** *This sample size covers all privately controlled real estate companies listed in each year. Private-controlled company is defined as those whose dominant shareholder is private company or individual person.*

**** *This sample covers all state-controlled real estate companies listed in each year. State-controlled company is defined as those whose dominant shareholder is the state or state-owned enterprises.*

GLOBAL AND EGO NETWORK STRUCTURES

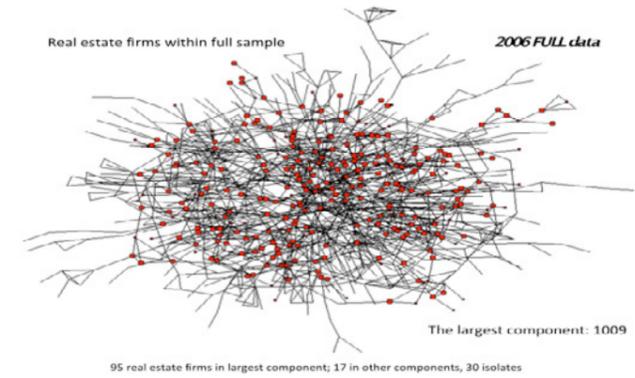
Component analysis

First is the component analysis to explore the whole network structure. Component means that in an undirected graph two vertices are members of the same component if there is a path connecting them. In this study, two companies are members of the same component if there is an interlock tie connecting them.

In particular, we will show to what extent are Chinese businesses connected with each other, and whether there is a large cohesive network (the largest component) formed among firms? We will also provide results on how much proportion of real estate firms being connected in the largest components, or are isolates. Figures 1a-1c shows the real estate firms in the largest component formed in each year in general.

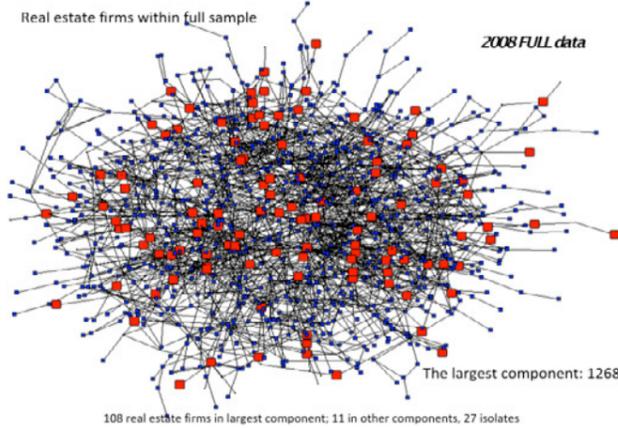
The 2006 data results suggest that 95 (67%) real estate firms are connected in the largest component (size 1009), and 17 (12%) are connected in other

components (with smaller sizes), and 30 (21%) are isolates. These numbers become 108 (74%), 11(8%), 27 (18%) in 2008, and 130 (89%), 4 (3%), and 12 (8%) in 2010 respectively. These results suggest that as time goes by, the proportion of real estate firms connected in the largest component is significantly increased, and the proportions of firms connected in other components and being isolates are significantly decreased. It suggests that as time goes by, real estate firms tend to stay in the mostly cohesive business network. Observing this network evolution, we do



not know what drives this change.

Figure 1a: The real estate firms in the largest component



formed in 2006 full sample

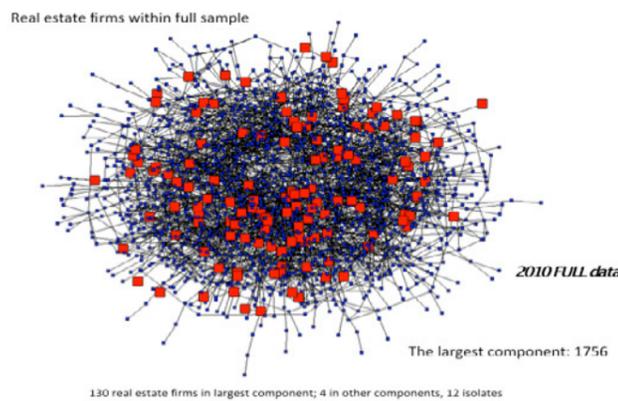


Figure 1b: The real estate firms in the largest component formed in 2008 full sample

Figure 1c: The real estate firms in the largest component formed in 2010 full sample

The distribution of state-controlled and private-controlled real estate firms in the largest component.

Second is the distribution of the state-controlled and private-controlled real estate firms in the largest component. The 2006 data shows that there is much higher proportion (78%) of state-controlled firms connecting in the largest component than private-controlled firms (58%) in the real estate industry. And there is lower proportion of state-controlled firms staying in the nonlargest component than private-controlled firms, and in relative to the number of isolates in private-controlled real estate firms, there is no isolates for the state-controlled category. The 2008 and 2010 data maintained similar pattern. However, as time goes by, the proportion of private real estate firms being connected in the largest component increased.

The real estate industry's Ego network structure in general.

Ego network analysis allows us to better observe actor's local network structure formed by direct or indirect ties. Thus the third is the analysis of the ego network structure (one step) formed by real estate firms, considering all real estate firms. As connections based on one step distance are more likely to generate influence of power, we select one-step ego network analysis to capture selected real estate companies' local network structure.

Figures 2a-2c show all real estate firms' ego network structure within full sample across the three years. The results suggest that 66 (46%) real estate firms are connected together through one step and form the largest component among real estate firms and their one step alters, 46 (32%) are connected in other components with various sizes, and 30 (21%) are isolates. This number is shown as 76%, 22% and 2% for the year of 2010. This suggests that the business network of interlock formed by real estate industry evolved to be more cohesive as time goes by. Observing this pattern change, we do not know what drives this cohesiveness.

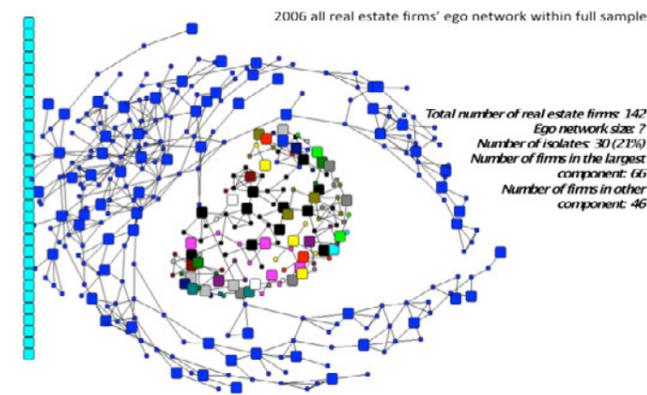


Figure 2a: The ego network structure formed

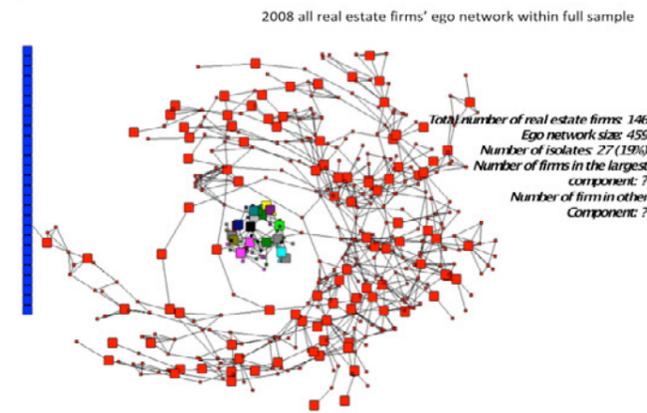


Figure 2b: The ego network structure formed by all real estate firms in 2006

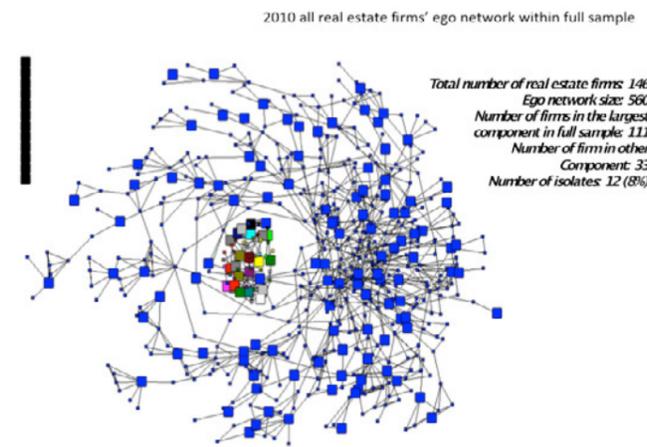


Figure 2c: The ego network structure formed by all real estate firms in 2008 and by all real estate firms in 2010

State-controlled and private-controlled real estate firms' ego network structure.

Forth is an analysis on the state-controlled and private-controlled real estate firms' ego network structure within full sample. Figures 3a-3c provide visualization of the results for the three years. The 2006 results suggest that both groups of real estate

firms lack a cohesive central. However, the state-controlled real estate firms are much more cohesive than private firms. The results also show that 67 state-controlled real estate firms form an ego network with 243 firms being tied together, and the 69 private-controlled real estate firms form an ego network with size 180. In general, state-controlled real estate firms are more powerful in mobilizing the interlock business ties in China.

The data for 2008 are shown as follows. There are 66 state-controlled and 77 private-controlled real estate firms in 2008, and compared to 2006, private and state-controlled real estate firms both connect more cohesively. However, similar to the 2006 data, state-controlled real estate firms are still more cohesive than private firms in 2008. For 2010, there are 69 state-controlled and 74 private-controlled real estate firms. Compared to 2008, the level of cohesiveness becomes higher for both groups. And the state-controlled real estate firms are slightly more cohesive than private firms in this year.

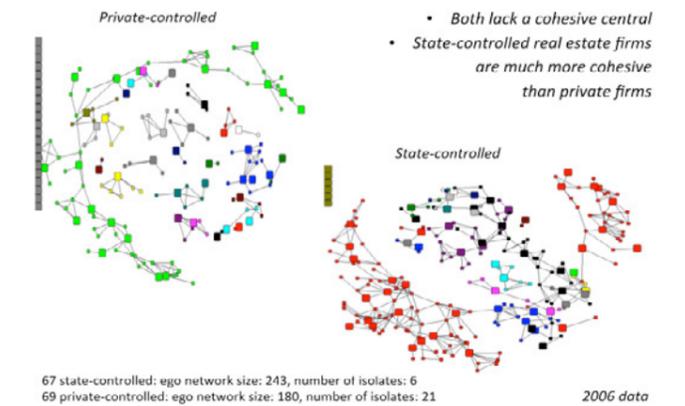


Figure 3a: Ego network of state-controlled

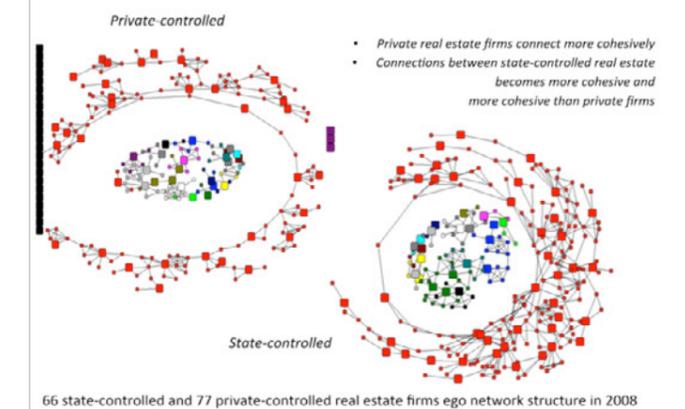
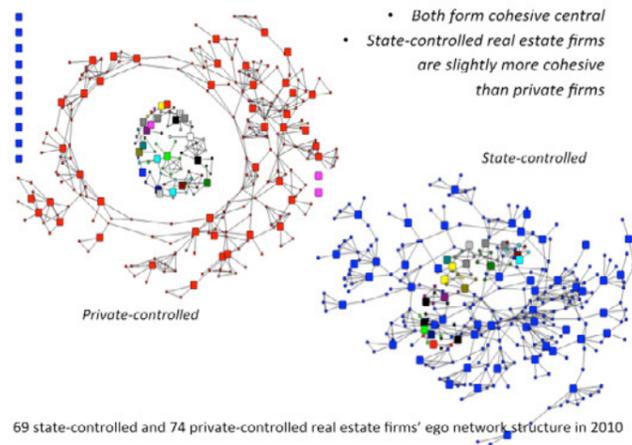


Figure 3b: Ego network of state-controlled



and private-controlled real estate firms in 2008
Figure 3c: Ego network of state-controlled and private-controlled real estate firms in 2010

Big linkers

We select a threshold (degree>5) to further look at the mostly-tied real estate firms and their ego network structure. We also identify the proportion of state-controlled and private-controlled real estate companies among those big linkers in each year. Figures 4a-4c provide the visualization of the results. As figure 4a shows, there are 18 (out of 142) real estate firms are big linkers. And among the 18 big linker firms, 14 (78%) of them are state-controlled, and 4 (22%) of them are private controlled.

For 2008, out of the 146 real estate companies, there are 35 big linkers in total. And among those 35 big linker firms, 23 (65%) of them are state-controlled (23), and 12 (35%) of them are private controlled. For 2010, out of the 146 real estate firms, there are 44 big linkers. And among those 44, 24 (54%) of them are state-controlled, and 20 (46%) are private controlled.

What deserve to note it that the 44 big linker real estate firms in 2006 form a generally split but partly integrative ego network, and the ego network size is 121. When it goes to 2008, the 35 big linker real estate firms start to form a cohesive group, and the proportion of private firms as big linkers are improved, involving 234 companies in the ego network. In 2010, the 44 big linkers are more cohesively connected with each other. The ego network size becomes bigger, with 307 companies being involved. The proportion of private firms as big linkers continuously increases.

- Big linkers (degree>5 corporations)
 - 78% of big linkers: state-controlled (14)
 - 22% of big linkers: private controlled (4)

- Generally split
- Partly integrative
- Ego network size: 121

2006 real estate firms in full sample

Figure 4a: Big linkers of real estate industry

- Big linkers (degree>5 corporations)
 - 65% of big linkers: state-controlled (23)
 - 35% of big linkers: private controlled (12)

- Start to form a cohesive group!
- Proportion of private firms as big linkers improved!
- Ego network size: 234

2008 real estate firms in full sample

in 2006 in full sample

Figure 4b: Big linkers of real estate industry

- Big linkers (degree>5 corporations)
 - 54% of big linkers: state-controlled (24)
 - 46% of big linkers: private controlled (20)

- More cohesive!
- Ego network size becomes bigger!
- Proportion of private firms as big linkers continuously increase!
- Ego network size: 307

2010 real estate firms in full sample

in 2008 in full sample

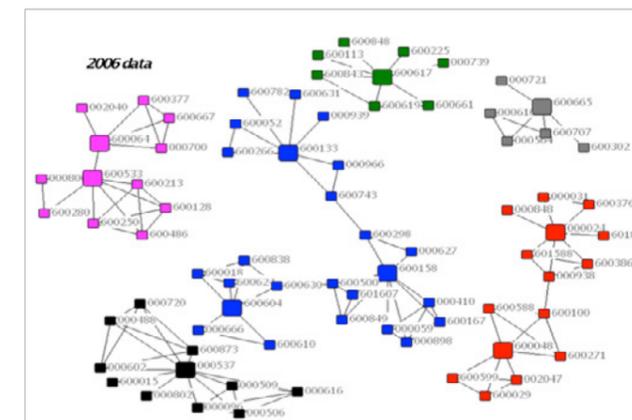
Figure 4c: Big linkers of real estate industry in 2010 in full sample

We further identify those big linker firms that appear in all the three years. Those firms are listed in below. Amongst the 10 big linkers, 8 of them are state-controlled, and the rest of 2 are private-controlled. This suggests that state-controlled real estate firms are more powerful and central in the business interlock network. And this is even more salient when we touch into the level of network central.

Big linkers	SOE/private
24	State-controlled
537	State-controlled
600048	State-controlled
600064	State-controlled
600133	Private
600158	State-controlled
600533	State-controlled
600604	State-controlled
600617	Private
600665	State-controlled

Table 3: Ten big linkers appeared in three years

We then analyze how these ten big linkers are connected to each other, and to see whether they form a cohesive core in the business interlock network. Figures 5a-5c provide the visualization of the results. As results show that in 2006, those ten big linkers are not connected in a single core, but connect in six



separate ego networks.

Figure 5a: 10 big linkers' ego network structure

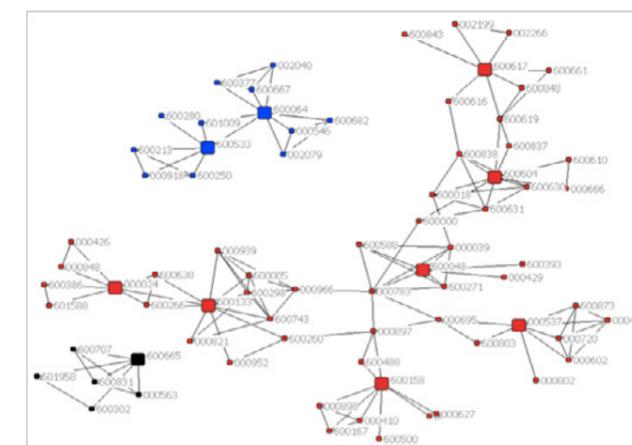


Figure 5b: 10 big linkers' ego network structure in 2008 in full sample

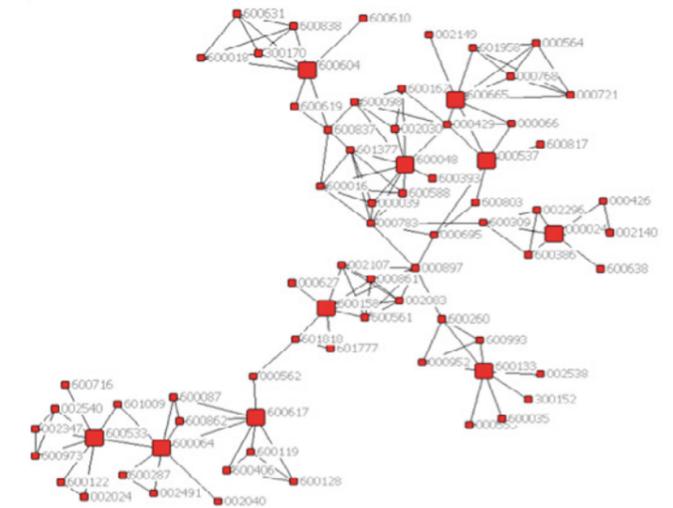


Figure 5c: 10 big linkers' ego network structure in 2010 in full sample

As to 2008, they are connected in three separate ego networks, and there emerge a large ego network, with 7 of the 10 big linkers being connected together. As to 2010, these ten big linkers are all connected in one single core, suggesting that the real estate industry starts to emerge a network central formed by those 10 big linkers. The results also suggest that the two private-controlled real estate big linkers (600133, 600617) start to join with the mostly-tied state-controlled big linkers and involve themselves in the emerging network core since 2008.

CONCLUSION

The paper tries to explore China's business network structure derived from directorship interlock and its evolution. A focus on the real estate industry suggests the following results. First, the real estate industry firms have higher degree centrality than the averaged mean of the full sample, and the state-controlled real estate firms have higher degree centrality in the business network than private real estate firms. Second, in relative to private real estate firms, higher proportion of state-controlled real estate firms stay in the largest component formed in each year, and the state controlled real estate firms form more cohesive ego network than private-controlled real estate firms. Third, state-controlled real estate firms are more likely to be the big linkers. However, as time goes by, the proportion of private real estate firms as big linkers increase, and the two groups of firms tend to connect with each other in one single core.

We believe that these research findings suggest at least two main theoretical implications. One is that the state-controlled firms play more significant role in structuring the business network structure of Chinese economy. The second is that as transition goes on where the marketization reform goes deeper, the role of private firms becomes stronger. Future research shall explore how does these network structures matter to Chinese economy, both in macro national level and in the micro firm level. Another line of research can pay attention to how does this network structure influence the international real estate industry firms' market entry into China.

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RUSSIA'S ACCESSION INTO WTO: PROBLEMS AND PROSPECTS

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Key words: improvement of quality and competitiveness, liberalizing trade, to protect consumers, "transparent" and predictable economy, the final balance of benefits and losses unfair infringement, adequate protection of the market internally, economic sovereignty, national interests.

The article describes the main factors of WTO influencing Russia's trade flow as freely as possible — so long as there are no undesirable side-effects. As this organization provides the legal ground-rules for international commerce more favorable, stable and predicted conditions for development of trade and other forms of foreign trade activities it could help Russia. Though being poorly involved in the international cooperation of manufacture, to trade in services and objects of intellectual property, in a movement of capital has no effective state system of support of domestic manufacturers of the goods and services and stimulations of industrial export that undermines competitiveness of production of our industry, both on external, and on internal markets.

Problems of world trade are very important for any developed country because taxes, exports and imports, national economic policies play a great role in the modern world. The World Trade Organization has been created to solve these problems. Its members have many advantages before those who are not its members. For Russia the accession into WTO means creation more favorable, stable and predicted conditions for development of trade and other forms of foreign trade activities; also:

- Access to the mechanism of WTO under the sanction of trading disputes, as rather effective (and practically unique) to the tool of protection of trading interests of the countries-members of the organization from their unfair infringement;
- Introduction through application of norms and rules of WTO in the Russian practice of foreign trade activities and the corresponding legislation of the international experience in the field of regulation of trade;
- Creation of conditions for improvement of quality and competitiveness of a domestic production as

a result of increase in a stream of the foreign goods, services and investments at the Russian market;

- Participation in development of rules of international trade in view of the national interests;
- Expansion of opportunities for Russian investors in the countries-members of WTO, particularly in bank sphere;
- Improvement of the image of Russia as a competent international trade participant.

There are a number of ways of looking at the WTO. It's an organization for liberalizing trade. It's a forum for governments to negotiate trade agreements. It's a place for them to settle trade disputes. It operates a system of trade rules. Above all, it's a negotiating forum. Essentially, the WTO is a place where member governments go to try to sort out the trade problems they face with each other. The WTO was born out of negotiations, and everything the WTO does is the result of negotiations. The bulk of the WTO's current work comes from the 1986–94 negotiations called the Uruguay Round and earlier negotiations under the General Agreement on Tariffs and Trade (GATT). The WTO is currently the host to new negotiations, under the "Doha Development Agenda" launched in 2001.

Where countries have faced trade barriers and wanted them lowered, the negotiations have helped to liberalize trade. But the WTO is not just about liberalizing trade, and in some circumstances its rules support maintaining trade barriers — for example to protect consumers or prevent the spread of disease.

It's a set of rules. At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations. These documents provide the legal ground-rules for international commerce. They are essentially contracts, binding governments to keep their trade policies within agreed limits. Although negotiated and signed by governments, the goal is to help producers of goods and services, exporters, and importers conduct their business, while allowing governments to meet social and environmental objectives.

The system's overriding purpose is to help trade flow as freely as possible — so long as there are no undesirable side-effects. That partly means removing obstacles. It also means ensuring that individuals, companies and governments know what the trade rules are around the world, and giving them the confidence that there will be no sudden changes of policy. In other words, the rules have to be “transparent” and predictable.

And it helps to settle disputes. This is a third important side to the WTO's work. Trade relations often involve conflicting interests. Agreements, including those painstakingly negotiated in the WTO system, often need interpreting. The most harmonious way to settle these differences is through some neutral procedure based on an agreed legal foundation. That is the purpose behind the dispute settlement process written into the WTO agreements.

The WTO agreements are lengthy and complex because they are legal texts covering a wide range of activities. They deal with: agriculture, textiles and clothing, banking, telecommunications, government purchases, industrial standards and product safety, food sanitation regulations, intellectual property, and much more. But a number of simple, fundamental principles run throughout all of these documents. These principles are the foundation of the multilateral trading system.

The process of Russia's accession in the World Trade Organization lasted during 18 years, since the application for connection to GATT in 1993. Currently there are 157 member countries in the WTO and in the nearest future this number will increase. This means that almost every nation aspiring to create a modern and effective economy and to participate in the world trade equally strives for WTO membership. Russia is not an exception.

It is well-known fact that for including in WTO the consent of all WTO's members was necessary. Unfortunately, Russia had not very active process of negotiations with some country-members of WTO; many difficulties had come to light. Negotiations with European Union, China, USA and Georgia were the most difficult. Russia has got a status of a member of the World Trade Organization only on August, 22nd, 2012.

The objective of the accession negotiations is to achieve the most favorable conditions for Russia joining the WTO, i.e. the best balance possible between the benefits of accession and the concessions in forms of tariffs reduction and domestic market opening [1].

Accession into WTO defines the process caused by high rates of integration of the country in the world trade system, the necessity of “opening” western markets for Russian products and increasing of competitiveness of our industry. The balance of rights and obligations of Russia during its accession to the WTO should contribute to its economic growth and not vice versa.

However on this way there are a number of the most serious obstacles. First, the Russian economy is critically depending on export of a narrow circle of the goods, first of all fuel and raw material, world which conjuncture of the markets is subject to sharp fluctuations. Our dependence on import of consumer goods and on the process equipment is rather significant.

Secondly, in modern world trade system Russia is presented mainly as the participant of trade by the goods, being poorly involved in the international cooperation of manufacture, to trade in services and objects of intellectual property, in a movement of capital (in the form of direct investments), in cross-country scientific and technical and information exchange. The degree of an openness of domestic economy and structure of foreign economic relations of the Russian Federation obviously mismatch internal needs of the country, scale and depth of problems facing it. Thus the problem of maintenance of equal in rights and not discrimination access of the Russian goods and services on the markets of foreign countries is not solved at all.

The technical and high technology production makes only insignificant part of the Russian export. However, as it appears competitive on foreign markets, its manufacturers collide with rigid, frequently unfair, counteraction of foreign competitors. The introduction of Russia into WTO besides hardly will change the given situation.

Thirdly, Russia nowadays has no effective state system of support of domestic manufacturers of the goods and services and stimulations of industrial export that undermines competitiveness of production of our industry, both on external, and on internal markets [3].

Including in WTO does not help to solve one of the most serious problems of an investment climate of Russia – backwardness of the institutional environment. In opinion of many experts, this factor and weak efficiency of a financial system are keys for restraint of investments into the Russian economy. According to World Economic Forum, on a level of development of financial sector Russia is on 127-th place in the world. Efficiency of the organization of work in the Russian commercial banks is in 4 times below than, for example, in American. Unfairly big expenses are compensated by high rates under credits and low rates under deposits and carried on shoulders of the population and the enterprises.

Accession into WTO - the process caused by high rates of integration of the country in world trade system, necessity of “opening” of the western markets for a domestic production – is the step, certainly, to render the influence on economy of Russia, on methods of management of foreign economic relations and character of interaction with the world community. However influence most likely will be ambiguous. There is a rule for all countries which have entered WTO - growth of export in those branches, where a production efficiency better, than at foreign competitors, and growth of import, where efficiency of national economy below [4].

Liberalization of the foreign trade activity, legal registration and introduction of market methods of its regulation have provided creation of basic conditions of the civilized inclusion of the Russian economy in world trade system. The integration of Russia into world economic community for the sake of maximal use of potential of foreign economic relations for expansion of radical and progressive structural economic reorganization becomes a strategic imperative of commercial and industrial policy.

The membership will have positive sense only in the event that as a result of negotiations the final balance of benefits and losses will appear for Russia

positive even in long-term prospect. Adequate statement of the main task - not regretting time and forces to achieve such conditions of membership in WTO which would exclude infringement of the rights of Russia in sphere of international trade and provided real access of the domestic goods and services on the world markets at adequate protection of the market internal. In other words, it is necessary to coordinate following of requirements of WTO a concession of a part of our economic sovereignty to radical national interests, to find and realize a corresponding optimum [6]. The concession about which there is a speech, should be comprehended and verified, for after connection to this organization Russia will not take an opportunity unilaterally any more protectionist foreign trade measures or to make demands to partners on WTO concerning liberalization of their market on the important directions of domestic export.

Secondly, as a member of WTO Russia can use the special mechanism of the sanction of trading disputes.

Thirdly, the Russian exporters and importers should master quickly the standard rules of market behavior that will promote development of the civilized forms of participation in foreign trade activities and, finally, will reduce flowing off of capital, and also will allow the state bodies to react to inquiries of domestic manufacturers and consumers better.

Fourthly, rigid time restriction of a transition period will force industries and the separate enterprises to be engaged in development of manufacture and increase of competitiveness more actively.

Accession into WTO, that, to put it mildly, does not guarantee our break on the world markets and improvement of positions of the country in world trade system [5]. If positive effects from that connection have mainly the abstract-general character and can be shown only in long-term prospect negative (especially in case of their underestimation and corresponding excessive concessions during negotiations) - are extremely concrete and directly threaten a number of branches of the Russian industry.

Joining of the Russian Federation to WTO will demand revision or creation of new laws, the governmental or departmental statutory acts, and also signing of hundreds bilateral and multilateral intergov-

ernmental contracts and agreements with the foreign states. The part of changes and additions should be accepted without dependence from the maintenance of negotiations on connection (it concerns such unconditional obligations of any joining country as granting of a national treatment at import of the goods, maintenance of uniform conditions of acceptance of protective measures or applications of restrictions of access on the Russian market of services, etc.). Other part of legal innovations can be accepted exclusively by results of negotiations about concrete conditions of connection of Russia and acceptance of corresponding obligations by her.

It is obvious, that these interfaced to the future connection to WTO legal shifts can affect in the most serious image the general conditions of managing in Russia, that in turn will necessarily lead to change of forms and mechanisms of state regulation of economy, first of all - state support of the industrial enterprises. The consequences connected with this influence and these changes, can be affected by a known share of reserve system [2].

As a result of the accession of Russia into WTO for concrete branches of the domestic industry they undoubtedly will versatile: one of branches will receive advantages, others will suffer. In this context widespread enough version according to which for concrete branches or the manufactures exporting an insignificant share of production, means of production minimally depending on import, and also doing not lead sharp competitive struggle in a home market. The introduction of Russia into WTO will some not be accompanied by marketing problems is represented erroneous. The matter is that norms of this organization, regulating the foreign trade attitudes, directly affect also all internal parameters of managing in each country-participant.

In modern world trade the more favorable quality is ability to protect the rights. For active participation in WTO's activity and to be considered as its full member corresponding national infrastructure is necessary – first of all, it is powerful legal services in the government, corporations and associations of manufactures. Creation of such a necessary associations demands corresponding business-culture which is weakest and not developed in Russia. That's why necessary elements of the policy, providing high-grade membership in WTO, should be preparation

of highly skilled lawyers and creation of competitive legal firms, which can protect, if it is necessary, interests of the Russian manufactures in the international courts and bodies of WTO [2].

The membership will have positive sense only in the event that as a result of negotiations the final balance of benefits and losses will appear for Russia positive even in long-term prospect.

Forecasted positive effects:

- Improvement of image of Russia in the world as full participant of international trade;
- Creation of more favorable climate for foreign investments as a result of reduction of legislative system conformity with norms of WTO;
- Participation in development of rules of international trade in view of the national interests;
- The international cooperation on the standard conditions, transition to the international standards of the financial reporting, the international principles of business dealing.

Forecasted negative effects:

- WTO stimulates basically trade in finished articles and high technology production whereas a basis of the Russian export makes raw material and fuel. Besides the structure of the Russian export is extremely nonflexible and also cannot be quickly changed in view of an excessive deterioration of capacities of the domestic industry and transport.
- Expansion of the imported goods and services that are capable to aggravate essentially a competition on many positions in a home market to what the Russian economy is not ready yet.
- Liberalization of tariffs will make more attractive import of the goods from abroad, appeal of investments into manufacture will decrease.
- Accession of Russia to club of the organized participants of world trade is not capable to eliminate to the full available trading contradictions and intensity with its basic counter-parts.
- An increase of the internal prices for the fuel and raw is possible and, as result, the growth of industrial costs and decrease in competitive advantages of manufacturing industries.

The main task is to achieve such conditions of membership in WTO which would exclude infringement of the rights of Russia in sphere of international trade and provide real access of the domestic goods

and services on the world markets at adequate protection of the market internally. In other words, it is necessary to coordinate following requirements of WTO a concession of a part of our economic sovereignty to radical national interests, to find and realize a corresponding optimum. The concession should be comprehended and verified to partners in WTO concerning liberalization of their markets.

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URBAN COHESION FOR SUSTAINABLE DEVELOPMENT: CASE OF BRAZIL IN BRICS

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Fast economic growth rates in the developing world are much-applauded for elevating millions from poverty. This acceleration in growth rates is most likely to coincide with fast urbanization and increased tension and pressure on societal relations. As countries grow, urban governance becomes crucial to not only economic sustainability, but also to social cohesion and the future of international relations.

Urban governance is often an overlooked issue in the future of the developing world and the BRICS countries deserves special attention in this matter. Most discussions of the future of Brazil, Russia, India, China, and South Africa solely concentrate on economic international relations and the potential global order shift. Integrating the daily struggles of the domestic, political, economic and social concerns that motivate citizens and leaders to participate in international affairs is crucial, especially since fast urbanization brings new problems that challenge the potentials for sustainable development.

The BRICS debates often portray Brazil as a democratic nation with few problems of internal social cohesion. However, this simplistic view of the complexity of Brazilian society underplays the importance of those who are at the margin of society due to a harsh urban make-up, along with ethno-racial discriminations that are methodologically hard to identify and investigate.

Despite the alleviation of poverty in Brazil over the past decades, an impoverished urban margin still remains. Colonial legacy entangles race and ethnicity in a complex and often misunderstood manner and penetrates Brazilian society with a complex hierarchical class system that was only aggravated by a severe authoritarian military dictatorship that ended in the 80s. This punitive regime spurred fast urbanization with segregate urban planning practices in a period of fast economic growth. Furthermore, more recent neo-liberal policies have adopted the model of repressive

policing, inspired by policies from the United States, exacerbating inequalities in the country. Despite the seemingly invisible problems of social cohesion, Brazilian society faces the reinforcement of historical ethno-racial tensions through the liberalization paradigm of globalization.

This article argues that complex societal problems manifest in urban contexts and attending to these tensions are necessary since recent liberal policies tend to reinforce historical cleavages rather than promote sustainable social development. The case of Brazil as a BRICS country illustrates the urgency to adopt a more wholesome domestic economic perspective that also focuses on socio-political makeup in order to fully understand the future of the BRICS countries. The first section introduces the analytical framework, highlighting the importance of urban governance since cities are the loci of globalization and hubs for sustainable social development. The second section highlights the legacies of colonial times, their trickle-down effect into segregate urban planning, and the current repressive policing policy; all factors contributing to the penalization of poverty in Brazil. The third section analyzes the case of Brazil as a BRICS country, showing how social sustainability can impact Brazilian credibility and representational leverage as a regional and Global South power. This chapter concludes by opening doors to investigate the future of urban governance, development, and the BRICS.

URBAN GOVERNANCE IN A GLOBALIZING WORLD

The process of urbanization and globalization are interlinked and are probably the main drivers behind the great societal transformation of our time (Abrahamsson 2011). Globalization with its system of production networks, labor markets, and new information technology and communication has a large impact on migration (Borja & Castells 1996). Migration is also a large driving force in urbanization that keep the socio-economic and cultural fabric of cities

changing at a fast pace. Many cities fluctuate between becoming a node in a global network contributing to social cohesive development and sinking into social conflict. The protection of social relations is crucial in securing sustainable development.

With a world characterized by international competition, meeting the demands of both economic security and social welfare is ever more difficult to achieve. Restrictive economic policies leave developed and developing nations with a tight capacity to respond and endorse social contracts. The increased influence of international financial markets and demands for macro-economic controls often force the reduction of social spending. This is happening in Europe, but now also in developing world that is still trying to build social safety, putting extra pressure on development. This movement toward conservative social spending pushes individuals to resort to what Hyden (1983) calls an economy of affection, where depending on social networks becomes the most viable alternative for citizens.

Urban hubs are the visible loci for the manifestation and enactment of globalization. Any global process requires the local to take action and urban areas are especially important since that is where most of the political and financial mobilization take place. Moreover, with the increased involvement of supranational organizations and international alliances, alongside more dispersed power dynamics, governance occurs at various levels. UN operatives through UN Habitat, for example, play an important role as the coordinators for social sustainability in cities. Therefore, in a time of multi-level governance, states are challenged and pressed for political room by new actors (Hettne 2009). Cities are also the nodes for active citizenship and public involvement (Harvey 2009). Some scholars go as far as to claim that a new geopolitical map can evolve where the world experiences the revival of the 'city state' (Rosenau 2009).

Cities experience high demands and difficulties as hubs for development. With a huge increase in the demand for highly-skilled labor, cities all over the world find themselves with a shortage of highly skilled workers and a surplus of low-skilled workers who often depend on salaries that they can barely live on (Abrahamsson 2011). The demand for a highly-skilled work force often causes an inflated housing market, pushing the low-income population to the

margins, deepening spatial inequalities. This urban divide risks manifesting itself into social conflict, questioning economic sustainability. These potential conflicts can hurt the credibility and legitimacy of states in the international arena since conflicts keep away investments and present future insecurities.

In the face of globalization, when the need of attracting foreign investments is crucial to establish competitiveness, the consolidation of the social contract is paramount. Despite the apparent consolidated democracies in the world, elected politicians have little say when financial markets and businesses are constantly dictating what is financially secure or risky. Moreover, with the principles of justice at the spotlight of the human rights debates, backed up by the United Nations and other supranational organizations, social protection and cohesion is an important pillar for sustainable development.

The case of Brazil shows the complexity of modern urban hubs since recent liberal policies along with historical legacies are challenging social sustainable development. Traditional post-colonial cleavages within Brazilian society are being reinforced rather than ameliorated by such liberal policies. Brazilian urban marginality is a symptom of what Loic Wacquant calls 'punitive containment as a state strategy to manage poverty in an age of glorious neoliberalism (Wacquant 2008). A mix of colonial legacies, combined with recent liberal initiatives of urban planning and repressive policing contribute to the harsh reality of the Brazilian urban regions.

BRAZIL: NEO-LIBERAL REFORMS AND REINFORCED HISTORICAL CLEAVAGES

High rates of urbanization in Brazil, as in most countries in the world, have been accompanied by high levels of inequality creating serious challenges for effective governance and sustainable development. Despite experiencing the lowest poverty rate in 25 years (UN Habitat 2010), fast urbanization along with a weak social security system brought an unsurprisingly high level of poverty in the past decades. In 2005, 84 percent of Brazil's population was urban and this number is expected to reach 88 percent by 2015 (UN Habitat 2010). Fast urbanization in the modern day caused societal cleavages that these promising numbers of development have not yet managed to filter.

While a redistribution of wealth is underway with the top 20 percent of population growing at a much lower rate than the national average, this redistribution has not affected the lower income groups equally (IPEA 2012). The level of poverty amongst children is 10 times higher than that of the elderly. In 2006, numbers showed that up to 56 percent of children between birth and age six lived under the poverty line. In the rural northeast, Afro-Brazilian children with illiterate parents suffer alarming poverty rates: 80 percent are poor and 50 percent are extremely poor (UN Habitat 2010). The disparities between the regions are as shocking as the disparities between income amongst different age and ethno-racial groups.

Big cities have experienced a sharp poverty increase due to economic changes in production systems that force low skill workers out of the job market. Up to 32 percent of the population live in Sao Paulo, Rio de Janeiro, Salvador, Recife, Belo Horizonte, and Porto Alegre, the six largest metropolitan regions; these regions contain 80 percent of the country's poor (UN Habitat 2010). Despite suggestions that the number of poor and extremely poor will continue to decline (UN Habitat 2010), paying attention to the margins of urban life is essential as tensions are not declining at the same rate as poverty.

Brazilian complex social fabric

The complex make-up of race and ethnicity is foremost what distinguishes Brazilian social fabric. Latin American scholars came to agree by the 1970s that race in Latin America could not be understood as the "genetic composition of individuals," but instead "based upon a combination of cultural, social, and somatic considerations" (Harris 1964). In Brazil, individuals can be identified or self-identified as white or black, independent from their physical traits (Skidmore 1992). According to Da Matta, the colonial legacy of opposition between 'feras e doutores', or "savages and doctors," merges the enforcement of the class order and public order (Da Matta, 1978; Pinheiro, 1983; Huggins, 1985). Traditionally, the paternalistic and hierarchical concept of citizenship is binary. Therefore, the class order emphasized in this category easily group's workers and criminals into one category clashing with modern values of citizenship in Brazilian democracy.

Turning a blind eye to the problem of race and color inequality has been the pillar of Brazilian social cohesion. Large numbers of Afro-Brazilians and indigenous people lack economic power, political influence and representation. When polls show that 81 percent of the population of Salvador, the third largest city in Brazil, is Afro-Brazilian, but that the same group makes up only three percent of university students, race becomes an unavoidable issue (World Bank 2012). It was not until Lula's administration passed legislation requiring quotas for government hiring and university admissions, a global trend initiative of remedying previously disadvantaged group. Despite these initiatives, blaming the problem on class and refusing to notice the problem of ethno-racial inequalities is still the hegemonic discourse. According to scholars, this is how poverty is penalized: through 'invisibilizing' the color problem (Bodé de Moraes and de Souza, 1999; da Silva, 2000, Wacquant 2008).

The legacies of colonial times are ingrained in Brazilian society and social cleavages are only being reinforced by recent liberal policies. In the 20th century, the Brazilian economy plunged, in the wake of the end of the twenty-year harsh military dictatorship. Economic growth was one of the achievements of the dictatorship with policies economic development as a regime guideline (Luna et al 2006); however, the hierarchical punitive characteristic of society was only enhanced through the adoption of restrictive political freedoms that came to an end in the early 1980s. Despite the new hopes post-dictatorship, neo-liberal policies of segregate urban planning along with a harsh penal system came to aggravate historical cleavages and inflame a growing urban marginality.

Urban Planning

With rapid globalization, the model of the capitalist city stretched across cities all over the world in the 1970s and early 1980s (Harvey 2009). There is no lack of criticism for such a model, yet it prevailed, encouraging the wealthy to benefit using the creation of residential segregation. However, the case of Brazil is especially different since the capitalist model has been often combined with participatory mechanisms. Despite such initiatives, the city-making model from a capitalist paradigm came to reinforce his-

torical cleavages.

As Brazil grew, migration from the city peripheries to the urban hubs was gaining momentum. Cities like Sao Paulo and Rio de Janeiro were swarmed with hundreds of thousands of impoverished migrants in search of a future settling on the margins of the cities. Over-populated colorful slums on the hills of Rio de Janeiro became popular postcards of Brazil.

In the mid-1980s, after the fall of over 20 years of military regime, urban planning quickly changed, and 'urban reform' became the new way to approach the city, envisaging social justice and equity. Various amendments to the constitution attempted to allow civil society to take place in the decisions of urban planning. The traditional blueprint planning was changing to change to sustainable urban development, communicative planning and other types of participative urban planning (Souza, 1998; 2000a; 2000b; 2002). Brazilian cities became pioneers in local citizen involvement projects in the eyes of practitioners and scholars. Not only planners, but geographers, sociologists, and political scientists have observed participatory budget such as the case of Porto Alegre, as an alternative social-spatial experience, inclusive decision-making mechanism and social inclusion (Healey 1996, Souza 2002, Heller 2006, Wampler 2007).

Despite the well-praised participatory mechanisms, neo-liberal reforms, coming directly from the U.S., were creeping through the newly consolidating Brazilian democracy, introducing policies that would deepen inequalities. These policies, despite their praise for their development prospective, would come to increase urban marginality. Moreover, a new penal rhetoric alongside rigorous policing a la Americana inspired had a strong impact on the Brazilian poor.

Repressive Policing

International economic relations have brought in neo-liberal reforms and despite the economic growth and clear progress of industrialization, Brazil faces huge inequalities that fuel the growth of violent crime widely impacting cities. Cities like Recife and Rio de Janeiro still face criminal violence, as much as 20 times more than Western Europe (Wacquant 2008). Brazilian police follows centuries old traditions of lower class control, learnt from the colonial

times of slavery and reinforced by two decades of military dictatorship. As well as profound urban marginality, violence in Brazil is the legacy of a political culture intensely marked by authoritarianism (Péralva, 1992; Méndez et al., 1999). The youth, suffering under the weight of severe unemployment repair their broken masculinity through booty capitalism where the vested interests of a few captures the state apparatus (Wacquant 2008).

The US-inspired zero tolerance policing along with the legacy of colonization and decades of dictatorship made Brazil the living example of a society with a dreadful carceral system. With number of arrests as a measurement of police effectiveness, prisons are overcrowded with as many as eight prisoners in a cell made for one living in dreadful hygienic conditions, diseases, and illegality.

Crime, as a wicked problem to be tackled, requires not only institutional capacity but also coordination between sectors (Munck 2007). However, ranking low in the transparency index, corruption within the Brazilian police is widespread and detrimental to attempts of coordination. It is not uncommon that officers are accused of working for drugs traffickers, and others of helping illegal paramilitary groups that fight the security forces as it was the case in Rio de Janeiro in 2011 where 20 officers were arrested on these allegations (BBC, 2011). In a land of corruption and paternalism with porous law-enforcement agencies, criminality and police are deeply connected.

This complex of law enforcement in Brazil is a reflection of the formation of the modern society that uses punishment, rather than rehabilitation, as a central technique. Along with the spread of performance measurement, the dismantling of the penal system as a correctional system of rehabilitation through work, culture and education is what alarms social scientists to ask questions about the future of society. The effects of this new system in the social fabric of cities deserve attention, not only in newly consolidated democracies but in any society.

BRAZIL AS A CREDIBLE LEGITIMATE BRICS COUNTRY

As a new global political economy emerges, the Brazilian position in the global order has changed, and it now has a potentially stronger role as a global

actor. With a strong focus on South-South diplomacy since President Lula's first term in 2003, Brazilian foreign policy favors alliances with other developing countries that face similar opportunities and challenges. As a regional power, Brazil participates in the Mercosur and a global level, its role within the BRICS countries deserves special attention. The Goldman Sachs' BRICS acronym referred to new potential powers of Brazil, Russia, India, China, later joined by South Africa, has blinded economists with talks of change in the global political economy, however, the metaphor has inspired too few on the political and social questions of democracy within the countries.

During the last decades, the global order has slightly shifted, moving South and East, creating the possibility of a multi-polar globe. Currently with the rise of the BRICS, this multi-polarity becomes even clearer and as these countries develop, large urbanization occurs making cities more opportunistically attractive. Today, more than 50 percent of the world's population lives in cities and the United Nations expects that urban areas will hold up to 80 percent of world's population by 2040. These figures put pressure on employment, infrastructure, and quality of life. Concurrently, urban inequality is a growing phenomenon. Poverty increases as wealth increases in cities (Sassen 2006).

Recognition and legitimacy of emerging power status function with diplomacy that requires international cooperation. Brazil, like India and South Africa, is a formal democracy, and as such, can take advantage of 'network diplomacy,' rather than depend on 'club diplomacy' (Heine 2006). It is undeniable that democratic leaders have more legitimacy in political games; however, Brazil suffers from significant inequalities that alienate large portions of society and expose them to social violence and potential conflicts. These conflicts could jeopardize its credibility as a legitimate BRICS actor. The less democratic BRICS members, China and Russia, still struggle to contain their vibrant civil societies, due to their difficult transitions from authoritarianism and statism. On the other hand, similar to the other democratic members, India and South Africa, Brazil supports the democratic pillars on its agenda and legislates against inequality, poverty, and for environmental sustainability, and corporate social responsibility (Shaw et al 2009).

Though the BRICS use both hard and soft pow-

er, some are harder than others. China uses 'hard power' through its military, and it has received wide criticism for creating a new version of domination of Africa. And while Russia has resumed its relations with Africa since the end of the Cold War and India has invested in Africa, Brazil is seen as the 'good guy', strengthening diplomatic relations with the MENA (Middle East and North Africa) region and creating the Commonwealth of Portuguese Speaking Countries to deepen socio-economic relations between the two sides of the Atlantic (Shaw et al 2007). This somewhat positive image was reinforced by Lula who visited various African countries and confirmed that "ties with the Southern world" are a priority, especially with Africa, which was described as 'one of the cradles of Brazilian civilization' (The Guardian 2009) Most BRICS also benefit from the exercise of 'soft power' by attracting tourism, creating global brands, hosting world sports events, and spreading culture (Cornalissen 2007). This 'soft power' can be seen with Carnival in Brazil, the spread of Bollywood, Olympics in Beijing and Rio, and the World Cup in South Africa and Brazil consecutively.

This soft power that Brazil enjoys, however, comes with a certain responsibility to fight 'the geography of misery', as social scientists and geographers call it. Ignoring the failure of attempts to make Johannesburg a world-class city for the 2010 World Cup, Rio de Janeiro embarked on the same boat, trying to rejuvenate Rio de Janeiro. If carioca policy-makers watched The Battle for Johannesburg documentary, they would have learned from the mistakes of gentrification, leaving poor urban dwellers to carry the weight of renewing the inner city to receive football lovers from all over the globe. Moreover, in preparation for the 2014 Rio Olympics and 2014 World Cup, Giuliani has signed a contract with the city of Rio to crackdown on crime. This is part of Rio's "Shock of Order" campaign, modeled after a "cleanup" of New York City street vendors in the 1990s. With huge spending on security and infrastructure boosts, the cleanup campaign also has pacifying units to crackdown on crime in the favelas. However, the impoverished residents of Rio end up facing very little order in the 'Shock of Order' campaign. Such a program criminalizes street vendors and petty crime and places even more pressure on a penal system that is already overflowing.

Besides these advantages that Brazil enjoys by

hosting major sports games, the country's cities, the hubs for economic growth in Latin America, face a tension in domestic security and social cohesion. While Sao Paulo has the highest amount helicopter ownership per capita in the world with 50 percent more helipads than the whole UK, the city hosts two radical realities where these helicopters fly over hundreds of luxury condominiums side by side with shantytowns (The Guardian 2008). These huge inequalities are shocking to the eye, as famous photos of shantytowns that border million-dollar apartments, showing a contrast between rich and poor that resembles collage rather than a real city. The residents of gated communities are so accustomed to their electric fences and surveillance systems that living in a different reality is far-fetched and very rarely suggested by alternative discourses that tend to reinforce the mistrust through the creation of narratives of fear and of the 'other'. South Africa, the latest addition to the BRICS countries, faces similar city dynamics. The city residents of the rainbow nation living in gated communities contribute to the high demand of security guards and electric fences making private security the largest growing industry in the country and one of the largest in the world (Irish 2011).

The future of Brazilian social sustainability requires a distribution of resources and a stronger push for equity, recognition, and opportunities for political inclusion. With such high economic growth, fighting for justice and amending exclusion is a necessity. It is time for the recognition of the ethno-racial problem which, although slightly offset by inter-sectionality mixing with class and gender, is still a Brazilian problem. While some see racism as a cultural problem to be solved with the development of new identities, others believe the struggle against racism must seek to change economic, social, and political structures. Brazilian scholars themselves have been slow at recognizing this problem, leaving its discovery to American and European scholars. This complicated picture shows the difficulty of putting this issue on the political agenda. Despite the hundreds of black and indigenous consciousness and civil rights organizations that are actively at work today, this complex group dynamic makes it difficult to create a voice of resistance from within. It is at these times, in the absence of a strong bottom-up pressure that top-down measures such as quotas seem to be the only way out, or rather, the only way in.

Brazil also suffers in the psychological dimension within the BRICS. Often the East is the imagined place of growth. Brazil needs to keep both feet down to hold these imaginary truths since it already does not feature in the China-India-Middle East region that strengthens quickly. This "CHIME" East relationship is also supported by a large influx of migrant workers and international students, an advantage that Brazil is not even close to partaking in. Investing in competitive education should be a priority for Brazilian leaders. Waking up to the new realities of a more globalized world is key to the future of Brazil within the BRICS. While the Chinese and Indians have sent their highly-skilled work force abroad and received highly-skilled forces at home, Brazil is still trying to catch up in its presence all over the world. Again, cities are particularly important since they not only educate, but also receive the educated, e.g. expatriates and international exchange students.

CONCLUSION

Cities are the hubs for social sustainability, an important value to the future of globalization. The impact of urban areas on the globe is a much ignored research terrain. The future of globalization that focuses on global political economy tends to bypass important local context that can impact international relations.

This chapter discusses Brazilian social cohesion as a BRICS country as it has evolved with different patterns of urban-industrial development and how this relates to the challenges of its multiracial-cultural make-up, the marginalization of peoples of African and Amerindian descent from the Brazilian power-structures. Through an exploration of its colonial legacies in combination with neo-liberal policies, Brazilian urban landscape is filled with urban marginality where poverty is penalized through spatial segregation and ethno-racial discrimination. This case has serious implications for the credibility of the role of Brazil within the BRICS and other alliances.

New methodologies to go beyond macro-economic data in the debates and projections of the BRICS are necessary. Since problems are not always measurable in quantifiable terms as is the case of ethno-racial tensions in Brazil, paying attention to the micro-level can bring in a new perspective of the enactment of development and sustainability.

Micro-level observations of democracy are crucial to understand how recognition and legitimacy play a role in the creation of Brazilian social fabric. These new methodologies are especially necessary since as a formal democracy, Brazil allows for civil society to engage with public authorities and the third sector; assessing the quality of these collaborations can reveal power structures in action.

A wholesome interdisciplinary take on the future of the BRICS countries bridges the gap between local processes and interdisciplinary studies of globalization. Since the Brazilian experience with fast economic growth did not alleviate societal tensions to its full potential, it is important to follow the baby steps Brazil takes as an investor and as a regional power. Moreover, watching the distribution of resources and the role of group claims in these processes are also key to the future of social sustainability. The role of cities is a very important research field that calls for extensive exploration, especially in countries with global actor potential. With fierce international competition, maintaining social cohesion is crucial to allow for urban regions to become the hubs for economic growth and sustainable development.

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MACROPRUDENTIAL REGULATION AND SYSTEMIC RISK

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Abstract: The recent and ongoing financial crisis has exposed fundamental weaknesses in the global financial architecture and has highlighted the need to address the threat of systemic risk. As a result macroprudential regulation has become the center of the policy debate. This article describes some of the pitfalls of the current International regulatory proposals and outlines some alternate Macroprudential policy tools under consideration. Second, it highlights the interconnectedness of the banking sector and that effective macro-prudential policy must take this into account.

INTRODUCTION

The bursting of the US housing bubble in 2007 led to a global recession of a magnitude not witnessed since the great depression in the 1930. Global stock markets witnessed phenomenal declines as high as 65 percent in 2008. The ongoing global financial crisis has focused the attention of policymakers across the world on the need for a reform of the current financial regulation system. Pre-crisis regulation primarily concentrated on the financial stability of individual institutions. Nevertheless, institutions with capital cushions well above Basel II standards also came under severe stress during the crisis. Bear Stearns being a case in point. Macroprudential policy tools which could address systemic risk and prevent the costly breakdown of financial intermediation were widely ignored in the lead up to the crisis. Design and implementation of a robust Macroprudential policy framework offers significant challenges for regulatory authorities globally. Elements of regulatory reforms that would fall under the Macroprudential framework have been the most controversial and await implementation. This includes Basel III rules on countercyclical capital buffers, capital surcharge for systemically important financial institutions (SIFIs) and the Volcker rule, which essentially aims to separate proprietary trading from commercial banking, under the Dodd-Frank Wall Street Reform and Consumer protection Act. However, ad-hoc regulation and excessive compartmentalization of the financial

system might end up being a source of illiquidity in a future crisis. This article describes some of the pitfalls of the Basel III regulations and Dodd Frank Act and outlines some alternate Macroprudential policy tools under consideration such as imposition of a maximum leverage ratio. Second, it highlights the interconnectedness of the banking sector and that effective macro-prudential policy must take this into account.

INTERNATIONAL REGULATION

The Basel accords are global regulatory standards for financial institutions. The most recent Basel III standards were outlined by the Basel Committee on Banking Supervision (BCBS) in December 2010. Basel III is a response to regulatory deficiencies that abetted the Great Recession. Basel III focuses on enhancing capital requirements, reducing counterparty risk, and improving corporate governance among others. The two main changes that this article emphasizes on are the liquidity requirements and central counterparty clearing houses (CCPs). Figure 1 outlines the key capital requirements suggested by the BCBS to improve capital and the management of liquidity risk. As per the requirements, institutions will be required to hold common equity tier 1 (CET 1) capital up-to 4.5 percent of risk weighted assets (RWA). Additional Tier 1 capital is 1.5 percent of RWA. The Tier 2 capital requirement has been set at 2 percent of RWA. However, the total capital ratio compared to Basel II has not changed and remains at 8 percent of RWA. The two new requirements introduced in Basel III are the capital conservation buffer and the countercyclical buffer. Both these buffers are to be phased in by 2019 and have been set at 2.5 percent of RWA. They are required to be met by CET 1 capital. It is important to note that the level of the countercyclical capital buffer can be set by a member state between 0 percent - 2.5 percent.

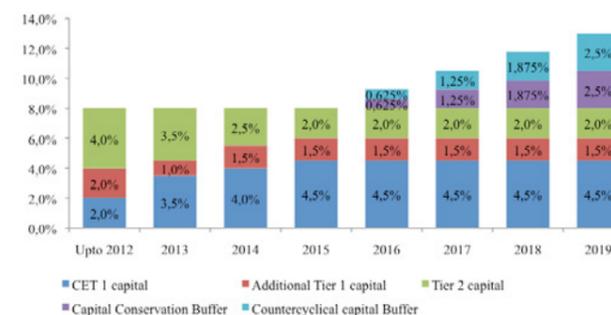


Figure 1: Basel III capital requirements

Basel III incentivizes the use of CCPs for clearing over-the-counter (OTC) derivatives. As per the guidelines, institutions can apply a risk weight of 2 percent to all trade exposures with CCPs. Additionally the credit value adjustment charge (CVA) is waived for exposures with eligible CCPs. The CVA is an additional capital charge introduced in Basel III to mitigate the risk of mark-to-market losses in the event of counterparty default.

However, Basel III in its current form fails to address the systemic risk highlighted by the financial crisis and remains concerned with the solvency of individual financial institutions. The elements of Basel III which tried to address systemic risk such as the capital surcharge for systemically important financial institutions, the liquidity coverage ratio (LCR) and the countercyclical capital buffer remain controversial or have been watered down. The LCR which would require institutions to hold "high quality" liquid assets to withstand a stressed 30 day period of liquidity outflows has been severely criticized by banks. As of January 6, some equities, corporate bonds with ratings as low as BBB- and certain mortgage backed securities after appropriate haircuts have been allowed by regulators to count up to 15 percent of the requirements for the liquidity coverage ratio. In addition the complete standards will now be introduced by 2019 instead of 2015.

In this effort to make the financial system less susceptible to collapse, financial entities are in essence required to hold better quality collateral. However, the financial crisis has resulted in a fundamental change in investor perception about the quality of an asset. A lot of government bonds that enjoyed AAA ratings are not deemed safe no more. Additionally recent estimates from the IMF show that bonds issued by governments regarded as safe now is expected to

shrink by \$ 9 trillion by 2016.

The high demand for high quality collateral combined with the shrinking supply might lead to a collateral crunch, one of several types of crises hyperactive regulation might lead to.

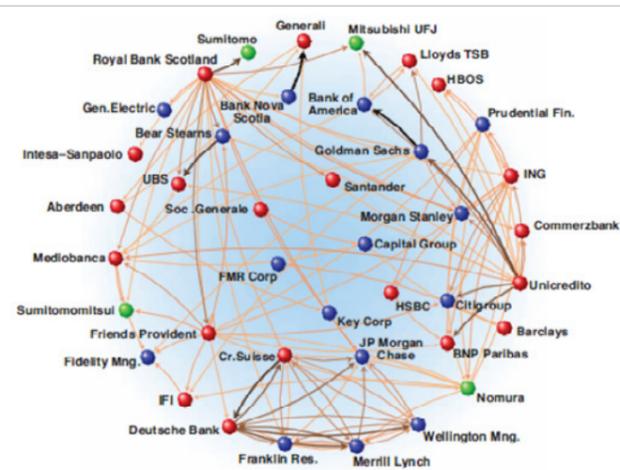
The Dodd – Frank Wall Street Reform and Consumer protection Act has a few additional interesting pieces of legislation. One, it requires institutions to retain at least 5 percent of the credit risk in assets it transfers through a securitization, subject to an exception for securitizations backed by qualified residential mortgages. This provision helps better align investor and originator interest compared to higher liquid requirements. The second is the Volcker rule, which aims to prohibit proprietary trading by insured depository institutions. Global banks have strongly lobbied against implementation of the rule in its current form. They fear that it would cause a reduction in liquidity, increase in transaction costs and reduction in ability to hedge risks. International central banks have also raised concerns on its impact on trading of government bonds.

It is evident that costs and benefits of all policy measures need to be carefully ascertained and policy makers will face many challenges going from proposal to implementation. Before presenting alternate policy options that have been advocated, the next section provides a perspective on the financial sector as a complex network.

FINANCIAL NETWORKS

In the aftermath of the crisis there has been renewed interest in the use of network analysis to model financial networks. This is highly relevant as the mix of globalization and expanding balance sheets has led to financial institutions being more interconnected than ever before. Making the financial system more resilient to contagion should be at the top of the agenda of policy makers worldwide.

Allen and Gale (2000) argue the benefits of diversification where many bank lend and borrow to each other. However the analysis does not take into account the presence of GSIBS. Freixas, Parigi, and Rochet (2000), find that despite the usefulness of interbank credit extensions, diversification can result in institutions that are "too interconnected to fail." However the important fact that needs cognizance is the presence of a node and link



structure in financial networks as illustrated in figure 2.

Figure 2: Representative financial network (Schweitzer et. al, 2009)

In recent work Haldane (2009) provides excellent analogies between networks observed in the physical world and financial systems. The robustness derived from the globalized financial sector also increased its fragility primarily due to complexity and the presence of global banks. Shin (2009) points out that the lengthening of intermediation chains can lead to risk concentration in intermediaries with damaging consequences for financial stability. A good indicator of this increased interconnectedness and complexity has been the rise in the value of over the counter outstanding notional derivatives as illustrated in figure 3.

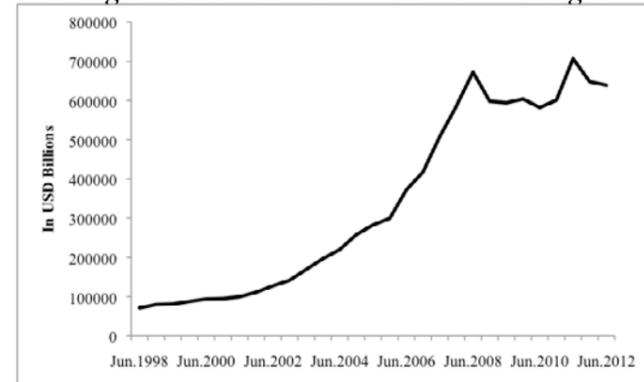


Figure 3: Notional amount of OTC derivatives outstanding, July 2012 (source: BIS)

Minoiu and Reyes (2010) analyze financial flows in global banking networks between 1978 -2009 for 15 lenders and 169 borrower countries. They find significant change in the network density with cross border flows drying up in the aftermath of the crisis. Cetorelli and Goldberg (2010) have identified international financial linkages to be the main trans-

mission channel of the financial crisis to emerging markets. This is corroborated by the policy framework known as the “Vienna Initiative”, which was launched in January 2009 to prevent destabilizing financial outflows from emerging Europe. Hoggarth et al. (2009), Milesi-Ferretti and Tille (2011) also provide evidence on reduced international capital flows during the recent financial crisis.

The most actively pursued initiative so far to mitigate the impact of uncertainty and limit the spread of contagion is the setting up of central counterparty clearing houses (CCP) for over-the-counter (OTC) derivatives. A clearing house ensures trading even in the event of a counterparty default. This by itself just shifts the risk from the balance sheet of the bank to that of the clearing house. It would have made a good policy initiative had there been global agreement on a small number of clearing houses with appropriate backstops being provided by central banks and potentially the International Monetary Fund. However coordination failure at the G8 and G20 level has resulted in proposals whereby a large number of these institutions might be set up in different countries. This will end up exacerbating the problem of quality collateral shortfall and potentially lead to huge destabilizing market in collateral transformation. In this current form, setting up of these CCP’s does not solve the problem of “too big to fail” or systemic risk.

Additionally, the current G20 mandate requires only standardized OTC derivatives to be cleared centrally. Thus financial institutions will continue to hold the most opaque derivatives on their balance sheets. The IMF (2010) estimates that one third of interest rate derivatives, and two thirds of the foreign exchange, equity, and commodity derivatives will not be eligible to be centrally cleared.

The following section visits some alternate policy measures that have been proposed.

NEW MACRO PRUDENTIAL POLICY MEASURES

Regulators worldwide have responded to the challenges posed by the recent financial crisis. However as pointed out in the earlier sections, the regulations in their current form are arguably not the best and may even lead to further crises.

Policy makers and academics across the globe

have suggested different tools that might help mitigate the vulnerabilities of the financial sector. Shin (2010) proposes some alternate policy measures such as leverage caps and a levy on non-core bank liabilities.

A cap on bank leverage is a way to limit excessive asset growth during a lending boom. The Basel guidelines aim to achieve the same objective by higher liquidity requirements. In addition to some of the flaws mentioned previously, the recent crisis has demonstrated that even the quality of assets become questionable during a boom period. An IMF proposal along similar lines is identifying sectors that are building up excessive risks and enforce additional capital requirements on them.

A levy on non-core banking liabilities can also be effective in dampening a lending boom. Core liabilities are the retail deposits of households. However, there has been a change in the pattern of bank funding. From 1996 – 2008, average non-core funding as a percent of total assets of US banks grew from 32 percent to 43 percent. This might suggest a structural change or indicate procyclicality with the lending cycle. If non-core funding is indeed pro-cyclical, then the levy as the feature of an automatic stabilizer and is an interesting proposition. The IMF (2010) in a report to the G20 recommended a levy on financial institutions based on its contribution to systemic risk. This levy can be stochastic depending on the changing importance of the institution in the global risk map and interconnectedness. This proposal if implemented would take into account the importance of interbank links and be able to address the issue of systemic risk.

Caballero and Kurlat (2009) have proposed the innovative solution of issuing tradable insurance credits (TICs). Their proposal targets the interconnectedness of uncertainty, increased risk and slow policy response during a financial crisis. They recommend TICs to be a form of insurance issued by the central bank. Regulation would make it mandatory for institutions to hold a minimum percentage of TICs to assets. During times of financial stress, institutions would be able to exchange it for cash (in its most simple form) or trade with each other. This proposal in practice could have prevented the financial arrest that led the great recession. This could be viewed as form of higher liquidity requirement but is very different. One it would entail a lower cost for

institutions compared to higher capital and liquidity requirements. Secondly during a crisis, it would help differentiate between strong and weak institutions. This would help hasten the policy response during a crisis. The only caveat in the proposal is the requirement of a credible central bank.

There are a number of other proposals that have been put forward including but not limited to cap on loan-to-value ratios, dynamic provisioning, living wills for complex institutions, and developing new macro-indicators to assess financial instability.

CONCLUSION

The recent financial crisis has brought to the forefront the role of Macroprudential policy. Its design and implementation is still at a very early stage. Moving forward macro-prudential policies must balance country specific differences and the need for global co-ordination. Excessive fragmentation will fail to address the problems of uncertainty, contagion, slowness of policy response, and movement of institutions to less restrictive jurisdictions. This opens up the possibility of setting up a supra-national regulator. At the national level, the fiscal authority needs to step in with appropriate tax policies and legislation that supports the actions of the central bank.

Finally, as with all policies there will be trade-offs between financial stability, credit availability, democratic control over policy decisions, and efficiency of the new financial system. This is a watershed moment in economic history and policy making and comes with its own sets of risks challenges and opportunities.

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THE ECONOMIC COSTS OF SOVEREIGN DEFAULT IN THEORY AND PRACTICE

Would international debtor countries benefit from a reduction in the cost of default?

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Abstract: This article analyses the costs of sovereign defaults and debt renegotiations. The analysis focuses on of different types of costs - the direct punishment of debtor repudiating on international debt, exclusion from international credit market, decrease in international trade with the defaulting country and costs for the economy and government. This article also analyses the prospects of the lowering the costs of sovereign defaults including analysis of initiatives such as: Highly Indebted Poor Countries (HIPC), Multilateral Debt Relief Initiative (MDRI) and Inter-American Development Bank Initiative to provide arguments for benefits of lowering costs of sovereign defaults.

Countries, just like firms, borrow money for investment, to meet internal liabilities and to smooth consumption and investment spending in time. Countries also can repudiate on debt repayments and even default on debt. The recent example of Greek credit default showed that countries inability to repay loans is not only a concern for developing countries. This has led to severe austerity implementations and political consequences on an international scene. This accounts for a price that needs to be paid after a default takes place. Let us concentrate on a theoretical framework to understand the cost burden of sovereign defaults.

Gunboat diplomacy, a “super sanction”, was one of the most severe punishments for not paying sovereign debts. The threat of using military power assuring severe costs for countries not paying back their debts was a very persuasive method (Kaletsky, 1985), however introduction of international laws excluding this way of punishment draws one’s attention to other measures of punishment for sovereign defaults. Such measures increase the confidence of creditors in debt repayment given that there is little legal framework of the repayment mechanism in case of sovereign borrowing, unlike private borrowing (Mitchener and

Weidenmier, 2005).

Understanding the underlying reasons for international credit market and thus answering the question why countries borrow from each other in the first place, gives overview of benefits, which countries failing to repay, lose as part of the cost of default. With considerable level of aggregate risk-aversion, the consumption smoothing is better for the economy, so without borrowing possibility a country after default fails to diversify risk associated with output volatility. Therefore, the defaulting country has to bear the whole risk and probably decrease the total portfolio return in comparison to the one with borrowing opportunities.

This article further provides an analysis of costs of sovereign defaults and is structured in a way that the first part discusses the theory of cost of sovereign default, the second provides analysis of the costs of sovereign default in practice and the third investigates prospects of benefits of reduction in costs of default for borrowers with examples.

COSTS OF SOVEREIGN DEFAULT IN THEORY

The benefit of international borrowing is the consumption smoothing, even with output volatility over time, and risk sharing with other countries, which is based on the theoretical approach that countries borrow in bad times of low output and repay in periods of increased productivity (Eaton and Gersovitz, 1981).

Following the analysis by Panizza et. al. (2009), the literature on the theory of sovereign defaults and its cost has concentrated on three main areas which are: direct punishment of the defaulting countries, exclusion from credit markets and “broad collateral damage on the debtor country government or its economy”.

Firstly, the direct punishment concerns the seizure of deferring country's overseas assets by its creditors and cessation of trade credit provision. This type of punishment effects directly international investments of repayment repudiating government and deprives it of the possibility to continually invest abroad. In a model proposed by Bulow and Rogoff (1989) there exist a possibility to renegotiate debt agreements and one of the assumptions of the model is the fact that after borrowers default, the seizure of the defaulters overseas assets brings loss to debtor but also constitutes for a gain for the creditor. This assumption provides argumentation why countries would take actions to punish the default on payment and makes the threat of sanctioning credible. This action however, can infringe the bilateral trade relations, what could lead to losses on both sides greater than in the event of renegotiation of debt and therefore is not always credible and beneficial (Panizza et.al., 2009).

Secondly, the theoretical analysis of costs of defaulting presents an argument about the exclusion from the credit markets upon default. This line of theoretical argumentation provides examples of the effects of default on debt repayment might have on countries situation in the financial markets. The default may lead to a situation where financial obligations where the defaulting or renegotiating country was a creditor are not paid back as a result of "two-sided commitment problem" (Panizza et.al., 2009). In this example government considering default on the debt has to face a threat that its borrowers might refuse to repay their debts and is a considerable cost in case the government is also a creditor as well as a borrower.

Thirdly, the cost of defaults is the damage to the economy. The reason behind this analysis is that the default has "broader adverse effects" than only the exclusion for the financial markets (Panizza et. al., 2009). Cole and Kehoe (1998) provide a model based on assumption that there are two types of borrowing governments, ones that always repay – "honest" and ones that sometimes do not repay their debts called "normal". If lenders cannot observe which type of the government is the borrower at the time of lending and governments have options to save or to buy insurance and the relationship is one repeated relationship between borrower and a lender,

then this relationship will not last after long enough for the creditor to see if the borrower is a "normal" government (Panizza et. al., 2009). This shows that there is a reputational damage caused by defaulting or renegotiating debt. Bad or "normal" reputation is related with decrease in investments, capital outflows and could signal financial crisis. This is also signalling for citizens and could bring potential losses to the government's reputation even in the eyes of its own workers (Panizza et. al., 2009). Furthermore, the paper by Rose (2005) introduces a model of decrease in bilateral trade which harms the economy of the defaulting country. The loss of benefits from international trade accounts for a significant loss for the defaulter.

The theoretical framework of the sovereign defaults presents models of strong incentives for governments to repay their debts. Even though there is very little of legal framework concerning the sovereign debt repayment, the economic costs of sovereign default and even renegotiation provide considerable arguments in the analysis of the reasons behind the existence of international credit market and give confidence for borrowers, that there exist measures to assure debt repayment.

COSTS OF SOVEREIGN DEFAULT IN PRACTICE

Bearing in mind the assumption from Eaton and Gersovitz (1981) about the punishment for repudiation being permanent exclusion from the international credit market, the examples of renegotiations at the Paris Club¹ depict an adverse situation of repeated defaults and renegotiations without the permanence of exclusion. Examples of such countries as Argentina and Senegal, which were renegotiating debts at the Club five and fourteen times respectively in the period 1981-2004 (Fuentes and Saravia, 2010) clearly constitute against the postulate of the permanence of exclusion.

The reality is that the benefit of bilateral trade and net present value of future borrowing to the country that defaulted has a positive value and therefore the threat of permanent exclusion from future borrowing is not credible to the extent of being permanent. The question about the credibility of threat of sanctions, whether it causes damage to creditor as well as the debtor – but even if a sanction is credible, then creditor may not im-

¹ "The Paris Club is an informal group of official creditors whose role is to find coordinated and sustainable solutions to the payment difficulties experienced by debtor countries" (<http://www.clubdeparis.org/>)

pose it on defaulting debtor (Bulow and Rogoff, 1989).

The empirical study by Rose (2005) show that there is a statistically significant influence of default on bilateral trade, between debtors and their creditors. The paper concludes that there is an observation of a decline of 8% in bilateral trade and this effect lasts for approximately 15 years. This provides evidence for the theory of punishing the country but also lesser trust which could be a result of limiting the availability of trade credit, however Rose (2005) does not provide analysis whether this punishment influences the decision about default. Another research by Richmond and Dias (2008) shows the periods of exclusion from financial markets after country's default. The results are as follows: in the 1980's the average length of exclusion was 5.5 years and 4.1 years and 2.5 years in 1990's and in 2000's respectively. Trade is beneficial and thus the punishment of infinite denial of future credit does not seem plausible. Furthermore, the existence of repayment schemes and debt relief decreases the cost of creditor with the debt being, at least partly repaid, and decreases the time and severity of punishment for the defaulting sovereign.

Notably, the case for sovereign default is not always the case of permanent default on repayments. The debt renegotiation processes with other sovereigns at the Paris Club or with private creditors at the London Club (private creditors and indebted countries) also give significant results in terms of costs for the borrowing country upon the beginning of the renegotiation process (Fuantes and Saravia, 2012). Given the popularity of the renegotiations, the question arises if the lowering of costs of default could bring benefits?

LOWERING THE COST OF SOVEREIGN DEFAULT

The prediction of results of decrease in cost of sovereign default would increase the probability of indebted countries defaulting on their international debts. This is supposed to increase the cost of borrowing for countries with poor repayment history and using backward induction could result in limitation of the availability of borrowing to those countries. The backward induction for creditors, given the knowledge about the decrease in cost, is that they expect that after borrowing the borrower has lesser incentive to repay the debt, at least from the theoretic-

cal point of view.

In the history as a resolution to a problem of struggle to repay debts on the borrowers side and bearing risk of having costs of yet another rounds of defaults on creditors side the Brady Plan was introduced for Latin American countries in years 1987-1988 (Sturzenegger Zettelmeyer, 2006). The solution proposed by US Secretary of Treasury Nicholas Brady was an acceptance for the creditors to write off much of the debt of the borrowers but the gain was a much higher probability of the remaining debt being repaid.

The cost of default can be lowered in different ways: shortening the period of exclusion from credit markets and increasing a ceiling of debt available, up to a debt relief. The latter is implemented in relation to initiatives of the International Monetary Fund and the Inter-American Development Bank. The Enhanced Heavily Indebted Poor Countries Initiative (HIPC) allows debt relief for qualifying countries (World Bank, 2012). Also the MDRI (Multilateral Debt Relief Initiative) has a goal of writing off the debt of poor indebted countries with a goal of fulfilling the Millennium Development Goals set by the United Nations (UN, 2012). This undoubtedly brings benefits to borrowers struggling to repay, especially allowing for development in most crucial sectors, like provision of education and healthcare. Dooley (2000) also argues that the renegotiation and decrease in cost of such action can bring benefits. As countries renegotiating their debts also face threats of economics costs it might actually bring benefits to allow for such renegotiation, especially given some poorly designed contracts.

The aforementioned initiatives can significantly lower the cost of defaults for repudiating countries and bring benefits for the poorest areas of the world. It can positively influence the development of these regions by refraining from imposing severe economic punishment measures that are likely to harm, already volatile, development funds.

CONCLUSION

Theoretical models of sovereign default and debt renegotiation gave a basis for analysis of a market with little legal boundaries and therefore rely upon the framework of punishment for repudiating borrowing countries. Theories referenced in the previ-

ous parts of this article find some support in empirical data, but the models focusing on reputation and damage to economy of defaulter find more advocacy than the original models with the permanent exclusion assumption.

The initiatives to relief Heavily Indebted Poor Countries are a good examples of lowering cost of defaults that brings opportunity for development in most essential sectors in the functioning of these countries, which initially spend more resources operating debt repayment and thus putting the international financial obligations before basic needs of citizens. This does not, however, exclude future borrowing and benefits from international trade in these bilateral relations, which would not exist with the threat of permanent exclusion from credit market. This proves the existence of benefits of lowering costs of default to debtor countries.

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MONETARY POLICY AND UNEMPLOYMENT

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INTRODUCTION

Over the past few years there has been a growing interest in extending the standard New Keynesian framework to explicitly model unemployment (see for example Gali, 2010, Blanchard & Gali, 2010). However, very few of these studies account for high level of steady state unemployment; which is quite surprising given unemployment is an important indicator of resource utilisation in a macro economy (Gali, Smets & Wouters, 2010). Moreover, economies like South Africa (25.5 per cent) and more recently Greece (26.8 per cent) and Spain (26.02) display high levels of unemployment.

In light of this evidence, I use in this paper a New Keynesian DSGE model with unemployment to analyse how the level of steady state unemployment affects the way monetary policy should be conducted. In other words, should Central Bankers care about unemployment at all when setting interest rates? To answer this question, I simulate a productivity shock in four scenarios; each one of which corresponds to a specific type of labour market with an associated level of steady state unemployment rate.

In what follows, I will briefly present a short literature review before going on to present the scenarios and analyse the quantitative effects of a productivity shock. I then conduct a welfare analysis and the conclusion follows. I will not be spending time deriving the model in all the details which, I must point out, is very similar to the one by Blanchard and Gali (2010).

Literature review

Targeting directly unemployment has never been the main objective of central bankers. This is because by doing so, the outcome might be a volatile unemployment. Rather, seeking stable prices and a constant output gap will result into better controllable unemployment. Therefore, Gali (2010) concluded that there was no need to explicitly explain such a phenomenon. However, many have been questioning this statement lately and interest in extending the

standard New Keynesian model by including variable unemployment has been growing. For instance Gali (2010) built a DSGE model with unemployment that raises the following questions: how can labour market frictions interfere with the design of monetary policy? Should the monetary authority care at all about unemployment when setting interest rates? The author presents a clear description of a model that combines labour market frictions and nominal rigidities. He also illustrates how such a model can answer questions regarding the interaction between labour market frictions and nominal rigidities. He first assumes a standard Taylor with practically no weight on unemployment. He then compares it to an optimised Taylor rule with weighted unemployment to find that the difference in the results is rather small. The standard Taylor rule he follows is interpreted as capturing the notion of flexible inflation targeting in which central bankers reach the specified target gradually. Perhaps the case of a strict inflation target, which is suited for environment where price stickiness is the only nominal distortion, would lead to a different outcome.

Similarly, Blanchard and Gali (2010) in a New Keynesian model with unemployment and labour market frictions combine standard preferences, real wage rigidities and price staggering. They compare the quantitative effects of a productivity shock on two different economies namely the United States' economy (with a fluid labour market and low unemployment duration) and the continental Europe (with a sclerotic labour market and high unemployment duration). The authors conclude that in fluid labour markets, labour market tightness fluctuates closely with unemployment whereas in sclerotic labour markets, it varies closely with the change in unemployment. This result implies different responses to productivity shocks depending on the type of labour market. For instance, under inflation targeting policy they find that productivity shocks have more persistent effects in a sclerotic than in a fluid labour market. Blanchard and Gali (2010) also show that inflation stabilization is not the best policy to follow in a framework with labour market frictions and

real wage rigidities since this policy may lead to inefficient, large, and persistent movements in unemployment in response to productivity shocks. The persistence is even larger in sclerotic labour markets. Therefore, they suggest an optimal monetary policy that accommodates inflation and limits the size of fluctuations in unemployment. Relative to the Study of Gali (2010), the difference between the simple Taylor rule and the optimised Taylor rule here is very clear to show that following the latter considerably reduces the welfare loss.

The four scenarios and implications for monetary policy

From now on, lower case variables with hats represent log deviations of the corresponding upper case variables from their steady state values. Before I get any further, I shall first briefly explain the concept of labour market tightness as it is crucial in the design of the four scenarios implied by the proposed study. Blanchard and Gali (2010) mathematically define it as the ratio between aggregate hires to unemployment which therefore means that it lies between the interval $[0,1]$.

(1)

In which θ is the labour market tightness index, and h respectively denote aggregate hires and the unemployment.

From the view of the unemployed however, the labour market tightness index is defined as the probability of finding a job in a certain period. It is the job finding rate.

An expression of the job finding rate as a relation between current and lagged employment is given by

(2)

in which s is an exogenous separation rate.

Using the relation between employment and unemployment given by (2) becomes

(3)

which gives the relation between labour market tightness and both current and lagged unemployment rates. u is the steady state unemployment rate.

I can now define the four scenarios. To start up, I consider two labour markets. The first one is charac-

terised by labour market high flows (implying high values of θ and h) and low unemployment duration. The other is considered to have low flows (low level of θ and h) and relatively high steady state unemployment. I define the first labour market as fluid whereas the second one is more rigid. The fluid labour market has a small u given in (3) while this value is larger for the rigid labour market. Thus, relative labour market tightness moves more with the negative of the change in the unemployment rate; consequently, changes in unemployment lead to large relative changes in the flows. On the other hand, in the fluid labour market with low steady state unemployment, changes in unemployment lead to small relative changes in the flows, thus to small relative changes in labour market tightness. The other two scenarios are a fluid labour market with high unemployment duration and a sclerotic labour market with low unemployment duration.

TO SUMMARISE

- Scenario 1 (Rigid-Low): a rigid labour market with low steady state unemployment rate. Here I assume an economy with low steady state unemployment. I define a labour market where it is hard for unemployed individuals to find a job and once they have got it, they hold on to it for a while and do not lose it easily. The flows in the labour market are therefore low.

- Scenario 2 (Rigid-High): a rigid labour market with high steady state unemployment rate. This scenario differs from the previous one on the level of steady state unemployment which I assume in this scenario to be quite high. Also, the separation rate is only slightly bigger.

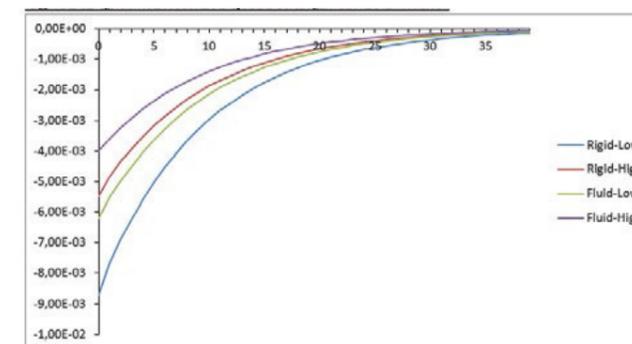
- Scenario 3 (Fluid-Low): a fluid labour market with low steady state unemployment rate. In this scenario, a jobless individual has a high chance of finding a job but also, letting it go is quite easy (relative to scenario 1).

- Scenario 4 (Fluid-High): a fluid labour market with high steady state unemployment. An unemployed person in this economy has a relatively high probability of getting hired. However, he would lose the job fairly easy. Although the flows are high in this labour market, a huge amount of individuals in this scenario is left without jobs.

In each scenario, I simulate a productivity shock on the economy. The shock is an AR(1) process with an autoregressive coefficient of ρ . The general effects of the shock are in line with the standard New Keynesian DSGE model (see for instance Gali and Gertler 2010). What is different about this model is the effects on inflation and unemployment at different level of labour market rigidity. Therefore, I only report the quantitative effects of the productivity shock on these two variables. I also assume that the central banker follows a simple Taylor rule with elasticity parameters taking the following standard values α , β , and γ . Finally I report the responses of inflation and unemployment due to a one per cent change in the shock.

Figure 1 shows the reaction of inflation to a productivity shock. I find that the steady state level of unemployment along with the type of labour market, play an important role in how inflation responds. In scenario 2 and 3 the responses are practically the same – inflation decreases by about 0.6 per cent on the impact. The most significant drop on the impact (close to 0.9 per cent) occurs in scenario 1 in which inflation displays high response. On the other hand in scenario 4 where unemployment is high, inflation is the least responsive with a decrease of about 0.4 per cent on impact.

Faia (2009) suggests that central bankers should decrease inflation in response to productivity shocks, therefore boosting the demand and resulting into firms hiring more. This result can therefore mean an increase in employment for scenario 2 and 4 charac-



terized by high steady state unemployment rates.

Figure 1: Dynamic effects of a productivity shock on inflation

I report the response of unemployment to a productivity shock in figure 2. The result in scenario 2 is consistent with the findings of Blanchard and Gali (2010). They conclude in their study that sclerotic labour markets are associated with high response of unemployment to productivity shocks. Interestingly, I find that the result in scenario 4 diverges from that conclusion. Indeed, scenario 4 which is associated with a fluid labour market instead shows the highest response in unemployment of all four scenarios. Another striking feature in figure 2 is how almost non-volatile unemployment is in scenario 1. It increases by about 0.12 per cent on the impact and slowly converges to the initial level once the shock dies out.

It therefore appears as if unemployment is more responsive the more fluid labour market is. This contradictory result from the conclusion of Blanchard and Gali (2010) is perhaps due to the fact the authors follow an inflation targeting policy. In the proposed study on the other hand, central bankers use a standard Taylor rule.

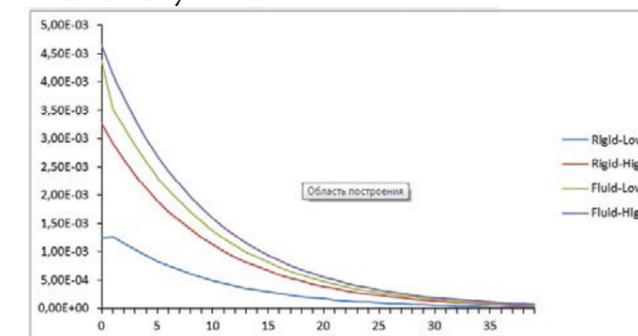


Figure 2: Dynamic effects of a productivity shock on unemployment

A STRATEGIC FRAMEWORK TO OVERCOME THE CURRENT ECONOMIC CRISIS? EU training programmes and the professional development of young EU labour migrants

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I now turn to analyse how monetary policy should be conducted efficiently. In other words, how should central bankers react optimally to a productivity shock in a way that will maximise social welfare? Thus far, I have assumed a standard simple Taylor rule as suggested by the standard DSGE New Keynesian model. The question I am now facing is what are the values of α , β and γ corresponding to the optimised Taylor rule that minimise the loss function? The loss function I am referring to is given by:

(4)

I present the result in the table 1

The general picture shows a trade-off between unemployment and consumption with amplitude depending on the scenario. In all four cases, the optimised Taylor rule puts more weight on unemployment and inflation whereas it decreases the weight on consumption. However, scenario 3 is the one that requires the strongest measure on unemployment. This is perhaps due to the fact that because the labour market is fluid in that scenario, unemployment is more responsive to shocks. In scenarios with high steady state unemployment, I find that central bankers should care the same about the way they react on inflation and consumption in both cases. However, they should care a little bit more about unemployment in the scenario with high steady state unemployment and fluid labour market (scenario 4). Therefore, I conclude that the more fluid is labour market, the more central banker should care about unemployment and vice versa.

The results displayed in table 2 show that following such a policy considerably reduces the losses relative to the standard Taylor rule policy. Not to target unemployment appears therefore extremely costly especially in scenario 1.

Table 1: Optimised Taylor rule optimal coefficient values

	Scenario 1 (Rigid-Low)	Scenario 2 (Rigid-High)	Scenario 3 (Fluid-Low)	Scenario 4 (Fluid-High)
	1.66	1.56	1.60	1.56
	0.33	0.43	0.39	0.43
	- 0.92	- 0.84	- 1.48	- 0.97

Table 2: Comparison of Losses

	Scenario 1 (Rigid-Low)		Scenario 2 (Rigid-High)		Scenario 3 (Fluid-Low)		Scenario 4 (Fluid-High)	
	Simple Taylor	Optimised Taylor	Simple Taylor	Optimised Taylor	Simple Taylor	Optimised Taylor	Simple Taylor	Optimised Taylor
Welfare Loss	3.79	1.31	2	1.15	2.73	0.996	1.87	0.842

CONCLUSION

The present paper analyses a New Keynesian framework that explicitly models unemployment. I conduct a comparative study of four scenarios with different characteristics in terms of fluidity of labour markets and levels of steady state unemployment. I find that for a productivity shock, unemployment is more responsive when the labour market is fluid. Inflation on the other hand is more volatile when the level of unemployment is low. Finally, results show that the optimized Taylor rule considerably reduces the welfare loss and suggests a bigger weight on unemployment in all four scenarios.

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This paper explores the extent to which the European Union (EU) has been successful in promoting the professional development of its young Europeans¹. More precisely, it focuses on the extent to which the objectives of EU-wide education projects, including the Education and Training Programme of 2020 (ET2020) and the Bologna Process have been realised in the EU. The objectives of these projects has been to make the education attainment of young Europeans “better appreciated and easier to recognise” and provide them with “greater access to learning or employment opportunities in different countries”, and, crucially, to “encourage greater mobility” within the EU (European Commission, 2013a).

According to the European Commission, the ‘learning mobility’ of young Europeans “helps knowledge circulate more freely; and it contributes to the internal [EU] market, as Europeans who are mobile as young learners are more likely to be mobile as workers later in life” (European Commission, 2010). Thus, the mobility of young Europeans during their studies is central to the success of the EU’s labour market and the overcoming of the current economic crisis (European Commission, 2013a). Official figures confirm that those Europeans who migrate as students are more likely to do so again later in their lives as economic labour migrants. In fact, only 2% of non-migrant Europeans are likely to move to another EU country sometime in the near future, compared to 17% of Europeans with migrant backgrounds (TNS Opinion & Social, 2011). Therefore, this paper argues that if the impact of learning mobility is (more) intra-EU labour migration, the aim of EU-wide projects on higher education should be to make study abroad and intra-EU migration compulsory for

young Europeans². This is because learning mobility sustains intra-EU labour migration and helps balancing out the income distribution of Europeans across the EU’s territory. The latter outcome will also assist the EU in defeating its current (economic) crisis (Tridico, 2012).

The paper is structured as follows; the first part discusses and analyses the main objectives of EU-wide education and learning projects. The second part explores the extent to which the objectives of these projects have been realised by analysing the education levels, cross-country education and intra-EU migration of young Europeans, considering, in particular, the EU’s current economic crisis. The final part summarises the main findings of the paper and draws out its broader implications for future academic research.

EU-WIDE LEARNING PROGRAMMES TO GUARANTEE THE INTRA-EU MIGRATION OF YOUNG EUROPEANS

EU policies on higher education and young people’s mobility gained momentum following the introduction of the Lisbon Strategy, which identified, as one of its main goals, the making of the EU as “the most dynamic and competitive knowledge-based economy in the world” (European Council 2000). According to the strategy, the EU was to become a knowledge-based society, which could be realised by enhancing the level of intra-EU migration of young and highly educated Europeans. Nonetheless, it was not until 2004 that higher education became formally part of the Lisbon Strategy and 2005 from which point it was to be formally monitored as part of the working programme of the 2010 Education and Training framework (ET 2010) (Gornitzka, 2010: 543). By this time EU institutions and policy mak-

¹ Young people refer to those aged 18-35, due to recent developments including modernisation, individualisation and globalisation processes (for more on this see Sloam, 2012). Europeans in this paper refer to EU nationals

² Higher education refers to university level education

ers, most notably Viviane Reding, Member of the Education Council, have recognised the need for a more comprehensive EU-led higher education strategy. This was on the basis that “learning is the key to employment [and] economic success” (European Commission, 2013b). The same approach towards higher education and Europeans intra-EU migration has been carried forward into the current EU2020 growth and strategy programme. Additionally, a more recent programme, the EU’s Youth Strategy (2010-2018), seeks to provide equal opportunities in terms of the education prospects and EU labour market participation of young Europeans (European Commission, 2013d).

There have been two key reform processes of higher education in the EU. The first one is ET2020. It regulates the educational and training facilities of EU member states and, as part of EU2020, identifies common strategic objectives for the period of 2010 to 2020 in order to make ‘lifelong learning’ available to all Europeans (Council of Ministers, 2009). It has its foundation in ET2010 and the Lisbon Strategy, in which member states were committed to establish a knowledge-based EU society on the basis of intensified political coordination (European Council, 2000). The main aims of the current ET2020 are “the personal, social and professional fulfilment of all citizens” and “sustainable economic prosperity and employability, whilst promoting democratic values, social cohesion, active citizenship, and intercultural dialogue” (Council of Ministers, 2009). Thus, ET2020 recognises the potentials of education in enhancing the employability of Europeans within the EU’s territory.

The other reform project is the so-called Bologna Process, which has made education more accessible by building on the idea that learning is equal to Europeans’ intra-EU mobility (European Commission, 1999). The latter is guaranteed by Europeans’ freedom of movement rights and is subject to students’ sufficient economic resources in the host country (2004/38/EC Directive). The Bologna Process has also standardised higher education degrees in order to enhance students’ employability across the EU (European Commission, 1999). It is not, strictly speaking, exclusive to the EU, but refers to the European Higher Education Area (EHEA), which has 47 country members, with the largest student population in Russia (EHEA, 2012). However, it should

not be considered separately from the EU because it was based on the economic and political integration of EU member states and the regional integration of their educational facilities (Pépin, 2007). Even in its most recent form, the Bologna Process of 2020 sustains the economic and market origins of the EU. For example, one of its central aims is to ensure “that at least 20 % of those graduating in EHEA have had a study or training period abroad by making as one of its main goals the study abroad” (EHEA, 2012). Thus, the Bologna Process of 2020 builds on EU students’ rights to free movement in order to secure young Europeans the opportunity to “shop around” for higher education degrees within and beyond the EU’s labour market.

DISCUSSION: THE ACTUAL LEVELS OF YOUNG EUROPEANS’ EDUCATION, EMPLOYMENT AND INTRA-EU LABOUR MIGRATION

Table 1: Europe 2020 Strategy - Education and Employment: Numbers and Targets³

Europe 2020 Strategy - Education and Employment: Numbers and Targets							
	% of population aged	2005	2008	2009	2010	2011	EU 2020 Target
Early leavers from education and training	18-24	15.8	14.9	14.4	14.1	13.5	10
Higher educational attainment	30-34	28	31	32.2	33.5	34.6	40
Employment rate	20-64	68.0	70.3	69.0	68.6	68.6	75

Source: EUROSTAT (2013a)

Table 1 summarises the percentages of early school leavers, the level of higher educational attainment and the employment rate of the EU’s population (aged 18 to 24, 30 to 34 and 20 to 64 respectively) and, in the final column, provides the EU2020 targets. From the table it is evident that the level of early school leavers aged 18 to 24, i.e. youth with educational levels at or below primary school level, in the EU has declined from 15.8% in 2005 to 13.5% in 2011. Similarly the higher education level, (at or above university level) of the EU’s population aged 30 to 34 steadily increased from only 28% in 2005 to 34.6% in 2011. In this case it is likely that the EU2020 target, in light of the level of steady increase since 2005, will be achieved prior to 2020 and could thus be raised from its current 40%. Overall then, there is a positive outlook in recognising the educational targets of EU2020. However, the trend in employment rate of 20-64 year olds does not show much improvement since 2005. Indeed, on closer in-

³ The total population of the EU-27 in 2012 was just over 500 million (EUROSTAT, 2013b)

spection it reveals a decline of few percentage points from 70.3% in 2008 to 68.8% in 2010. Consequently, these numbers reveal that the increase in Europeans’ level of education during ET2010 and at the beginning of ET2020 has not been met with an increase in their employment rates. In fact, youth (18-24 year olds) unemployment in the EU is the largest since the euro sclerosis of the 1970s and has been on the rise since 2008, peaking at 9.1% in 2011 (EUROSTAT, 2013b).

Having said that, the benefits that can be gained from intra-EU migration and the declining costs thanks to the increasing efforts undertaken at the EU level to offer migrant Europeans equal opportunities, in recent years, made many more Europeans ready to migrate than before. Nevertheless, there is disagreement about the actual number of intra-EU migrants. While some official figures maintain that intra-EU migrants make up as much as 5% of the EU’s population (around 20 million people) (TNS Opinion and Social, 2011), others place the same number at only 2%, (around 8 million people) (EUROSTAT, 2011). In 2010, 23% of all migrants were Europeans and 77% were third country nationals, i.e. migrants from non-EU member states (EUROSTAT, 2011). The difference between the level of EU and third-country migrants demonstrates well that although Europeans have a right to move freely and migrate from their country of origin to other EU member states to seek education and employment there, only a small proportion actually takes advantage of this possibility. From these migrants, the number of migrant EU students amount to just over half a million (EUROSTAT, 2013c).

Table 2: Migrant European students (Aged 20-24) in the EU 27 (in 1,000)

Migrant European students (Aged 20-24) in the EU 27 (in 1,000)											
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Migrant Student Numbers	325.4	340.5	345.8	372.2	390.5	403.5	458.0	487.9	496.2	532.4	583.7

Source: EUROSTAT (2011)

Table 2 shows the number of migrant European students (aged 20-24) in the EU27 between 2001 and 2011. From the table it is evident that the number of migrant European students have risen in the analysed ten years from 325 400 in 2001 to a total of 583 700 in 2011. Although the latter figure might seem trivial in light of the preceding discussions on EU-wide projects and how important EU institutions

perceive learning mobility for its economic growth and international standing, it also implies that the number of migrant European students in higher education has increased by over 55% since 2001, from the beginning of EU-wide education projects. Therefore, it is clear that the ET 2010 (now ET2020) and the Bologna Process have been successful in both raising awareness of their projects and recruiting students to study abroad programmes.

However, due to the fact that these EU-wide education and mobility projects are dependent on students’ economic resources, these programmes have only enhanced the mobility (and thus employability) of the economically well-off segment of young Europeans. This is a consequence of the limitations posed on Europeans’ freedom of movement rights in the EU directives (in particular the 2004/38/EC Directive). This is one of the reasons why as early as 2004 observers were sceptical about the future prospects of EU-led education projects (Kok, 2004). Thus, the Bologna Process has been referred to as both, an ideal of how to restructure higher education at the domestic level (and has been used in, for example, Brazil), and a flawed model, which enhances the socio-economic gap between students (Keeling, 2006; Robertson, 2010). More recent empirical studies have also shown that the current economic crisis further widens the socio-economic gap within the EU’s population (Meardi et al., 2012). Therefore, those young Europeans who were not able to make use of EU-wide education and mobility projects before the crisis are less likely to do so today.

One could argue that the limitations and shortfalls of EU-wide education projects are also the result of national governments remaining in charge of their educational systems. EU treaties do not allow the EU to be the primary policy maker on higher education. The role of the EU is, in fact, limited to support and guide the actions of member state governments in implementing quality in their education and training structures (Art. 165 and Art. 166, Treaty on the Functioning of the European Union (TFEU), 2009). Similarly, immigration policies remain to be framed by member states, which can impose limitations to the inflow of EU immigrants. Migrants from EU-15⁴ member states have, as a rule, not faced labour market restrictions whereas migrants from the more re-

⁴ EU 15 member states are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK

cently joined Central and Eastern European (CEE)⁵ member states have faced a range of restrictions in most EU-15 states. Only in Sweden have CEE migrants just had to comply with the standard EU regulations that apply to nationals of all member states. Other member states have applied periodical transitional measures for CEE migrants. Only the UK and Ireland welcomed CEE migrants from the 2004 accession states, applying minor constraints like registration with the Workers Registration Scheme in the UK. Nevertheless, both of these countries applied more restrictive rules to migrants from the 2007 CEE accession states. These limitations affect 2007 CEE students' employability during their studies and are expected to influence their choice of country (Doyle, et al., 2006).

The preceding discussions on the actual level of young Europeans' education, employment and migration prior to, and during the crisis, implies that the full potentials of EU-wide education strategies cannot be recognised unless education is fully regulated by EU institutions. If EU institutions want world-class education to be delivered across the EU and young Europeans to migrate, education must be regulated at the EU level. Similarly, learning abroad, at least on a temporary basis, should be made compulsory for all young Europeans who study at EU universities and their mobility should be guaranteed by EU-funding. Since intra-EU migration of Europeans has proved to help overcome the economic crisis by balancing out the uneven income levels across the EU (Tridico, 2012), making sure that university students migrate within the EU during their studies should be a priority to EU institutions. Besides, on the basis that Europeans' mobility at an early stage of their lives leads to more mobility later in their lives (European Commission, 2011), implies that Europeans' cross border education would also help in sustaining the EU labour market in the long run.

CONCLUSION AND IMPLICATIONS

The paper has demonstrated that EU institutions place a specific focus on the mobility of young European students, because it is perceived to be central to the success of the EU's labour market and the over-

⁵ New member states since 1st May 2004: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, Slovenia, Poland
New member states since 1st January 2007: Bulgaria and Romania

coming of the current economic crisis (European Commission, 2013a). However, the realisation of these ideas have been limited due to the actual level of EU involvement in regulating education across the EU's territory and the limitations posed on Europeans' intra-EU migration in terms of their economic resources and national governments' immigration rules. The situation has also been worsened by the current economic crisis which has led to the lowest levels of youth employment since the 1970s.

Therefore, in order to fully recognise the potentials of EU-wide education projects, the role of the EU must be to fully regulate education within its territory, make study abroad programmes compulsory to its students and guarantee its students' mobility by making EU-funding available to every student. More research should focus on the level of young Europeans' intra-EU migration for further education, their resulting employability skills and its fit with the labour market requirements, as well as the type of structural revisions the EU's educational institutions should take in order to be have the capacity to regulate a truly integrated EU-wide educational system.

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WORLD POLITICS & INTERNATIONAL RELATIONS

INTRODUCTION

The liberalisation of international trade and global cooperation promotes economic growth and stability¹. Despite this knowledge, the policy makers of the Great Depression used protectionist policies to barricade domestic markets from global competition. Furthermore the secular nature of the global economy that existed prior to the Great Depression, which was then compounded by the use of protectionism, was shown to have contributed to the outbreak of World War II. After the experience of these two major global economic events nations negotiated and established the General Agreement on Tariffs and Trade ('GATT') in 1947. GATT's objective was to liberalise trade and eventually establish a multilateral free-trade agreement with the catalyst being its Most-Favoured Nation ('MFN') rule. The exception to this rule (found in Article XXIV of GATT) has undermined this objective. Due to the exception, nations have shifted their focus from multilateral solutions to discriminatory free-trade areas. There are many arguments supporting free-trade areas as they have been argued to be the pathway towards a multilateral solution. However there are also many criticisms of free-trade areas as they are fundamentally discriminatory and can lead to trade-diversion. A multilateral solution is the most effective and efficient mechanism to liberalise global trade and create cooperation between nations and this must be the focus for all nations. In order for this to occur the World Trade Organisation ('WTO') must act to amend the exception to MFN so that negotiations can progress without the free-trade area option distracting nations from forming a multilateral free trade agreement.

TRADE PRIOR TO GATT

Policy makers' response to the Great Depression of the 1930's was a 'chaotic scramble to protect domestic markets and safeguard the balance of payments'². This involved greatly increasing protection-

ist measures and barricading domestic markets from global competition. Global trade volume fell by 25 per cent between 1929 and 1933, with nearly half of this figure attributable to higher trade barriers³. These reactions were found to have exacerbated the effects of the depression and prolonged the recovery time with global output only returning to pre-crisis levels by 1938⁴. The trade-to-GDP ratio of 1938 remained at 20 per cent below the ratio of 1929⁵. After the global economy recovered from the Great Depression the value of free trade and the damage done by protectionist policies was realised.

Furthermore the protectionism employed by policy makers during the 1930's established a 'secular' global economy, which consequently caused the rise of Nazism and subsequently World War II⁶. This is no surprise when Viner identified in the 1920's the hazards of a secular global economy as 'more variations in construction, more international ill-feeling, more conflict between international obligations and municipal law, and between judicial interpretation and executive practice, more confusion and uncertainty of operation.'⁷ The effects of protectionism and 'secular' trading blocs were realised and global economic reform was required.

GATT, MOST-FAVOURLED NATION RULE AND THE EXCEPTION

After the Great Depression and World War II countries saw the need for global cooperation and mechanisms to promote reduced protectionism. This prompted negotiations for the creation of an agreement and a global regulatory body that established the laws and regulated international trade. In 1947, out of the failed attempts to create the Inter-

¹ Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (W. Strahan and T. Cadell, 1776)

² Barry Eichengreen and Douglas A Irwin, 'The Slide to Protectionism in the Great Depression: Who Succumbed and Why?' (Working Paper

No 15142, National Bureau of Economic Research, 2009)
³ Christian Henn and Brad McDonald, 'Avoiding Protectionism' 47 *Finance & Development* 20, 22

⁴ Ibid

⁵ Ibid

⁶ World Trade Organisation, *The GATT Years: From Havana to Marrakesh*, (2013) <http://www.wto.org/english/thewto_e/whatis_e/tif_e/fact4_e.htm>

⁷ Jacob Viner, 'The Most-Favoured-Nation Clause in American Commercial Treaties' (1924) 32 *Journal of Political Economy* 101, 111

national Trade Organisation, the GATT was signed⁸. Despite the lack of a global regulatory body, GATT succeeded in establishing the guiding principles to reduce protectionist policies and create a multilateral trading network. The preamble of GATT states that the objective is to enter into 'reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce'⁹.

The main underpinning principle of the GATT is the rule of the MFN. The rule of MFN is enshrined in Article I of GATT and establishes that:

any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties¹⁰.

This rule is critical in encouraging global cooperation and reducing the secular nature of the global economy that was prevalent prior to GATT. This effect is due to the principle of MFN stating that if economic benefit is given to one GATT signatory it must be given to all¹¹. This assists in reducing the animosity between nations created through exclusionary trade policies. MFN was also intended to be the catalyst for reducing protectionist policies and resulting in the eventual creation of a multilateral free trade economy.

However, there is an exception to the MFN rule. This exception is found in Article XXIV (5) of GATT, which states that:

the provisions of this Agreement shall not prevent ... the formation of a customs union or of a free-trade area; Provided that:
... (b) with respect to a free-trade area, ... the duties and other regulations of commerce maintained in each if the constituent territories and applicable at the formation of such free-trade area ... to the trade of contracting parties not included in such area or not parties to such agree-

ment shall not be higher or more restrictive than the corresponding duties and other regulations of commerce existing in the same constituent territories prior to the formation of the free-trade area¹².

Article XXIV (8)(b) of GATT defines a free-trade area as 'a group of two or more customs territories in which the duties and other restrictive regulations of commerce ... are eliminated on substantially all the trade between the constituent territories in products originating in such territories.'¹³ The article establishes that a high standard of 100 per cent free trade must be met in order for an agreement to satisfy as a free-trade area. This, to an extent, helps preserve the MFN principle and at the time of creation it was not thought that the exception would be utilised as frequently as it is today¹⁴. The article also neglects to define 'substantially all' and has been loosely interpreted. Since the article's inception in 1947 the closest to clarification of 'substantially all' occurred in Turkey – Textiles, which is a case regarding a customs union and not a free-trade area. Given the lack of literature and cases on this point, it must be suggested that a similar interpretation to that in Turkey – Textiles would apply to a free-trade area¹⁵. In this case, the WTO members could not agree on the meaning of 'substantially all'. Due to this, the Appellate Body reasoned that the meaning 'accords some flexibility' with it establishing that 'substantially all' did not mean 'all the trade' but definitely meant more than 'some of the trade.'¹⁶ This provides little practical clarification to the definition. As the former Deputy Director of the WTO stated, this freedom of interpretation has

[o]f all the GATT articles, this is one of the most abused, and those abuses are among the least noted. Unfortunately, therefore, those framing any new [free trade areas] need have little fear that they will be embarrassed by some GATT body finding them in violation of their international obligations and commitments and recommending that they abandon what they are about to do¹⁷.

12 Ibid art XXIV

13 Ibid

14 Jagdish Bhagwati, 'Regionalism versus Multilateralism' (2007) 15 *The World Economy* 535, 537

15 Appellate Body Report, Turkey – Restrictions on Imports of Textile and Clothing Products, WT/DS34/AB/R (22 October 1999) 12

16 Ibid

17 World Trade Organisation, *Regionalism and the World Trading System* (World Trade Organisation, 1995) 70; Songling Yang, 'The Key Role of the WTO in Settling its Jurisdictional Conflicts with RTAs' (2012)

11 Chinese Journal of International Law 281, 296

This shows that in order for GATT and the WTO to uphold their objective and achieve the goal of multilateral free trade there must be stricter and clearer interpretation of Article XXIV. This can occur through amending the article so it is clear that free-trade areas should not be the preferred options for nations to liberalise trade. However, as is an obstacle in other international areas, gaining agreement from a large membership group on any issue is difficult, particularly when all members have different domestic laws.

The reasoning behind GATT and the MFN rule was to provide a better trade outcome for the group than could be achieved by each nation acting individually. The exception to the MFN rule is believed to have been included in GATT so that nations that would not have joined otherwise would become signatories¹⁸. This exception has allowed nations to act individually in creating free trade agreements thus undermining the establishment of the best trade outcome for all nations, which would occur with a multilateral free trade framework¹⁹.

This is not to suggest that GATT has not had some success in the liberalisation of multilateral trade. There have been eight rounds of negotiations governed by GATT. These included Geneva, Ancey, Torquay, Geneva II, Dillon, Kennedy, Tokyo and Uruguay rounds of negotiation²⁰. With a number of recorded achievements including:

- the Geneva round resulted in the signing of GATT, a package of trade rules, 45,000 tariff concessions affecting \$10 billion of trade²¹;
- the Ancey round resulted in the exchange of 5,000 tariff concessions²²;
- the Torquay resulted in cutting the 1948 tariffs levels by 25%²³;
- the Geneva II round resulted in US\$2.5 billion worth of tariff reductions²⁴;
- the Dillon round resulted in tariff concessions worth US\$4.9 billion of world trade²⁵;
- the Kennedy round resulted in tariff concessions worth \$40 billion of world trade²⁶;

18 Richard H Snape, 'History and Economics of GATT's Article XXIV' in Caroline Freund (ed), *The WTO and Reciprocal Preferential Trading Agreements* (Edward Elgar Publishing Limited, 2007) 71, 85

19 Ibid

20 World Trade Organisation, 'Fiftieth Anniversary of the Multilateral Trading System' (Press Brief, 81, 27 October 1997)

21 The Geneva round occurred in 1947; Ibid

22 The Ancey round occurred in 1949; Ibid

23 The Torquay round occurred in 1948; Ibid

24 The Geneva II round occurred in 1956; Ibid

25 The Dillon round occurred in 1960-1961; Ibid

26 The Kennedy round occurred in 1964-1967; Ibid

- the Tokyo round resulted in an average one-third cut in customs duties in the world's nine major industrial markets, bringing the average tariff on industrial products down to 4.7%²⁷; and
- the Uruguay round resulted in tariff reductions of about 40% and the creation of the WTO²⁸.

One of the greatest accomplishments of GATT is the growth of nations participating in negotiations, the first round involved 23 signatories and this grew to 123 participants by the Uruguay round. In 1994 GATT was updated from the 1947 version and is now encompassed in the laws governing the WTO. The WTO was established in 1995 and now has 158 signatories²⁹. Since the creation of the WTO multilateral free trade negotiations have continued through the Doha Round, which began in 2001 and continues today. GATT and the WTO have successfully facilitated the gradual liberalisation of world trade and continues to do so despite slow progress with current negotiations. Article XXIV has inhibited GATT's ability to form a multilateral free trade agreement.

FREE-TRADE AREAS: STUMBLING BLOCS OR BUILDING BLOCS?

Despite GATT's liberalisation of global trade, the Article XXIV exception to MFN has allowed nations to shift their focus from establishing a multilateral free trade solution to creating free-trade areas in the form of bilateral or regional natures. As of January 2013 the WTO had notification of 546 free-trade areas. This has resulted in a complex patchwork of agreements and trade only being liberalised for members to these agreements. These free-trade areas can have either a 'trade-diverting' effect or a 'trade-creating' effect³⁰. Some economists argue that free-trade areas are the 'building blocs' towards a multilateral free trade agreement, as they will eventually grow so large that the next step will be to join them together multilaterally³¹. However, critics suggest they are 'stumbling

27 The Tokyo round occurred in 1973-1979; Ibid

28 The Uruguay round occurred in 1986-1994; Ibid

29 World Trade Organisation, *Members and Observers*, (2 February 2013) <http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm>

30 Jacob Viner (1950), *The Customs Union Issue*, (Carnegie Endowment for International Peace, 1950); Trade-diverting – take away trade from efficient outside suppliers and giving it to inefficient member countries; Trade-creating – generating trade from one more-efficient member at the expense of another less-efficient member

31 Jagdish Bhagwati, 'Preferential Trading Areas and Multilateralism: Strangers, Friends or Foes?' in Caroline Freund (ed), *The WTO and Reciprocal Preferential Trading Agreements* (Edward Elgar Publishing Limited, 2007) 69, 97

blocs' that create a distraction from the real solution to a cooperative and integrated global economy³².

Arguments have been made that regional free trade agreements should be preferred over bilateral trade agreements involving distant members as regional nations are likely to be 'natural trading partners'³³. It has been suggested that geographically distant free-trade areas are more likely to be trade-diversionary. However Bhagwati shows the premise that 'countries sharing borders, or closer geographically to one another, have higher proportions of trade with one another than countries which are further apart' is fundamentally flawed³⁴. History shows that this is not always the case, as Smith noted in 1776

*'[France and England] being neighbours, they are necessarily enemies, and the wealth and power of each becomes, upon that account, more formidable to the other; and what would increase the advantage of national friendship, serves only to inflame the violence of national animosity.'*³⁵

In addition Gowa and Mansfield found, that '[b]orders can breed hostility and undermine trade, just as alliances among distant countries with shared causes can promote trade'³⁶. The most damaging criticism of this argument is that by condemning distant-country free-trade areas, the global economy will become more exclusive and less open, which undermines the objective of moving towards multilateral free trade for all³⁷. Due to the argument in itself being flawed it is impossible to determine if bilateral or regional free trade agreement are trade-creating or trade-diverting. Each agreement must be considered on an individual basis. A possible solution to reducing the number of trade-diverting agreements would be to amend Article XXIV to include a clause that states that the lowest tariff of any member to a free trade area before any agreement is reached must be the common external tariff for non-members.

Bhagwati suggests that regional alternatives will erode the effectiveness of multilateral negotiations because nations will 'think why bother fight the battles in the non-discriminatory world of GATT', when a 'better protectionist, trade-diversionary preferen-

tial arrangement' is more achievable³⁸. A solution to this would be to amend or abolish the MFN exceptions in Article XXIV as this would remove the alternatives to a multilateral free trading system.

Amendments to Article XXIV would have to be carefully balanced against the risk of change resulting in nations withdrawing from GATT and the WTO. If this was to occur it would be a backwards step in the path towards the complete liberalisation of international trade and undermine the overall objective that was outlined in the GATT preamble in 1947. Any amendment to Article XXIV will require careful consideration of the members that are a party to a multilateral agreement and their respective free-trade area. There may also be unintended consequences of amending or abolishing Article XXIV, such as inconsistencies with established free-trade areas and how they will work alongside a multilateral agreement. GATT and the WTO should take precedence and be the first point of reference where there is an inconsistency; this would uphold the primacy of multilateralism³⁹. However, if the multilateral free trade agreement itself does not deal with a particular matter, but that matter is dealt with in the relevant free-trade agreement, the residual laws governing the free-trade area should supplement the multilateral agreement⁴⁰. The overriding goal of any agreement should be to reduce any differences with the way different countries trade. That is why it is so critical to get it right in terms of what the laws of the multilateral agreement cover and how this is to work in conjunction with existing free-trade areas, so as not to result in any uncertainty or further ambiguity. Otherwise all the hard work of member states in the negotiation process would be a waste.

Regionalism is also argued to be more efficient than multilateralism as it allows nations to negotiate rules and commitments that exceed the capability of multilateral agreements. Yet when this involves nations rising to the demands of other nations in order to forge particular agreements, for example developing nations rising to the demands of a developed nation, it does not always result in an efficient outcome. This is shown in the exchange between Ambassador Carla Hills and President Carlos Peretz after Mexico had just closed negotiations with America to join the North American Free Trade Agreement in 1992⁴¹. Ambassador Hills claimed 'Mexico now has world-class [intellectual property] legis-

lation' and President Peretz replied with 'but Mexico does not have a world-class parliament'. This exchange highlights how the quid pro quos of regionalism and bilateralism can force developing nations to agree to the demands of developed nations in ways that are not optimal for the economic efficiency of the world trading system⁴². Multilateral negotiations on the other hand have been suggested to give developing nations greater negotiating powers which, if agreement can be reached, would result in the raising of their standard of living in the areas of greatest need such as political stability.

The unprecedented development of a complex network of free-trade areas does impact on trade flows due to the costs for traders in meeting multiple sets of trade rules⁴³. Traders will naturally import from and/or export to multiple nations which will mean that traders must ensure that the various products receive the correct trading treatment. The trading treatment is established by the appropriate agreement between the two trading nations and will not be identical for every set of nations. The inconsistencies between the rules and procedures governing the numerous free-trade areas and the multilateral framework give rise to 'regulatory confusion, distortion of regional markets, and severe implementation problems, especially when there are overlapping [free-trade areas]'.⁴⁴ This shows that a global economy comprising of multiple regional and bilateral free-trade agreements implicitly results in trade-diversion. In contrast, a single multilateral free trade agreement would not result in confusion or excess cost for traders, as it would apply to all products and all nations in an identical way⁴⁵. This simpler and more consistent application would have a trade-creation effect. This is not to say that reaching a multilateral free trade agreement is going to be easy. Given that there are a greater number of parties involved, it must be appreciated that any such agreement will take longer to reach than a bilateral or regional agreement. However the end result is far more beneficial.

Despite the goal of the WTO to establish a multilateral free trade solution, the WTO recognised the importance of free-trade areas in the Singapore Ministerial Declaration⁴⁶. It was stated that regional

trade agreements 'promote further liberalisation and may assist least-developed, developing and transition economies in integrating into the international trading system'.⁴⁷ With the substantial rise in regional agreements the WTO noted the importance of re-evaluating its response to free-trade areas and clarifying the rights and obligations of contracting parties. The WTO reaffirmed the 'primacy of the multilateral trading system' and renewed its 'commitment to ensure that regional trade agreements are complementary to it and consistent to its rules'.⁴⁸ This shows that the WTO recognises the need to evolve if it is to remain relevant and this could be assisted with amendments to Article XXIV of GATT.

The advent of widespread free-trade areas can be seen as unfortunate as it undermines the key objective of non-discriminatory trade proposed by GATT and the WTO. It could be seen to hark back to the secular nature of the global economy that contributed to World War II⁴⁹. In order to not reduce confidence between nations, free-trade areas must be carefully monitored to ensure they do not have devastating trade-diverting effects or cause 'more international ill feeling and conflict'.⁵⁰ This is curbed by the inclusion of Article XXIV (7)(a) stating that all nations establishing free-trade areas must notify GATT Contracting Parties of the agreement and 'make available ... information regarding the ... [free-trade] area.' This fosters transparency, allowing nations to evaluate the possible trade-creating or trade-diversionary effects of an agreement and how it will affect third party (nations not party to the agreement) trade. This will in turn encourage confidence, which the global economy craves at this point in time, but it cannot completely eliminate the ill feeling that comes from the exclusionary effects. The WTO has also reported that notification has not effectively led to transparency because it did not always occur in a timely and complete manner⁵¹. Therefore in order to fulfil the purpose of notification, nations must strive to improve their notification efforts.

Despite the argument that free-trade areas are 'building blocs' as they will grow to the point where they will join to form a multilateral agreement, when their overall application is considered, the net effects are unpredictable and possibly negative⁵². Due to the aforementioned arguments and their conclusions, free-

32 Ibid
33 Pravin Krishna, Trade Blocs: Economics and Politics (Cambridge University Press, 2005) 70
34 Bhagwati, above n 14, 544
35 Smith, above n 1, 460
36 Joanne Gowa and Edward D Mansfield, Allies, Adversaries, and International Trade (Paper presented at the American Political Science Association Meetings, Washington DC, 1991)
37 Bhagwati, above n 14, 544

38 Bhagwati, above n 14, 552
39 Robin Burnett and Vivienne Bath, Law of International Business in Australasia (The Federation Press, 2009) 3
40 Ibid
41 Bhagwati, above n 14, 552

42 Ibid
43 Chen Taifeng, 'Regional Trade Agreements vs. Multilateral Trading System: A Study of Chinese interests and Policy Options' (Working Paper No 762, Norwegian Institution of International Affairs Department of International Economics, 2009), 13
44 Ibid
45 Ibid
46 Singapore Ministerial Declaration, WT/MIN(96)/DEC (13 December 1996)

47 Ibid para 7
48 Ibid
49 World Trade Organisation, above n 6
50 Viner, above n 7, 111
51 Singapore Ministerial Declaration para 11
52 Viner, above n 30

trade areas should be considered 'stumbling blocs' for a multilateral free-trade solution. Despite there being the obvious obstacles to reaching agreement, which is expected when a greater number of parties are involved, multilateral free-trade is a more effective and efficient means to liberalise trade and promote global cooperation. This means nations need to shift their focus from free-trade areas to the WTO negotiations.

CONCLUSION

Considering the economic perspective, long-term recovery from the Great Depression and World War II showed policy makers that reducing protectionism and increasing global cooperation promotes and encourages trade. This resulted in the liberalisation of global trade flows, which reduced the severity and has stimulated a quicker recovery from the global financial crisis that began in 2008 as compared to the aforementioned historic events. Nations commitment to these values were shown when the Group of 20 pledged in November 2008 to 'refrain from raising new barriers to investment or trade in goods and services, as well as imposing new export restrictions, or implementing WTO-inconsistent measures.'⁵³ When considering the differences in severity and recovery periods between the Great Depression and the global financial crisis it can be seen that trade liberalisation has benefited the global economy. So why not utilise the full benefits available by establishing multilateral free trade?

Nations continue to reinforce their commitment to a multilateral solution by continuing to persevere in the Doha Development Agenda negotiations. Despite this, multilateral progress has halted and nations are choosing instead to establish free-trade areas to liberalise global trade regardless of the negative effects that are evident with these agreements. In July 2012 Pascal Lamy urged nations to shift their focus to actually establishing a solution as '[c]redibility lies in the capacity to produce results, not statements.'⁵⁴ Nations, in the interest of the global economy, need to place more importance on actually coming to a multilateral agreement and not just stating their commitment to one. This should be achieved by a stricter

interpretation and amendments to Article XXIV so that free-trade areas are not as easy to establish.

INTER-CIVILIZATIONAL RELATIONS: Why Clash When You Can Cooperate

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Most people tend to think of themselves primarily as individuals, as members of a family or community, or as citizens of a state. Most of us, however, also belong to larger collectives known as civilizations (Arlt and Daviau 2009; Holton and Nasson 2009). Throughout much of human history, it is unlikely that many people have actually thought in terms of civilizational identity, civilizational loyalty or civilizational belonging; our daily circumstances simply do not promote such thinking, we tend to move in far smaller circles and operate on a much lower level of affiliation. Moreover, it would be a relatively rare circumstance in which people have thought of their own personal security and wellbeing in relation to or as being immediately dependent upon the security and welfare of the civilization (or civilizations) to which they might belong (Bowden 2010). But that is not to suggest that such circumstances do not evenuate from time to time, the effects of climate change being a good case in point (Fagan 2004, 2008).

With the end of the Cold War, and particularly since the terrorist attacks of September 11, 2001, there is a growing impression that the various civilizations to which we belong are somehow fundamentally at odds with one another and prone to clashing. This is especially the case when it comes to the nature of relations between the Western and Islamic worlds, with some observers seeing their history of relations as defined by a recurring or ongoing series of confrontations and clashes; from the eleventh-century Crusades (1095-1291) through to current events being played out in the Middle East and Afghanistan (Lewis 1993, 2003; cf. Saikal 2003). This in turn has given rise to claims and arguments about how or why one side or the other might ultimately prevail in the clash of civilizations (Roberts 1985; Hanson 2002). Regrettably, a preoccupation with clashes and confrontations obscures what many civilizations or socio-cultural groups share in common and sidelines centuries of migration and mingling, peaceful cooperation, cultural borrowing and exchanges of ideas (Bowden 2007; see Reichwein 1925; Maverick 1946; Cobb 1963; Pullapilly and Van Kley 1986; Black 2008).

One of the reasons why we tend to think of civilizations as prone to clashing is because of the influential clash of civilizations thesis made famous by Samuel Huntington (1993a, 1998). In articulating the thesis, he asserts that the fundamental source of conflict in the post-Cold War world will be cultural. That is, the "fault lines between civilizations will be the battle lines of the future." Moreover, the "clash of civilizations will dominate global politics" (Huntington 1993a: 22). Violent conflict in the former Yugoslavia between 1991 and 2001 was offered as evidence in support of the clash thesis, as was conflict in the former Soviet Union, both within Russia and between Russia and its former satellite states. Even the vote that awarded Sydney the 2000 Olympic Games over Beijing was characterised as being won on the back of voting along civilizational lines (Huntington 1993b). The terrorist attacks of 9/11 and the subsequent global war on terrorism, including the United States-led wars against insurgencies in Iraq and Afghanistan, are said to add further legitimacy to the clash thesis (Goldstone 2002; Scruton 2002).

Prior to Huntington reinvigorating the clash of civilizations thesis following the end of the Cold War, Lester B. Pearson warned, "We are now emerging into an age when different civilizations will have to learn to live side by side in peaceful interchange, learning from each other, studying each others' history and ideals and art and culture, mutually enriching each other's lives. The alternative, in this crowded little world, is misunderstanding, tension, clash, and catastrophe" (Pearson 1955: 83-4). With the end of the Cold War leading to the bitter breakup of the Soviet Union and the even more violent fragmentation of the former Yugoslavia, Huntington's account of the future of world politics forcefully suggested that clashes and catastrophes rather than peaceful interchanges and mutual enrichment would likely be the order of the day.

Underlying the clash of civilizations thesis is the assumption that different civilizations or cultural

⁵³ World Trade Organisation, 'Overview of Developments in the International Trading Environment' (Annual Report, November 2012) <https://www.wto.org/english/news_e/news12_e/dgsummarynov12_e.pdf>

⁵⁴ World Trade Organisation, 'Lamy reports to General Council on Doha Round and urges negotiators to 'change gears'' (Press Release, 25 July 2012).

groups have significantly different ways of life underpinned by what are thought to be largely incompatible values and belief systems. The publication of Huntington's clash thesis generated much interest, debate and criticism from a wide range of locations and perspectives (see Huntington et al. 2010). It has been dismissed on a variety of grounds, including that it is based on anecdotal evidence and misrepresents the actual state of world affairs, among others (O'Hagan 1995; Gray 1998; Connolly 1999; Shapiro 1999; Said 2001; Sen 2006). It has been argued that real clash is going on within civilizations (Senghaas 2002). Some have sought to prove this by classifying and quantifying both wars of the past and post-Cold War conflicts, concluding that clashes within civilizations are as common, if not more so, than those between civilizations (Fox 2002; Tuscisny 2004; Henderson 2005). While these studies are important in that they tell us whether or not civilizational clashes and conflicts have taken place, they do not necessarily tell us anything about why they might have clashed. Is it because of fundamental differences and incompatible ways of life, or is it because of the myriad of other reasons that individuals, societies, states and civilizations sometimes clash? These critiques do not explicitly challenge the core assumption underlying the clash of civilizations thesis; some implicitly accept it. Given the volume of criticism levelled at the clash thesis, it is somewhat surprising that so few of these critiques have questioned the assumption at the heart of the thesis.

The implicit acceptance of the underlying assumption along with the absence of a systematic and rigorous test of the clash of civilizations thesis goes some way toward explaining why it has proven to be not only resilient, but highly influential in both powerful policy circles and in popular political discourse. Speculation about clashing civilizations is directly responsible for the United Nations declaring 2001 the Year of Dialogue Among Civilizations, which evolved in 2005 into the ongoing United Nations Alliance of Civilizations initiative (United Nations 2006). In a similar vein, as the first president of a reunified Germany, Roman Herzog (1999) took the thesis and its influence seriously enough to explicitly devise a strategy on how it might be prevented.

Some of the critiques of Huntington's thesis concerned his identification of eight or nine distinct civilizations, the constituent parts of those civilizations,

and the use of civilizations as a unit level of analysis more generally (major criticisms and Huntington's response are collected in Bowden 2009a vol. 4). A key concern about using civilizations as a unit of analysis is that they are not the united and unitary actors that Huntington believes them to be; it is more helpful, rather, to think of most civilizations as internally pluralist with some measure of diversity (Katzenstein 2010). Yet Huntington is not the first to go down this particular path; Arnold Toynbee suggested that when it comes to the study of world history and politics, the most appropriate or sensible units of study are civilizations, not nations, states, or even epochs or periods of time, all of which, he argued, are prone to lead one to ill-considered or incomplete conclusions (Toynbee, 1972).

With the end of the Cold War and with it the superpower dominated bipolar world order, in part in response to Huntington's provocative work, the study of civilizations and their growing role in global affairs has gathered considerable momentum and taken on new significance (e.g. Iriye 1997; Cox 2000; Jones 2002, Mozaffari 2002; United Nations 2006; Hall and Jackson 2007; Katzenstein 2010). Beyond academia there is a similar widespread and growing general curiosity about the nature of civilizations. This might go some way toward explaining why Sid Meier's video game Civilization – a game of strategy involving conquest, coexistence and cooperation – has become one of the most popular and influential games of all time (see Fogu 2009).

As history shows, there have been tensions and confrontations between different civilizations and socio-cultural groups, just as there have been periods of peaceful interaction and cooperation. While there is much work in the field of civilization studies and world politics that focuses on clashes and conflicts and debates about what sets the different peoples of our world apart, some scholars have begun to direct greater attention toward the history of cooperation and exchange between civilizations and what they share in common (Euben 1999; Hobson 2007; Black 2008; Shogimen and Nederman 2008). The ethic of reciprocity, for instance, or the so-called 'Golden Rule', is a fundamental moral principle common to virtually all of our world's major religious, cultural or civilizational groups. While it is expressed in a range of ways, the essence of the ethic of reciprocity is captured in the phrase, 'treat others as you would like to

be treated' (Wattles 1996). Shared values such as this are important factors in avoiding conflict and in facilitating dialogue between the civilizations that constitute our world.

Nevertheless, contemporary thinking on interactions between East and West cannot help but be influenced by the general tenor of the Western history of thought on the issue of shades of civilization or the degree of political, social and moral progress among different peoples (Bowden 2009). But not all contemporary thinking is influenced in the same way; some maintain that continental or civilizational chauvinism more or less reflects the reality of the situation, while others have questioned and challenged the Eurocentric view. However, for every Martin Bernal (1987) questioning the roots of Western civilization and proposing an Afro-Asiatic alternative, there are a handful of scholars arguing for the maintenance of the traditional and more widely accepted account of Western civilization's Greek heritage. Similarly, for every John M. Hobson (2004: 2) arguing that the "deceptively seductive Eurocentric view is false," and that the "East (which was more advanced than the West between 500 and 1800) provided a crucial role in enabling the rise of modern Western civilisation," there are a handful like David Landes (1999: xxi) who insist "the historical record shows, for the last thousand years, Europe (the West) has been the prime mover of development and modernity." Charles Murray (2003) has similarly sought to "prove" the West's superiority by cataloguing its superior inventory of achievements in science and technology, music, literature, the visual arts, and philosophy.

To counter this line of argument one could highlight some of the East's influences in the realm of ideas and innovations that were introduced to the West. To take just a few examples, Arabic/Islamic breakthroughs in the field of mathematics, particularly in algebra and trigonometry are critical early developments in the field and crucial to its development. The term algebra actually derives from the title of an important work written in 830 CE by al-Khwārizmī (c. 780-850 CE), *Hisab al-jabr w'al-muqabala*, the *al-jabr* in the title was translated around three centuries later as algebra. By the ninth century many Muslim mathematicians and astronomers agreed that the Earth was spherical, not flat, calculating its circumference to a less than 200 kilometre margin of error. The Arabic/Islamic world also made significant ad-

vancements in health, hygiene and medicine; Zakariyya al-Razi's (c. 865-925 CE) medical writings, for instance, were translated, reprinted and widely available across Europe, representing required reading for would-be Islamic and European physicians alike for centuries. Similarly, Ibn Sīnā (also known as Avicenna, 980-1037 CE), a Persian philosopher and physician – and important interpreter of Aristotle in the Islamic world – wrote a one million word Canon of Medicine which was a key medical/physiology text for centuries in both the Middle East and Europe through twelfth-century Latin translations. And it was a tenth century Muslim surgeon named al-Zahrawi (930-1013 CE) who introduced to the world many of the surgical instruments that have become commonplace, including the scalpel and forceps. In 1206 a Muslim engineer named al-Jazari authored the Book of Knowledge of Ingenious Mechanical Devices, in which he introduced a number of inventions, from combination locks to water clocks, including none more important than the crankshaft. The modern cheque also comes to us from the East; it is thought that in the ninth century a businessman from what we now call the Middle-East could cash a cheque in China drawing on his bank in Baghdad. These are just some of the ideas and inventions that have their origins in the East, added to these are things such as quilting and carpets, gunpowder and the compass, and from chess to the three course meal.

More generally in this regard, when taking a longer-term view of history, Fernand Braudel (1993: 8) makes the point that the "history of civilizations, in fact, is the history of continual mutual borrowings over many centuries, despite which each civilization has kept its own original character." Donald Puchala (1997: 26) seems to agree, noting "that the most frequent outcome of inter-civilizational encounters is inter-cultural borrowing that results in either the cultural enrichment of the borrower's civilization, or hybridization." As with most contentious issues, particularly big ticket items such as those encapsulated in this debate, there are at least two – and often more – sides to the story, and just as many claims to the 'truth'. What I think would or should now be accepted by most, is that East and West have met throughout history, have borrowed and learned from one another, and have made significant contributions to where we all find ourselves today. No civilization or culture is a completely isolated or self-sufficient island. Rather, for millennia there have been back and

forth movement of peoples and exchanges of ideas, inventions and innovations between East and West and beyond. Who invented what is not or should not really be the key issue of debate; as with any idea or invention people borrow and redesign and rethink and improve on the original. That is how progress is made that spreads far and wide to the benefit of all: through the exchange and sharing of ideas and inventions, not through keeping knowledge and know-how in-house to the exclusion of others.

For one reason or another conflict always seems to attract more attention than co-operation and what we have in common, nevertheless there is much to be gained by directing greater attention toward what Eastern, Western and other traditions of thought have in common and have shared and shaped together, particularly in the realm of ideas. In making this point I would like to borrow Will Durant's (1963) idea that civilization is a stream with banks, and that at times the stream is filled with blood from people killing, stealing, shouting and doing the things that tend to attract our attention; while on the banks, unnoticed, people build homes, make love, raise children, sing songs, write poetry and even whittle statues. Like the story of civilization, the story of inter-civilizational relations is the story of what happens on the banks. Anwar Ibrahim (2006: 5), for one, sees the positive work being done on the banks and recognises the opportunities presented to the current generation of thinkers and leaders when he writes: "For me, there has never been any doubt that our world [the East] and the West are compatible, and that this spirit of inclusiveness and pluralism will continue to be a source of inspiration in bridging the gaps between cultures and civilizations."

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WINNING HEARTS AND MINDS: Constructivism's academic triumph and operational failure in thinking about nationalism worldwide

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There is a danger, when discussing “constructivism” in International Relations, of trying to make a “school” out of the many theorists who at times espouse a constructivist-leaning argument. The ranks of self-identified “constructivists” are greatly swelled by those who have been labeled constructivists retrospectively by others. The resulting “constructivists” are, according to Palan, “an eclectic lot consisting of practically anyone who shows interest in culture, identity, norms, and accepts the notion that actors’ interests are not fixed but change and arise out of social context”¹. Brown and Ainley, with similar frustration, assert that “constructivist” is a “bumper sticker” too often applied to scholars ill at ease with the traditional liberal-realist dichotomy but who manage to maintain, nevertheless, a degree of academic respectability². The waters of constructivism have been greatly muddied since, as conventional wisdom would have it, Alexander Wendt transported it to politics and IR from its sociological roots³.

It is important to bear this in mind when assessing the impact of “constructivist” accounts of the nation and its political expression, nationalism. As the first part of this essay will explore, authors espousing certain constructivist ideas sit on both sides of the modernist *versus* perennialist academic debate on the origin of nations. Likewise they have very different views on the role played by ethnicity in the constitution of a nation. Their unity lies, it will be shown in part two, in their universal depiction of the nation as a constituted social fact, rather than as an eternal and immutable political given. This is a bold claim very different from that of nationalists themselves⁴, but it is one that has resounded throughout the academic world with remarkable power.

1 Ronen Palan, “A world of their making: an evaluation of the constructivist critique in IR”, *Review of International Studies*, vol. 26, no. 3, 2000, 576

2 Chris Brown and Kirsten Ainley, *Understanding International Relations*, 4th edition, New York: Palgrave Macmillan, 2009, 48

3 Palan, 598

4 Ernest Gellner, *Nations and Nationalism*, Oxford: Basil Blackwells, 1983, 57

Such have been the strength of constructivist analyses of the nation, that certain constructivist views have even been adopted by adherents to established IR theories, not least, and perhaps most surprisingly, by realism. This seems like the triumph of constructivism; but it is not necessarily so. As the initial acceptance of general constructivist perspectives on the nation by the likes of VanEevera, Snyder and Mearsheimer show, there remains a great difficulty in consistently keeping the constructivist approach’s challenges in mind when building operational theories. Part three will show that VanEevera, Snyder and Mearsheimer fail to do so; constructivists themselves rarely seem to attempt the endeavour at all. When it comes to the nation, as in most subjects to which constructivists apply themselves, constructivism’s enduring difficulty is that, ironically, it seems better at deconstructing than at offering pragmatic solutions to problems of national identities and international struggles. A major tension is that constructivism is not post-structuralist. It fully believes in the settled reality of constructs like the nation. It is very good at offering explanations of how these realities may have come to be⁵. But Walker Connor’s challenge rings true: countless groups and individuals have been willing to be martyrs for their national causes⁶. Of what relevance is it to them, what is *changed* for them, that they may have been indoctrinated into a high culture by their political elites, or by the imperatives of the industrial era, or that they may merely be operating within the paradigm of our age? How does approximate academic consensus on the broad principles of the artificiality of the origins of (none-theless) ‘real’ nationhood *change* the paradigm of our age? Thus the greatest success of constructivist ideology has highlighted its greatest failure: a near-universal scholarly acceptance of constructivism’s challeng-

5 Emanuel Adler, “Seizing the Middle Ground: Constructivism in World Politics”, *European Journal of International Relations*, vol. 3, no.3, 1997, 323

6 Walker Connor, “Beyond reason: the nature of the ethnonational bond”, *Ethnic and Racial Studies*, vol. 16, no. 3, 1993, 385

es to the received wisdom on nationhood has failed to consistently translate into a means of dealing with the challenges that real nationalism throws back at policy-makers and analysts alike.

CONSTRUCTIVISTS ON THE NATION: SEMPER REFORMANDA

A significant body of literature on nationalism around the world emerged in the early 1980s, not in political science but in history and social anthropology. Hobsbawm and Ranger edited a collection of essays grouped under the title *The Invention of Tradition*, in which authors were encouraged to trace the origins and evolutions of the symbols, myths and rites that have come to represent various nations and nationalisms, from Scotland to colonial India and Africa⁷. They found that most symbols and legends have at best been exaggerated in their historical importance (e.g. the near-mythical Gaullois leader Vercingetorix to French schoolchildren)⁸, and more often than not are pure, traceable inventions (like all national anthems, and like the kilt in Scotland)⁹. The implication is that modern nations and nationalisms which rely so heavily on symbols for their cohesion and wider appeal, are treading on dubious historical ground. If it applies to the vital symbols, then implicitly it may apply to the nations themselves.

This certainly is the contention made by Gellner. Many nationalists depict nations in much the way that did the eighteenth-century J.G. Herder, with the sense that a nation is a discreet group within which dwells a common *Volksgeist*. The people share a common language, culture, myths, and can even all be inspired and constituted by the landscape of their native lands¹⁰. Gellner sought to show that nations as we know them have their origins in much less romantic conditions. For him, nations are a product purely of the age of industrialisation. While elites portrayed nationalism as a rediscovery of ancient roots, the reopening of the heart of the Volk, really they were orchestrating a programme of social homogenisation to meet the linguistic and cultural imperatives of an era of intense interactions and of growing mutual

7 Eric Hobsbawm and Terrence Ranger (eds), *The Invention of Tradition*, Cambridge: Cambridge University Press, 1983

8 Eric Hobsbawm, “Introduction: Inventing Traditions”, in Hobsbawm and Ranger (eds), *The Invention of Tradition*, 7

9 Hugh Trevor-Roper, “The Invention of Tradition: The Highland Tradition of Scotland”, in Hobsbawm and Ranger (eds), *The Invention of Tradition*, 19

10 Andrew Heywood. *Politics*, 3rd edition, New York: Palgrave Macmillan, 2007, 111

reliance due to the increasing specialisation of the division of labour¹¹. The provision of universal state education by which this “centrally sustained high culture” was diffused to the masses¹² was a means of constructing a common socio-cultural framework within which could operate more integrated, more interdependent industrial societies¹³. Individuals recognised this as a means for personal advancement beyond the conditions of their birth, and largely accepted the new paradigm¹⁴. Thus Gellner shows that “it is nationalism which engenders nations, and not the other way round,¹⁵” and “the cultures which it claims to defend and revive are often its own inventions, or are modified out of all recognition”¹⁶.

Gellner does not go uncriticised. It must be granted that he makes certain claims which seem contradictory, as in saying on the one hand that “dead languages can be revived” for the sake of nationalism¹⁷, yet justifying nationalism itself in terms of industrial gains. One must wonder how the revival of a dead language meets the imperatives of industry¹⁸. Gellner’s functional insistence throughout his work that a major feature of the constitution of a nation is the standardisation of a language also fails to account for the nationalism that exists independent of England in English-speaking Scotland, for example. And what of states, like Scotland and the former Czechoslovakia, where industrialisation is or was already long established – making one wonder wherein lies the imperative for a new nationalism¹⁹. Gellner also makes a probably unrealistic assumption that the interests of the industrial elite, for whose benefit nationalism is invented, and the political elite, which has control over the all-important media and national curriculum, are completely aligned²⁰. Whitmeyer empirically questions the claims of many scholars of nationalism, Gellner not least among them, that nationalism must be elite-driven. He does so by looking at the negative cases, in which elite will for the constitution of a nation (in Yugoslavia, in Czechoslovakia, in Spain with respect to Catalonia and the Basque region...) has distinctly failed to yield the unity desired²¹. He

11 Gellner, 56

12 Gellner 55

13 Gellner 57

14 Gellner, 142

15 Gellner 55

16 Gellner, 56

17 Gellner, 54

18 Damien Tambini, “Explaining monoculturalism: beyond Gellner’s theory of nationalism”, *Critical Review*, vol.10, no.2, 1996, 257

19 Ibid

20 Ibid

21 Joseph Whitmeyer, “Elites and popular nationalism”, *British Jour-*

finds that while elites can certainly guide and provide the political channel for nation-building²², “latent nationalism’, the potential for nationalistic behaviour,” must exist in the population first²³. All this considered, Tambini urges readers to consider simply that “nationalism is a script for action that may be employed under a broad variety of structural conditions”, not merely within a strict industrial-nationalist context²⁴.

Nevertheless, the central features of Gellner’s analysis, namely his insistence on the necessarily overt construction of nations, remain deeply influential, and were echoed equally prominently by Anderson, who contends that a nation is “an imagined political community – and imagined as both inherently limited and sovereign”²⁵. It is imagined as sovereign by virtue of the period when the idea was born – the Enlightenment, when sovereignty was a deep and pervading philosophical preoccupation. It is limited, because even the largest national communities have epistemic and ontological borders beyond which “other” nations lie. Finally, the nation is fundamentally “imagined” because not all individuals making it up could purport to know each other, “yet in the in the minds of each lives the image of their communion”²⁶.

Anderson attributes this historically to the faltering of religious communities and dynastic realms in the nineteenth century. Society felt an associated decline in a sense of meaning and of continuity in private and public life. The emerging concept of “nation” filled this void, giving individuals a sense of belonging to something greater, and providing a reason for suffering²⁷ – the old saying “close your eyes and think of England” is brought to mind.

For Anderson, the rise of nationhood is linked with the decline of Latin as European courts adopted various vernaculars as their operative tongues²⁸. The eventual development of publishing industries in these vernaculars, combined with the dissemina-

tion of various Reformation and other ideologies, led to the creation of fairly distinct epistemic communities within old dynastic borders²⁹. It was not the borders that caused nationhood, though. “Functionaries” and “printmen” ultimately played the “decisive historical role” in the creation of European nation-states³⁰. It must be stressed that the creation of nations was in no way inevitable. Likewise the close proximity and related outcomes of the French and American revolutions set precedents of republican nation-statehood which became ‘standard’ arguably only because of the lack of imagination of imagined communities elsewhere³¹.

Hastings, sitting squarely in the perennialist camp³², challenges the timelines of the modernist views above, though he also emphasises the importance of vernacular publications on nation-building. He first brings the question of nations back to ethnicities³³. While he accepts modernists’ point that not all ethnicities become nations, he seeks to show why some ethnicities do become nations while others do not, finding that related ‘ethnies’ become nations when a dominant oral vernacular assumes a commonly written form – most often as a vernacular Bible or daily liturgy³⁴. With this test, he finds the origins of several modern nations in the medieval period, rather than in the later Enlightenment³⁵. Smith builds on Hastings in more explicitly constructivist fashion, highlighting the need, once having settled the questions of modernism versus perennialism, to return to the more important matters of identity formation, the emergence of a sense of community, and of myths, symbols, and memories³⁶.

THE NATION AS MORTAL AND INCONSISTENT

Constructivists clearly disagree on the origins of nations. A resounding unifying theme, however, is that none sees nations as an historical given. For each, nations emerged out of a complex set of factors having deep implications for personal and collective identity and interests. Investigations into the

nal of Sociology, vol. 53, no. 3, 2002, 330

22 For a good discussion on the viability of nation-building policies in varying political contexts, see Juan J. Linz, “State building and nation building”, *European Review*, vol. 1, no. 4, 1993

23 Whitmeyer 337

24 Tambini, 266

25 Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Revised Edition, New York: Verso, 1991

26 Anderson 6

27 Anderson 12

28 Anderson 45

29 Anderson 46

30 Anderson 65

31 Anderson 81

32 Anthony D. Smith, *Nationalism and Modernism: A critical survey of recent theories of nations and nationalism*, New York: Routledge, 1998, 18

33 Adrian Hastings, *The Construction of Nationhood: Ethnicity, Religion and Nationalism*, Cambridge: Cambridge University Press, 1997, 11

34 Hastings 12

35 Hastings 11

36 Anthony D. Smith, “Adrian Hastings on nations and nationalism”, *Nations and Nationalism*, vol. 9, no.1, 2003

complexity surrounding the emergence of nations challenges the primordial claims of many nationalist groups today, and highlights the lack of “sociological realism” inherent in any exclusively ethnic claims³⁷. It also helps to understand the enduring lack of uniformity within nations themselves, which is in line with the empirical evidence.

Such evidence includes the studies cited by Stepan in his work on Ukraine, finding that upon the breakup of the USSR, most of Ukraine’s sizeable Russian ethnic minority (around 17% in 2005)³⁸ felt that learning Russian should be mandatory for all Ukrainians³⁹, and were totally unequivocal as to their national identity. Yet only 2% expressed any intention to emigrate upon Ukraine’s independence⁴⁰, despite the relative high profile at the time of the Ukrainian nationalist Rukh party⁴¹. Stepan also notes that the attitudes to history of ethnic Russians in Ukraine are more Ukrainian than they are Russian, in terms of their respect for the cultural hero Bodhan Khmelnytskyi, an original Cossack Ukrainian state-builder, and their complete rejection of Stalin, who they remember far less for his defence of Russian glory, and far more for the great Ukrainian famine⁴².

Likewise Leith and Soule’s studies on Scotland show how different are the perceptions of people within a nation on who is ‘in’ or ‘out’. When asked whether a person needed to be white to be “truly Scottish”, only 15% of respondents agreed⁴³. Yet when Scottish nationals were asked whether they expected other Scots would admit non-whites to the national group, 54% said they likely would not⁴⁴. This discrepancy highlights the fluidity of perceptions regarding any nation, even when viewed from inside. Hence scholars like Keating prefer the term “plurinational” to “multinational” when it comes to many states, as it “better captures the more fluid and pluralistic character of this social reality”⁴⁵. Note that

37 Michael Ignatieff, *Blood and Belonging*, New York: Farrar, Strauss and Giroux, 1993, 4

38 Alfred Stepan, “Ukraine: Improbable Democratic ‘Nation-State’ but Possible Democratic ‘State-Nation’?”, *Post-Soviet Affairs*, vol. 21, no. 4, 2005, 282

39 Stepan, 286

40 Stepan, 289

41 Stepan, 286

42 Stepan, 294

43 Murray Stewart Leith and Daniel P.J. Soule, *Political Discourse and National Identity in Scotland*, Edinburgh: Edinburgh University Press, 2011, 96

44 Leith and Soule, 97

45 Michael Keating, *Nations Against the State: The new politics of nationalism in Quebec, Catalonia and Scotland*, Basingstoke: Palgrave, 2001, 160

Keating does not contest the existence of the nation. It is real, but its origins are diverse and its real meaning, for and between individuals, is never fully settled.

The challenge to notions of imposed high cultures, industrial imperatives, etc, leveled by Connor, arguing instead for the psychological, subconscious construction of nations based not on real but on perceived ethnicity and common descent, does little to fundamentally undermine the constructivist assertion that nations are not ‘natural’ units, but are built over time through the intersubjective processes of personal and public identity formation⁴⁶, and cognitive evolution⁴⁷.

FIRST STEPS INTO THEORY

Constructivist challenges to nations as eternal and immutable brute facts have made their marks on broader IR scholarship. In a paper published in *International Security*, the realist VanEvera posits various “hypotheses on nationalism and war”. In his operative definition of “nation” he makes reference to both Gellner and Hobsbawm⁴⁸. He then labels one of his hypotheses “perceptual factors”, relating to divergent beliefs about the ability of nations to coexist, the propagation of myths, scapegoats⁴⁹ ... He even at one point states outright that “the effects of nationalism depend heavily on the beliefs of nationalist movements, especially their self-images and their images of their neighbours”⁵⁰.

This is no appeal to assumed “exogenously given” interests and identities, for which Wendt so accuses rationalists in such strong terms⁵¹! And yet VanEvera’s ultimate aim was to look at the conditions under which nationalism “causes” war and how to minimise risk⁵². With the exception of a vague allusion to “the honest teaching of history in schools”, most of his conclusions have less to do with intersubjective nation-building, and more to do with pragmatic nationalism-containing⁵³. It is difficult to see how he could have concluded otherwise.

46 Adler, 327

47 Adler, 339

48 Stephen VanEvera, “Hypotheses on Nationalism and War”, *International Security*, vol. 18, no. 4, 1994, 6

49 Van Evera, 9

50 Van Evera, 26

51 Alexander Wendt, “Anarchy is what states make of it: the social construction of power politics”, *International Organization*, vol. 42, no. 2, 1992, 391

52 Van Evera, 6

53 Van Evera, 36

CYBER CULTURE AND NATIONAL SOFT POWER IN WORLD POLITICS: CHINA'S EXPERIENCE*

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Likewise Snyder and Ballentine take a view of nationality as built upon ideas⁵⁴. They are very strong in their analysis of how competing powers can, in the “marketplace of ideas”, create distortions leading to one form of nationalism over another⁵⁵. They clearly understand that nationalism and the very conception of the nation are not givens; however, they have no way of incorporating intersubjective construction or plurinationalism into their analysis. Yes, the nation is contested, but as a monolithic entity torn between varying elite conceptions of how it ought to be. The superficialities of constructivism are engaged with, but its foundations are left unexplored.

Mearsheimer, too, in his definitions laid out in a recent conference paper⁵⁶, relies upon Anderson's notion of “imagined communities”, and speaks of a constructed “powerful sense” of belonging to a nation, based on the pervasiveness of certain common symbols in daily life⁵⁷. He even acknowledges that people can have “other identities and loyalties”⁵⁸. For reasons unspecified, however, he takes nationality to be the most powerful identities, “trumping” any others “in most cases”⁵⁹. He then attributes to all nations two common and related objectives – survival, and State (which better assures survival). This is both empirically untrue (as shows the failure of two referenda in Quebec) and theoretically dubious, assuming again a uniformity of interests between and within nations, exactly what constructivism critiques have disproved⁶⁰.

CONCLUSION: HOPE IN DIALOG?

What has constructivism achieved in its various de-constructions of nationhood? It has managed to get much of the academic literature to ask what it considers to be the right questions. That is an achievement in itself. However, huge challenges remain in operationalizing the rather abstract philosophical conclusions which the questions yield. Constructivists themselves tend to stop writing after their analyses of the construction of the social reality of nationhood is

complete. Only a few venture into further normative debates⁶¹. Mainstream realist authors, while nodding to constructivist findings, tend again to focus on the superficial social reality the constructivists have critiqued, for lack of a clearly better starting point for engagement with problems of the ‘real’ world.

Operationalization is a chronic problem of constructivism, something which realists' tentative desire to engage with the approach has particularly highlighted. It can be hoped, however, that with this emerging acceptance of constructivism by established theories, increased exchanges will help to overcome this impasse, in studies of nationhood and beyond, and what constructivism really has to offer – more honest, more ‘true’, research based on an understanding of the complexity of social realities – will become standard practice of rigorous scholarship. Certainly in international politics struggles for national self-determination, both violent and non-violent, are an extremely salient issue, one which merits the most sensitive and rounded thought that scholarship can provide. Thinking about the real-world implications of constructivist analyses constitutes an important new research agenda.

54 Jack Snyder and Karen Ballentine, “Nationalism in the Marketplace of Ideas”, *International Security*, vol.21, no.2, 1996, 12

55 Snyder and Ballentine, 14

56 John Mearsheimer, “Kissing Cousins: Nationalism and Realism”, paper delivered 05/05/2011 at a Yale Workshop on IR. Retrieved 12/02/2012 from: <irworkshop.sites.yale.edu/sites/default/files/Mearsheimer_IRW.PDF>

57 Mearsheimer, 7

58 Ibid

59 Ibid

60 Tambini 267

61 See, for example, Friedman's discussion of constructivism and the nation in the context of the Rawls-Beitz debate on international distributive justice. Jeffrey Friedman, “Nationalism in Theory and Reality”, *Critical Review*, vol. 10, no. 2, 1996

Abstract: The culture pattern of the cyber space has an impact on the wielding of national soft power, both domestically and internationally. The Internet is becoming a prominent variable in the course of China's rising as a world power. This paper explores China's cyber culture and soft power in the following four parts: network political participation, online view expression, cyber values and industries, and cyber security.

Key words: cyber culture, soft power, China

Cyber technology has become a driving force of the evolution of world politics. More than two billion Internet users all over the world are weaving a meganetwork of communication. Although the virtual “global village” is seemingly looming over us, language divergence and national identity are forging “solitary islands” confined by sovereignty and manifested by national cyber culture, especially among non-English-speaking countries. The culture pattern of the cyber space has an impact on the wielding of national soft power, both domestically and internationally.

By the end of 2012, the number of Chinese netizens rose up to 564 million, 51 million more than the number in 2011, and the Internet penetration rate in China reached 42.1%. The increase of access to the Internet in the rural areas made an enormous contribution. Chinese mobile netizens ran up to 420 million in 2012. Surfing the Internet via mobile phones is prevalent. Consequently, micro-blogging (weibo) is edging out blogging. Nowadays, there are 327 million weibo users in China, with the Sina micro-blog (weibo.com) as the leading website. China's experience in developing and governing its network territory is a mirror of the situation in the newly emerging countries, rather than an exceptional case.

The following facets are of critical relevance to understanding the relationship between cyber culture and China's soft power.

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NETWORK POLITICAL PARTICIPATION

In China, both decision makers and netizens are learning to interact online. Leaders and governmental agencies express their positions and ideas through websites. Netizens' sentiments and attitudes are affecting domestic and foreign policy making. The territory dispute between China and Japan (and also the Philippines) provides a clear example. Political participation via Internet is an element that constitutes policy legitimacy and public opinion, and accordingly affects the employment of soft power.

Netizens in China are accustomed to send online reply postings after a news report, to make their comment, followed by pros and cons. When the quantity of the reply posts is limited, it makes no political influence. But as long as a news report evokes a strong response and the commentary posts shoot up, the voice coming from the cyberspace will be noticed by decision-makers. The Super-Ministry reform scheme of the State Council of China was published on March 10th, 2013. The newly organized General Administration of Press and Publication, Radio, Film and Television caused heat to discussion by the netizens, for its Chinese name is too long to remember. Four days later, the National People's congress of China announced that the scheme was revised and the name of that ministry was cut by four Chinese words. China's firm policy on the Diaoyu Island dispute is deeply rooted in domestic public opinion on the net. There was a short report about the Japanese government's decision to put the so-called “nationalization” policy into practice on September 10th in 2012, which roused great indignation on Chinese websites. The report publicized on Netease News (www.news.163.com), one of China's largest news websites, got 133,000 reply posts in a couple of days. The sentiments and feelings on the Diaoyu Island reached the peak overnight. This is just the number of replies to one piece of news on Netease. There are several other news websites like Netease.

Virtual communities like forums and BBSs have good vitality. Among these online communities, Tianya (www.tianya.cn) and Qiangguo (www.bbs1.people.com.cn) are prominent for open and tolerant discussion on political affairs, reform issues and foreign policy. In addition, websites often invite important political leaders and government officials to make online communication with netizens. More and more delegates of the National People's Congress and members of the CPPCC (Chinese People's Political Consultative Conference) are using the Internet to gather information and to learn about local requests. Some of them have their own weibo accounts, and have interaction with their followers. Online complaint channels have been established on different levels of the bureaucratic system, although the efficiency varies.

The cyberspace is a "test field" for political decision-making. Governments employ the Internet to fly a kite about possible reform plans. In this way, the repercussion in the public can be collected and watched. From 2005 until now, the proposal of raising the retirement age has been put online and has aroused fervent argument. Due to the dissenting opinion on the Internet and the complexity of the issue, the social security department just propagates the idea that the extension of retirement age is an inevitable trend.

Network political participation is a hallmark of mature cyber culture, by which the relationship between the governments and the public is well mediated, and the opinion expression is equipped with instant communication platforms. High governance efficacy based on a finely working network relationship is beneficial to national soft power. National morale, spirits and cohesion can be strengthened through the Internet. Domestic mobilization is actualized by taking advantage of the Internet. This is of special importance for the cultivation of soft power of China.

ONLINE VIEW EXPRESSION

Online discussion forums and micro-blogging websites are important arenas for the public. Due to the anonymous feature, a great amount of online opinions in China are presented in a quite critical tune. When views from independent individuals converge to form a tremendous voice, some changes will

be inevitable. Several civil servants' corruption was unmasked online in 2012, and the discipline inspection commissions intervened rapidly. Online anti-corruption as an instrument demonstrates the unprecedented power of Chinese netizens. Response to online opinion tide is an opportunity for the government to mould its tenet, image, and credibility. Micro-bloggers are sharing their daily life experience, including their views of life and sentiments. When micro-bloggers concentrate on a certain social event, a huge tidal wave of complaints, criticism, and anger would occur, creating great hot spots of society.

In June 2011, a twenty year old girl called Guo Meimei attracted extensive attention, who shared her daily life by various wealth-flaunting photos on her Sina micro-blog, with an approved identity of "China Red Cross Commercial Manager". Consequently, Red Cross Society of China (RCSC) encountered unprecedented crisis of trust, which lasted for more than one year. The aggregate of donations received by RCSC fell about 60% in 2011. Although the police said that the girl had no direct relationship with RCSC, it was widely believed that RCSC could hardly be absolved from the blame, for the girl admitted there was a partnership between her company and RCSC. The management chaos of RCSC and scandals of local Red Cross agencies were unmasked as well. The public felt defrauded and demanded the transparency of the use of donation fund got by RCSC.

This event is absolutely a domestic issue. However, it has a formidable impact upon the configuration of China's soft power on the international level. The public voice of criticism online is a mirror of social order and domestic governance, affecting states' appeal for the outside world, especially for investors who would try to keep away from the insecurity of their venture. A clean government itself is an institutional charm, contributing to the emergence of persuasive policies. Whether the public voice is adequately responded is a measurement of the healthiness of the state-society relationship. Another face of China's soft power relates to the capacity of the Chinese government and the network news agencies to reach the public of other countries. This kind of cyber public diplomacy is a potent and vigorous way of projecting China's foreign policy and global notions. A citizen, as an online individual, is absolutely a potential agent who would accidentally become a folk diplomat,

carrying unique ideas or remarkable spirits, which should be emphasized in China's future diplomacy.

The Internet creates a gigantic inter-subjective structure, full of information flow and interaction. Thus, it is a new vast space for dynamic diplomacy rather than a static "exhibition booth". To boost China's soft power, the government units should detect rapidly the symptom of a trend on the Internet, right before a hot spot becomes a social crisis, and before a surge of angry emotion deteriorates into disastrous chaos. Nipping the perilous momentum in the bud is better than letting the situation fall to be past remedy.

Discussions on the weibo should be closely followed. The "Salt Rush" accident in 2011 is worthy of reflection. A couple of days after the great East Japan earthquake and tsunami on March 11, and the consequent Fukushima Daiichi plant nuclear leakage, a panic purchasing of salt took place in China. Originally, a message appeared on the weibo saying that iodized salt would be capable of fighting against nuclear radiation. And later, a rumor spread like wildfire on the weibo that sea salt would probably be so polluted by nuclear radiation particles that less and less pure sea salt could be eaten in the future. Iodized salt in many Chinese cities were soon snapped up. Same was the case with the rush for salt in South Korea. The Development and Reform Commission of China announced a stern notice to combat rumor-mongering in the salt market, and the state-owned salt company assured the public that salt supply was definitely abundant.

The circulation of rumors through micro-blogs is unprecedentedly speedy. Internal rumors will damage social security and stability, and depress the interested entrepreneurs. International rumors, when disseminated globally, are severe detriments to national soft power. A video or news report interpreted out of content might trigger an international public outcry. The moral high ground should be paid more attention. Morality and justice is sometimes more enduring than material power. When moral prejudice has taken shape, it will be very difficult to be corrected. As China goes global, a huge number of problems might be criticized under an illusion. Political leaders, financial sectors and big companies are the targets of rumor mongers. China's national prestige and soft power is thus highly tied together with its national diplomacy quality to cope with false reports and distorted facts.

CYBER VALUES AND INDUSTRIES

In the cyber world, stable and constant values are difficult to establish, but easy to collapse. The Chinese government is beset with cyber crimes and misconducts. Laws were enacted to protect intellectual property rights, juveniles' mental health, and sovereignty; and to prohibit stirring national feuds, publicizing cult, and marketing violence culture, and so on. Meanwhile, cyber industries make sense as well for the enhancement of national soft power. Online games, music, videos, TV series, animation, and films are greatly encouraged and fostered, in order to extend China's traditional and popular culture. As a power in world politics, China needs to make its online values and industries more competitive, so as to strengthen its "co-optive power", a concept put forward by Joseph Nye in his early study.

In 2012, the total sales income of online game in China was about 60 billion yuan with a 35% increase, and the number of home-produced games ran up to over 400. The market figure changed tremendously. In 2005, online games from South Korea occupied 75% market share in China. In 2011, domestic game companies gained over 80% market share. The total export value of online games amounted to 300 million dollars in 2011. Tencent (the owner of the most popular Chinese instant messenger software - QQ) itself obtained in 2012 a huge online game revenue of more than 20 billion yuan. According to a report by CNNIC (China Internet Network Information Center), until June 2012, online video users had risen up to 350 million, with over 65% netizens making use of videos; online literature users had been 190 million, which was decreasing because of the unsatisfactory quality of the online literature works.

Cyber culture needs its carriers. The cyber world is an arena for virtual economy. To make China's cyber industries more robust, traditional culture and popular culture should be encouraged to be fused, and more comfortable initiation condition should be provided. Despite that the English language is dominant in the cyber world, cyber culture has some character of universality. If a good number of Chinese videos and films are welcome and widespread throughout the Internet, the cyber culture would generate diplomatic byproducts, and China's soft power in world politics would be greatly enhanced.

A secure cyber community will be promising. The Chinese government is fighting against hacker attacks, network crash, leaks of confidential information, and exposure of individual privacy. Meanwhile, cyber security is also a task combined with diplomatic morality and international prestige. The existence of WikiLeaks is embarrassing for the US government, which is a counter-example. National soft power might be severely damaged by cyber security scandals.

In early 2013, the so-called “Chinese Hacker Threat” is being vigorously hyped by the US government and network security companies. Mandiant Corp. boldly asserted in a research report that a unit of China’s People’s Liberation Army headquartered in Shanghai had been launching cyber attacks against foreign agencies and companies. The Chinese government rejected this charge and condemned that half of the hacker attacks directed against China came from US. Some interest groups in US are seeking to get more financial support by this big hype. Moreover, this reflects US anxiousness about its predominance in the information world. Making troubles for China seems to be a favorite tool of US government, aiming to stopping China from ascending to the status of a challenging great power.

It is a public opinion warfare related to soft power. As a rule-maker in the cyber world, US is overbearing rather than fragile enough to be harassed. In 2012, according to CNCERT (National Computer Network Emergency Response Technical Team/Coordination Center of China), control servers located in US maintain grip on over 10 million Chinese host computers by botnets and Trojans. The narration in US press, combined with data and some evidence, is exaggerating China’s threat in order to gain the legitimacy for the investment in cyber security research and development, and also to smear the image of China. But in China, for the sake of secrecy, most of hacker attack accidents have not been publicized. The custom of quashing information security affairs and minimizing hacker problems has placed China in a quite passive position.

Sino-US cyber disputes remind the Chinese government and the public of China’s soft power in world affairs. Discourse power to influence global public opinion is vital for national soft power. Digital offences originated in foreign countries should be exposed and accused right after they happened, and sorted out to form a report as a record, which would be forceful factual evidence in future debate. Furthermore, the attractiveness of foreign policy, which is an element of soft power, is based on the inclination to cooperate with other actors. This kind of practice might not reconstruct national image on a short view, but over time, persistent openness and cooperativeness would cultivate a positive reflective appraisal. Finally, the capacity and quality of news media is also of significant importance. Chinese news media should learn to propagate internationally the trends, policies and progress in China timely and objectively. When distorted reports concerning China emerge overseas, Chinese new media is obliged to take effective responsive measures. After the occurrence of overseas violation against international laws, norms, rules and recognized practice, Chinese online news media has to add something to world opinion, contributing to the promotion of Chinese voice.

The cyber world is filled with all kinds of huge changes. Facebook contributed to Mubarak’s downfall and Egypt’s political transformation. An anti-boy scout movement attracted the gaze of people, precipitated by the extensive spreading of a video called “Kony 2012”, which was produced and disseminated by an NGO named “Invisible Children”. As argued by the organizers, foreign policy making would not be always from top to bottom. Citizens empowered by the Internet are able to generate a bottom-up approach. Regarding states, the cultivation of cyber culture demands the working of “good governance”, which will be contributive to soft power and international standing.

RESIDENTIAL SEGREGATION, GOVERNANCE FRAGMENTATION, AND DISPARITY IN PUBLIC SERVICE PROVIDING: The Case of Shanghai

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INTRODUCTION

Residential segregation by race, ethnicity, and class has been persistent for several decades in the United States (Massey, 1996; Coulton et al. 1996). These segregated groups do not just live in different communities, but in separate local political jurisdictions, particularly municipalities and school districts. These local jurisdictions fund and provide many important public services in the United States. Because of the great variation in fiscal capacity across wealthy and poor municipalities, residential segregation often results in restricted intergroup contact and constrained resources for the poor and visible racial minority location determines access to in to virtually all the products and services associated quality of life (Squires and Kubrin, 2005).

The social stratification-government inequality (SSGI) thesis developed by Hill (1974), Neiman (1976) and Lowery (1999) posits that, due to extremely fragmented jurisdiction and political governance and lack of strong support from Federal governments, local jurisdictions have considerable autonomy to pass local zoning, building code, subdivision, and other regulations that raise the costs of high enough to exclude low income people, and to avoid certain externalities regulated by broader government to affect them (Downs, 1994). Therefore, government fragmentation have actually created and reinforced disparities in public service accessibility for the spatially segregated residents, in most case who are poor.

Public choice theory originated by Tiebout (1956) argues that fragmentation of local governments creates a market place for the residents to shop for political jurisdictions with different bundles of taxes and services. Residents with different types of preferences for public services will relocate to the jurisdictions that offer the most favorable tax and service packages. Racial minorities and the poor can organize their own autonomous communities to receive preferable services with lower costs, and have greater access to community decision-making processes (Ostrom, 1983; Ostrom, Bish and Ostrom, 1988). Thus government fragmentation may actually empower the poor and racial minorities.

These perspectives assume there are “free” housing markets and unrestricted mobility of residents under western democratic systems. How do they speak to a transitional-socialist economy with very unique and complicated political systems like China? Traditionally residents in China cities are segmented in different communities according to working unit (dan wei). Residential segregation according to income is not a significant feature in China cities. Public services are mainly provided by centralized government, such as the city governments. Since 1980s, the expedited process of housing commercialization has provided a wide range of residential choices for people at different social and economic strata (Wu, 2002a). Politically, local governments in many cities in China have gained a whole array of administrative powers, including planning, public works maintenance, approval of local foreign trade and commercial administration (Wu, 2002b).

Given the background, how are residential places segregated across social and economic stratifications? How is the social-spatial segmentation of housing markets associated with accessibility of public services under the current political and juridical governance systems in China? We answer these questions through a case study of Shanghai, as both a transitional city moving away from socialist planning and being integrated into the global economy.

Although a large literature has documented the detrimental effects from residential segregation, few studies have explicitly examined the relationship between residential segregation and public service accessibility under the influence of multi-scaled governance structure. Situated in Shanghai, this study focuses at the intra-urban scale which provides a showcase that has demonstrated the combined forces of socioeconomic transitioning and globalization.

PUBLIC CHOICE THEORY AND SSGI THESIS

The understanding of the relationship between local government structure and public service provision has been heavily influenced by Tiebout (1956) model. People with different preferences of services can “vote by their feet” to reside in the jurisdictions where the service and tax packages can match their preferences. Subsequent literature extended the model and proposed that competition among local governments within the metropolitan areas could restrict the budget growth of local governments and force local bureaucracies to operate efficiently (Schneider, 1989a). This perspective argues that fragmented governance could improve public service provision, although the large number of empirical studies have not reached consensus (for example, Boyne, 1992a; Dehoog, Lowery and Lyons, 1990; Dowding and Mergoupis, 2003; Jimenez and Hendrick, 2010; Oakerson, 1999; Ostrom, 1976; Ostrom, Parks and Whitaker, 1978).

While Tiebout’s model and its extension through the work of public choice privilege the efficiency side of location choice and the associated public service provision, the social stratification-government inequality thesis (SSGI) mainly concerns the equity effect. The advantaged classes seek to maximize control over scarce resources and maintain homogeneity in their communities. They establish independent jurisdictions to pass local zoning, building codes, subdivision,

and other regulations that exclude low-income people, and avoid certain externalities regulated by broader governments (Downs, 1994). Thus the fragmented government becomes the institutional arrangement to reinforce hierarchical residential structure by promoting and protecting unequal distribution of public resources (Feiock, 1986; Lobao, Hooks and Tickamyer, 2007; Mladenka, 1989; Rusk, 1993).

Since Tiebout’s seminal paper published in 1956, the debate between public choice and SSGI thesis about how segregation formed and its social and political consequences has sustained and updated. Lowery (1999) reviewed the debate and the theoretical updates and suggested that SSGI thesis is more relevant to understanding the redistributive consequences of fragmented governmental structures within metropolitan areas. Thus SSGI thesis calls scholars and policy makers to temper their enthusiasm for quasimarket provision/or production of local public goods and services, despite of the controversies of the research.

Proponent of public choice theory argued that decentralized, fragmented system of metropolitan governance are more in keeping with the basic constitutional principles of limited government and separation of powers (Ostrom, 1974, 1997; Ostrom and Ostrom, 1971). National and regional governments could provide redistributive spending directly to citizens or communities (Ostrom, 1983; Parks and Oakerson, 1989; Dowding et al. 1994). However, the redistributive policies by Federal government and overlapping governments are limited. In most areas, mutual ignorance of communities in central cities and suburbs impede the regional policies to combat poverty, segregation and the associated social ills (Friskin, 2001; Kantor, 2006; Savitch and Vogel, 2004).

Public choice theorists have to note that it is unrealistic to rely on higher level governments to deal with inequalities associated with residential segregation. Tiebout’s model assumes that heterogeneous consumer preferences for different packages of local public goods and that the local governments compete for citizens to settle in their areas. However, consumer choices in metropolitan areas are not completely exogenous (Howell-Moroney, 2008). A large number of multidisciplinary studies have demonstrated that residential segregation has significant impacts in

their residents’ socioeconomic wellbeing and health outcomes, and intellectual and social development for children (Ihlanfeldt and Sjoquist, 1998; Korsu and Wenglenski, 2010; Massey and Denton, 1993; Wilson, 1987). Hence, fragmented governmental structure could have reinforced the sorting process associated with the problems of deteriorated central cities, job-home mismatch, costly urban sprawl and multigenerational poverty.

Given the above discussion, we hypothesize that housing markets in China are segregated by its economic status (mainly the housing price) although there is still strong legacy from the centrally planned socialist economy. In particular, we would expect that service providing for each community is under significant influence of the segmented governance system.

Shanghai provides a natural experiment site for our study particularly because of its governance system. The administrative structure in Shanghai is ‘two levels of government and three levels of management’. Shanghai is governed with a municipal government, 18 urban districts with financial independence and more than 200 street offices with comprehensive operational functions and growing financial capabilities. There are no local jurisdictions serving particular residential communities within the boundaries as those in the US. The district-level governments obtained decision making power over land use and development funds for Shanghai’s urban development issues in the decentralization process. The municipal government even authorized the urban districts to sign agreements with foreign investors for land leasing, real estate construction and other businesses. Overtime, the district governments have grown to be considerable power to impact the city landscape in Shanghai.

Street offices are the local representatives of urban district governments. Their tasks were defined by municipal and district governments, including implementation of government decisions and collection of residents’ opinions and suggestions. With power devolution, street offices evolved from the lowest-level administrative body to local economic and management entities with more comprehensive functions. Street offices often build coalitions with developers for community development issues and gain growing financial independence. Therefore, the traditional municipal-district-street governance system, supposed from high to low power order, does

not function smoothly; instead, the power relationship between different levels are contented especially under huge economic interests of conflicts.

DATA AND METHOD

Measurement of Residential Segregation

In the socialist period before reform, Shanghai’s urban space is differentiated according to land use rather than social stratification. Workplace and residence were liked to form self-contained workplace compounds through work-unit based housing provision. The housing and land market introduced after reform inevitably transferred the social inequality into urban stratification, although marketization is not the only determinant (Zhou and Ma, 2000). Li and Wu (2008) found population clustered in different communities according to their education and whether they have Hukou in Shanghai. Wu (2002a) demonstrated the trend of residential stratification on the urban district level based on the housing price. He did not study the sociospatial differentiation on a higher resolution because of data availability.

Following Wu (2002a), we investigate the trend of segregation utilizing the information of housing exchange price from Le zhi Real Estate Market Research and Consulting Co., Ltd.. Housing price is used for this study for two reasons. First, it is nearly impossible to attain accurate income data at individual level in China. Second, our dataset contains the housing price for each apartment or house with exchange information in Shanghai. Because housing is the major consumption of a family, we assume that housing price should be a proper indicator for the income of a family. Thus price per square meter serves as approximated family income based on which housing segregation is calculated in this study. Our housing price data contains the houses/apartments with exchange occurred from January 2010 to June 2012. Shanghai’s housing price has increased from 2010 to 2012. The higher price of a house/apartment appeared later might reflect the housing price increase across time instead of indicating better quality. So, we adjusted the housing price information based on the ICBC-Shanghai University of Finance and Economics Real Estate Price index.

We first map the average housing price per square meter of each community within Shanghai to demonstrate Shanghai’s urban stratification. Then we

calculate the dissimilarity index to measure residential segregation. Since housing/apartment price is continuous, we divide the housing/apartment price into the following four different categories to compute this index:

- Poor communities: average housing prices per square meter < 20,000 RMB;
- Lower-Middle: 20,000RMB< average housing price per square meter 40,000RMB;
- Higher-Middle: 40,000RMB < average housing price per square meter < 100,000RMB;
- Rich: average housing price per square meter > 100,000RMB

We calculate four dissimilarity indices (DI): DI between poor and rich communities, DI between poor and lower middle communities, DI between poor and higher middle communities and DI between lower middle and higher middle communities¹

Measurement of Public Service Providing

Previous studies did not reach consensus in how to measure public service providing. Governmental expenditure/revenue (Boyne, 1992a; Oakerson, 1999), median family income (Hill 1974), percentage of municipal land zoned for industrial and manufacturing purpose and per capita market value of real property in the municipality (Neiman 1976), citizen satisfaction (Dehoog, Lower and Lyons 1990, Swindell and Kelly, 2005) have all been used and criticized for different purposes. We measure public service providing by the spatial accessibility of public infrastructures, including schools (primary, middle, and high), hospitals, public transits, and parks.

To compute the spatial accessibility of compulsory education of a community, we first search for the primary schools and middle schools located in the buffering areas which is a circle with the community as the center and radius equal to two kilometers. Suppose we found N primary and middle schools in total. These schools are represented by $\langle a_1, a_2, \dots, a_n \rangle$. The accessibility of the community to the ith school is: $f_i = F \times (1 - d_i/D)^2$ where d_i is the geographical distance from the ith school to the community.

¹ Taken DI between poor and rich communities as an example, dissimilarity index is the percentage of poor/rich communities that would need to move to another street to achieve an even distribution of different communities across streets within Shanghai City. It is computed as $DI = \frac{1}{2} \sum \left| \frac{L_i}{L} - \frac{H_i}{H} \right|$ where L_i is the percent of poor communities with lowest price in street I; L , the percent of low-price communities in Shanghai; H_i , the percent of rich communities with highest price i; and H , the percent of rich communities with highest price in Shanghai

D equals 2km, F is a constant to keep f_i stay in a reasonable boundary, instead of being an extreme value. The spatial accessibility of compulsory education of a community is the summary of all the school's accessibility: $Fd = f_1 + f_2 + \dots + f_n$.

The computing methods of spatial accessibility of other infrastructure are the same, except that different radius is chosen for different infrastructure to draw the buffering areas. The radius of the buffering area for high school is 2 kilometers. It is 3 kilometers for hospitals; 1km for subway stations, .8km for bus stops and 3km for parks.

To identify the relationship between government structure and public service inequality, most US-based empirical studies examine the statistical association between the number of local jurisdictions and the fiscal inequality. Shanghai's unique government structure allows us to take a different approach. As we stated above, there is no local jurisdictions associated with each communities as in the US metropolitan areas. Street offices are the lowest government agencies with administrative power but limited financial capacities. The district-level governments obtained substantial management power and financial autonomy with the power devolution process in late 1980s and the 1990s.

Hence, we first examine the association between housing price of each community and the spatial accessibility of each type of surrounding public infrastructure. We then calculate the association of mean housing price per square miles within each street boundary and the spatial accessibilities of each type of surrounding public service infrastructure. The last stage analyzes the association of mean housing price per square miles within each urban district boundary and the spatial accessibilities of each type of surrounding public service infrastructure. We expect the spatial accessibility of communities differs by the level of jurisdiction, i.e., street (Jie Dao), community (Xiao Xu), and district (Shi Xu).

RESIDENTIAL DISTRIBUTION AND PUBLIC SERVICE PROVIDING

Before we get to the spatial accessibility of public services, we need to examine the residential distribution patterns. Figure one is the spatial distribution of housing/apartment price per square meter of each community in Shanghai. It reveals the polarized clus-

tering between the high-end and low-end residential communities. It is also notable that housing price of each community within inner circles is the highest. Prices of communities generally go down with the geographical distance getting longer from a community to the city center.

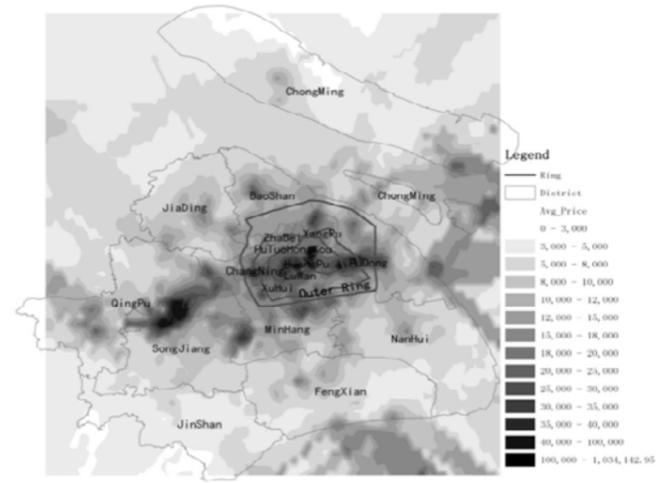


Figure 1: Average Housing Price per square meter of communities of Shanghai

Communities are highly segregated by housing prices. As shown in Table 1, The DI index between the poorest and the richest communities is as high as .95, which means that, 95 percent of poor have to move into other streets in order to achieve even distribution of poor communities and rich communities. Therefore, these two communities are almost completely isolated with each other. Thinking about 20 to 30 years ago, residential place in socialist China has been predominantly mixed by type of work units, regardless of economic status, the current polarization between the rich and poor could be one of the most powerful manifestations of combined forces of market economy, globalization, and ever-transforming governance system. It is hard for the poor communities to get close with the higher middle ones with DI as .77, because poor communities and high middle communities are clustered in different streets. About 66 percent of poor/lower middle communities need to move to other streets to achieve even distribution across the city.

Table one

Table 1: Dissimilarity indices	Values
Dissimilarity indices	
Bottom v.s.Rich	0.95
Bottom v.s.higher middle	0.77
Bottom v.s.lower middle	0.66
lower v.s.higher middle	0.53

Table two presents the associations between mean housing price per square meter and the spatial accessibilities of public infrastructure at the community level, street level, and urban district level. The correlation coefficients at the community level are about .3 and the lowest. Those at the urban district level are round .9 and the highest. The numbers at the street level are situated in the middle. The pattern is consistent with our expectation that public service providing is significantly associated with the segmented jurisdiction system. Specifically, since urban districts (Shi Qu) attain considerable management and financial power in urban development issues, they could have cast significant influences on service providing at this jurisdiction level. Indeed, public services with high quality and quantity are served to the communities located in the districts with higher mean housing price per square meter. In contrast, Xiao Qu is not associated with any local jurisdictions, thus, accessibility of public service is weakly associated with the quality of residential communities. At the same time, Jie Dao offices can affect the distribution of public services while they acquire growing governance and financial autonomy but still have to follow the policies from the district-level governments. Therefore, the associations are stronger across streets than communities but lower than those across urban districts.

Table two

Table 2: Correlations at community, street office and urban district level		Housing price per square meter		
		Community	Street	District
MEAN		16795.45	13294.42	15832.79
STD		18857.68	8545.73	7741.62
N		15447	273	18
CORR	housing price	1	1	1
CORR	busstation	0.230	0.718	0.868
CORR	metro	0.269	0.749	0.951
CORR	hospital	0.350	0.797	0.931
CORR	compulsary education	0.317	0.775	0.888
CORR	high school	0.297	0.749	0.868
CORR	park	0.310	0.771	0.913

Urban sprawl in Shanghai is significant. The City can be divided into four sections by rings: the areas within the inner circle (ring 1), areas between the inner circle and middle circle (ring 2), areas outside of the middle circle but within the external circle (ring 3) and areas outside of the external circle (ring 4). Results in table two might reflect the fact that housing in suburbs worth relatively low price. Public infrastructure is underdeveloped compared with those in the inner city. The associations between housing price and the spatial accessibility of public infrastruc-

ture might be coincidence from the historical expansion of the city. To address this concern, we calculate the correlations between housing price and public service accessibility at the three spatial scales (Jie Dao, Xiao Qu, and Shi Qu) in each ring and the results holds².

CONCLUSION³

Public choice theorists posit that residential segregation is formed by free choices by consumers with heterogeneous preference for packages of tax and public services. Social stratification-government inequality thesis (SSGI) argues that the externality of public choice has created and exacerbated the problems of poverty concentration, deleterious central cities and urban sprawl. The fragmented jurisdictional structure associates and reinforces residential segregation through exclusive land use and housing policies which further exacerbates the urban landscape of uneven opportunities including public service providing. Our case study of Shanghai provides an interesting perspective from a global city in a transitional economy. The results show that residential places in the Shanghai are highly segregated by housing price. In addition to the impacts from the built environment (e.g., as a port location), the residential segregation displays a concentric pattern that the closer to the central district, the higher the housing price. However, the access to public services is not completely segregated by housing prices. Instead, the association between residential segregation and public service accessibility is highly contingent on the segmentation patterns of local and regional jurisdiction and governance system. Specifically, the associations between average housing price of residential communities and the spatial accessibility of surrounding public infrastructure are weak at the Xiao Qu level, and strong at the Shi Qu level, with the Jie Dao level in the middle.

We believe that jurisdiction and financial autonomy of the local governments at each level could have played a significant role in shaping the patterns of public service providing. Contradicting to the public choice arguments that the social consequences associated with segregation can only be addressed or ameliorated by the redistributive policies from higher levels of government, results from this study

imply that local government could play a significant role to address problems associated with segregation and public service inequality. It could be especially true for a transitional economy from socialist system to a market economy like Shanghai.

This study is not trying to argue for a causal relationship between government segmentation and public service providing. Indeed, as the first step, it only demonstrates an association between segmented local and regional governance structure and public service accessibility under the context of residential segregation by income. We would like to hypothesize that the social, economic, and political forces that have underlined local residential choices and public infrastructure development are intertwined and reinforced with each other in forging the spatial pattern of accessibility of quality of life in each day. Further research in detangling these underlying forces is much warranted. In particular, we need to consider the socioeconomic characteristics of the public infrastructure in order better to measure the quality of public service providing; in addition, we need to investigate the specific channels through which how public service infrastructure is provided under different local and regional governance structure.

AGENDA SETTING AND THE SHIFT OF DISCURSIVE POWER IN IR RESEARCH

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With the rapid development of China in the 21st century, it is becoming a critical topic, both for the academia and the decision-making circle, on how to improve China's discursive power in the international society. Generally speaking, national strength is considered as the basis of international discursive power. Nonetheless, if we define the discursive power as the "power" which exerts influence through discourses, the transition from national strength to power is not automatic. There are rather complicated mechanisms in the process. In the academic fields, it is much more salient of the mismatches between the national strength calculated by material dimension and the disciplinary discursive power. Now China is the second largest economy in the world, but it is hard to say that China have achieved the corresponding status in the scientific research fields, neither natural science nor social science.

This article aims at discussing the long-time controversial issue of "discursive power" in the IR research, and proposing a likely approach to achieve the power shift. Therefore, this article will involve three interrelated parts: Part 1 will propose the new concept of the structure of discursive power, through which, we will discuss the distribution of discursive power in IR research and its aftermaths. In Part 2, I will try to outline the possibilities of the transition of discursive power, and propose an possible alternative for Chinese (and also for the non-American) scholars, i.e. participatory agenda setting. Part 3 will focus on appraising the present conditions of Chinese IR research, and determine the tactics of agenda setting.

I

This part will discuss the structure of discursive power in IR research and also its aftermath. First of all, we must answer one core question, whether there is a "discursive power" existing in IR research, especially the power distributed according to nationality. The modern concept of discursive power originated in the fields of cultural and mass communication studies. It has been becoming popular through Fou-

cault's "discourse is power". He argues that discourse is not only the symbol of thinking and the means of communication, but also a kind of "power", which is the means and ends of people's struggle. In another word, when people are talking about "discursive power" in certain discipline, the discussion is more or less pertaining to sociology of science, which involves the explanations based on the internal objectives of science and also the relationship between the research agenda and ways of development of the discipline and the external elements, such as politics, economics, education system, religions and culture. In the eyes of the scholars who firmly hold the "objectivity" and "value-free" of the social research, since the evolution of the jargon "discursive power" has taken quite obvious characteristics of post-modern theory, the concerning and discussion of discursive power are prone to blur or even erase the scientific nature of this discipline — a genuine science reflects the objective fact, it does not need sociological explanation, let alone to understand the discursive power in the name of nationality. Therefore, the debate pertaining to the power of discourse directly exemplify the divergences on the ontology and epistemology of social science.

However, if we turn to ask whether there are dominant academic communities or paradigms relating to nationality in the field of IR research, the controversies may be vanished. In his most influential paper, Stanley Hoffmann called International Relations "An American Social Science", which vividly reflected the deep influence of American academic community towards the whole discipline¹. As for Hoffmann's argument, there have been many scholars keeping in concerning this topic for years. Various statistic data and indicators have shown that America was and is still the most influential producer of knowledge in IR research. "Rational Choice" has dominated the mainstream method after the Second Great Debate².

¹ See Stanley Hoffmann, "An American Social Science: International Relations", *Daedalus*, Vol.106, No. 3, 1977, pp.41-60

² E.g., Hayward Alker and Thomas Biesteker, "The Dialectics of World Order: Notes for a Future Archeologist of International Savior Faire",

² Not shown here. Tables are available upon requests

³ Not shown here due to space limits. They are available upon requests

It is worth mentioning that there have been various criticisms and reflections towards the disciplinary dominance of America. Those criticisms and reflections are mainly from the European academia. They are relatively in the peripheral status of the discipline. They have neither entered the mainstream narration of disciplinary history, nor became the critical research topic. These phenomena rightly exemplify America's dominant status in this field.

From late 1990's, some Chinese scholars began to concern the "American center" or "American intellectual hegemony" in IR research. Their studies were definitely influenced by the foregoing reflections. With the establishing of disciplinary self-consciousness, and especially owing to the discussions and debates on "Chinese School" of IR research, the Chinese scholars have got an deep impression of the American dominance, which is the counterpart of what some Chinese want to break through.

This article holds that the existence of dominant paradigm or academic community is quite often in social science, even in natural science. It is also not very hard to understand that the American hegemony is comprehensive, which includes both the material dimension (e.g. population, economy, military, etc.) and the non-material dimension (e.g. education, scientific research, etc.). The dominance can easily transform to the so called "discursive power": their theoretical schools, research agenda and even the way of defining the field have higher profile and much more chances for exposure in the discipline. Therefore, the whole discipline is much more familiar with the dominant discourse, and then accepts and emulates it. Hence the transformation of "disciplinary dominance" to "discursive power" has a very clear causal link.

Having decided the existence of the discursive power in IR, now I'm going to turn to the structure of discursive power. In this article, the distribution of discursive power constitutes "structure of discursive power", which has the similar function of international structure. The international structure defines

International Studies Quarterly, Vol. 28, 1984; Kalevi Holsti, *The Dividing Discipline: Hegemony and Diversity in International Theory*, London: Allen & Unwin, 1985; Steve Smith, "Hegemonic Power, Hegemonic Discipline? The Superpower Status of the American Study of International Relations", in James Rosenau ed., *Global Voices: Dialogues in International Relations*, Westview, 1993, and "The Discipline of International Relations: Still an American Social Science", *British Journal of International Relations*, Vol. 2, No. 3, 2000

the nature of international system, and similarly the structure of discursive power defines the nature of the discipline. It is with no doubt that the dominant status of America is the most important component to understand the structure in IR research. In this structure, America has the significant advantage. On one hand, the discursive power can be calculated by its contributions and vitalities in the field. In the Great Debate history of IR research, America contributes almost all the mainstream theories, such as Structural Realism, Neo-Liberalism, (Wendt's) Constructivism, thesis of Hegemonic Stability, "Democratic Peace", etc. In the meanwhile, the vitalities are expressed as mainly the number of articles published on the top-level journals: many statistical data have verified that the majority of authors who publish articles on top-level journal are living in US (and rational choice is the most popular method). On the other hand, the discursive power itself is an influence which shapes the orientation of the field. So, the most important journals, the largest departments and scholars and also the intimate relations between the academia and the decision makers constitute the basis of American dominance.

By contrast, the European IR studies are located in the second layer of the hierarchy. Among which, the British IR research has a relative important position. The British academia is prone to see IR as an independent discipline, rather than a subfield of Politics as in US. There is one prominent school, the British School, which emphasizes the linkage with history, law and philosophy. Although English School is now one of the mainstream IR theories, it is worth noting that the English School is not the whole content of British IR research (vice-versa, those big names of English School, such as Charles Manning and Hedley Bull were not British nationality). Indeed, there are quite enormous overlaps between them, we can consider the British IR academia as the only paradigm and academic community that can counterbalance the American one. As for the North European IR studies with the characteristics of "peace study", and the Germany and French academia on the continent, they are heavily shouldered by the modern IR research in America. Generally speaking, Europe is an relative independent region in terms of discursive power.

Other region and states, including China, are in the peripheral zone of the discursive structure. As for Latin America, although "dependency theory" was

developed here, the current orientation is guided by the US and European theoretical framework³. And as for China, after the inchoative phase of introducing theories, the basic theoretical system, academic journals and subject settings are already established. The main problem today is the original theories and theoretical schools are not formed yet. The Chinese scholar's publications on the top-level journals are mainly pertaining to the realm of strategic study or foreign policy analysis, rather than the IR theories.

To sum up, the current structure of discursive power in IR research is as following: American academia has the loudest discourse and occupies the core position. The European schools' discourse can be heard, but not so internationally recognized. Other regions and states have relative low discursive power, even nothing at all. This structure has shaped the condition of our discipline.

II

This part raises one question at the very beginning: what are causes that make the America of the status? Or more plainly, why IR research has developed much better in America?

Many senior scholars had tried to answer this question. Stanley Hoffman noted that this was because of the confluence of a specific circumstance and three causes. The key circumstance was "the rise of the United States to world power" and the causes were: "intellectual predispositions, political circumstances, and institutional opportunities"⁴. "that problem can be solved by the scientific method and that this will result in progress" is one of the intellectual predisposition. Ole Waever examined the IR research in US, UK, Germany and France. He extended the explanation mode of society and recognition. He judged the disciplinary conditions in those countries by three layers: "society and polity" (including cultural, intellectual styles; ideologies or traditions of political thought; form of state, state-society relations; foreign policy), "social sciences" (including general conditions and definitions of social science; disciplinary patterning, disciplines and subdisciplines), "intellectual activities in IR" (including social intellectual structure of the discipline, theoretical traditions)⁵. Steve Smith argued that:

³ Monica Herz, "The Study of International Relations in Latin America"

⁴ Quoted in Steve Smith, "International Relations: Still An American Social Science", p.392

⁵ Ole Waever, "The sociology of a Not So International Discipline: American and European Developments in International Relations", *International Organization*, Vol. 52, No.4, 1998

IR remains an American social science both in terms of the policy agenda that US

IR exports to the world in the name of relevant theory and in terms of the dominant (and often implicit) epistemological and methodological assumptions contained in that theory⁶.

In China, some scholars analyzed the "American center" with the elements of historical background, institutional elements and academic circumstances.

In the perspective of philosophy of science, the discursive powers are concentrated in the dominant paradigms of research program. This article uses Imre Lakatos' "Methodology of Scientific Research Program" (MSRP) to analyze the evolution of the disciplinary dominance. With MSRP, Lakatos effectively synthesized Karl Popper and Thomas Kuhn's views on the accumulations and progresses of scientific knowledge. He deemed Popper's dynamic progress of objective knowledge as "inner history" and Kuhn's social-psychological history as "outer history". In the combination of inner/outer history, the progress of scientific knowledge is based on rationality and complemented by social-history.

According to the framework, this article believes that the dominant knowledge should express salient advantages in both aspects of inner and outer history. In another word, the "inner" quality of theories in the discipline and the "outer" social-polity conditions of the discipline constitute the principle causes of discursive power in certain field. The quality of theories can be measured by the theory productivity, the rationality, the logic and the interpretive capacity. The outer element involves the interaction of social-political environment and the development of the discipline.

From the inner aspect, decade after the emerging of Constructivism, the IR research is in the phase of "regular science", there haven't been new theoretical paradigms to inspire the disciplinary debate. However, the crises that our discipline faced are accumulated. Issues on the rise of emerging countries, financial crisis, terrorism, and climate changes can not be easily explained by the existing realist, liberalist and constructivist framework. Although "global governance" has the ambition, it is far behind theorization.

⁶ Steve Smith, "International Relations: Still An American Social Science", p.399

At the same time, the outer conditions have changed a lot, in which the relative change of power position is quite crucial. The rise of emerging countries, esp. the rise of China can create some favorable circumstance for the pluralism of the discipline.

In the process of change, issues concerning the emerging countries are rapidly rising. To some extent, the broadening of research issues has achieved a critical part related to discursive power, the revising of agenda. In the 1970's, US was encountered with the questioning of power decline. This rendered the research agenda turning to the Liberal Institutionism, which empowered the discipline remaining an American social science. Therefore, setting proper agenda can effectively respond the urgent practical problem and solve the poverty of theory.

III

In China, the participation of agenda setting is not satisfactory. Some scholar investigated 11 top Chinese IR Journals from 2008 to 2011. He argued that those papers covered 11 topics, 8 of which are still the existing topic of western IR research. Whether in terms of the research agenda setting or the arrangement of research perspective and analysis framework, the Chinese scholars are still subordinators and followers.

To break through the stalemate, choosing proper approaches for agenda setting is of high importance. This article proposes the participatory agenda setting approach for discussion.

First of all, participatory agenda setting should find the core research problem for China and also the world today. Whether you can find the core problem (such as maintaining hegemony is the core problem for Americans) will decide the shift of discursive power. The lack of core research problem leads to the total acceptance of dominant discourses. After 30 years opening-up and reform, China has formed a primitive view on the relationship of peace and development. This can be refined and become the core problem for China.

Second, the agenda setting should help improve the universality of national experiences. Pure national experiences cannot enter the mainstream discourse. This is because the unique experiences of certain nations or countries can not be accepted under the ex-

isting structure. A rejected agenda is a marginalized agenda. Therefore, participatory is very important.

Third, make full use of tradition and bestow modern meaning. China has a long history. In the tradition, we have witnessed the international relations which had totally different meaning with the Westphalia one. "Tianxia worldview" is a quite familiar concept for Chinese scholar. Under this view, the East Asia tribunal system had maintained hundred years of peace. Giving Tianxia a modern explanation will give substantial materials for the IR research.

Pursuing the shift of discursive power is a road from periphery to the core. For IR research, it's good for multiplying the discipline and for understand the whole world better.

WORLD POLITICS AND INTERNATIONAL RELATIONS: Humanitarian Intervention and the Emergence of the Responsibility to Protect

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There is nothing that makes a global crisis more catastrophic than widespread suffering and death of innocent people and throughout history international society has continually changed the way it responds to humanitarian disasters in order to find an appropriate norm for response. After a series of globally denounced humanitarian crises that plagued the world through the 1990s, former Secretary General Kofi Annan became insistent that the United Nations, and the international community, re-evaluate its international governance responsibilities. Humanitarian intervention is a naturally controversial issue, as it engages highly debated concepts like sovereignty and universal human rights, but the general trend of international relations has been in favour of protecting civilians and preventing intra-state tragedies. The culmination of this trend, and the product of several overlapping initiatives, is the Responsibility to Protect doctrine (R2P), which sets out the guidelines for protecting populations and using humanitarian intervention in a justifiable and necessary way. This new and groundbreaking change in international relations essentially came from three different but equally important sources; the globally condemned humanitarian disasters of the 1990s, the advocacy of former Secretary General Annan, and the work of the Canadian government and its creation, the International Commission on Intervention and State Sovereignty (ICISS).

To begin with, the Responsibility to Protect is a UN adopted doctrine that attempts to provide a framework to respond to and prevent humanitarian disasters, in a way that holds both national governments and the international community accountable. There are three foundational pillars to R2P stated in the Outcome Document from the 2005 UN World Summit as well as the Secretary General's 2009 Report on Implementing the Responsibility to Protect:

1. The State carries the primary responsibility for protecting populations from genocide, war crimes, crimes against humanity and ethnic cleansing, and their incitement;

2. The international community has a responsibility to encourage and assist States in fulfilling this responsibility;

3. The international community has a responsibility to use appropriate diplomatic, humanitarian and other means to protect populations from these crimes. If a State is manifestly failing to protect its populations, the international community must be prepared to take collective action to protect populations, in accordance with the Charter of the United Nations¹.

The above is the official wording of the three pillars of R2P, and Alex J. Bellamy has broken them down in a similar manner, which demonstrates the essential nature of R2P.

Bellamy writes that basically, the responsibility of states to their own citizens is to protect them, that all states, as members of the international community, have a responsibility to build capacity in developing areas and use peaceful means to protect it, and that it is further the responsibility of institutions and the United Nations Security Council to use all appropriate means when necessary to exercise this protection, in partnership with regional organizations². While military intervention is promoted as a last resort behind a myriad of other humanitarian disaster prevention strategies, the acknowledgement of its legitimate and necessary use is definite victory for proponents. It is incredibly clear, no matter which way the Responsibility to Protect is paraphrased or conceptualized, that the international community has

¹ Office of the Special Adviser on the Prevention of Genocide, "The Responsibility to Protect," <http://www.un.org/en/preventgenocide/adviser/responsibility.shtml>

² Alex J. Bellamy, *Global Politics and the Responsibility to Protect: From words to deeds* (London: Routledge Taylor and Francis Group, 2011): 163

at the very least declared that isolationism and ignorance is no longer an option; at most, it has accepted the basic rights that link all humanity and is affirming that all necessary means will be taken to uphold that. R2P is an incredible breakthrough in humanitarian disaster prevention and carries with implications that serve to change international relations over the coming decades.

Until September 11, 2001, the horror of the international community was primarily fixated on humanitarian disasters that had occurred in various areas of the world since the end of the Cold War. Following suit with the nationalist and ethnic conflicts that flared in former communist countries and famines and instability that plagued the African continent³, a series of deadly wars and crises, characterized either by botched resolution strategies or a complete lack of response, brought the issue of humanitarianism to the forefront of global politics. In 1992 and 1993, botched humanitarian efforts to remedy the failing political and social systems in Somalia ended in an embarrassing, bloody exit for the Americans and a prolonged civil war that still debilitates the country. This infamous “Black Hawk Down” scenario provided a foundation for a mistrust of intervention and a hesitation to risk lives that proved detrimental to later conflicts in the decade. Shortly after Somalia, a brutal campaign of genocide in Rwanda in 1994 horrified the international community. Despite early warning signs of coming violence, the United Nations made virtually no attempt to quell the massacre and stood idly by as Tutsis were slaughtered in one of the most universally reviled experiences since the Holocaust, ending with 800,000 dead⁴. ‘Never again’ rhetoric that existed since World War II seemed hollow and empty following this disaster; almost an entire generation of a cultural group was wiped out and it was entirely preventable. If the genocide in Rwanda was not enough for the international community to realize that some sort of action was necessary, the rest of the decade witnessed brutal wars in the Balkans that reinforced the importance of the issue at hand.

3 Jon Western and Joshua S. Goldstein, “Humanitarian Intervention Comes of Age: Lessons from Somalia to Libya,” *Foreign Affairs* 90 (2011): 49

4 18 US soldiers were killed, one body dragged through the streets of Mogadishu, and the US and UN promptly pulled out of Somalia. *Ibid*, 50

5 Jennifer M. Welsh, “The Security Council and Humanitarian Intervention,” in *The United Nations Security Council and War: The Evolution of Thought and Practice since 1945*, ed. Vaughan Lowe et al. (Oxford: Oxford University Press, 2010), 539-48

After the fall of the Soviet Union, the disintegration of former Yugoslavia resulted in a violence-ridden decade for groups in the area; civil wars and ethnicity-fuelled territorial disputes ravaged the innocent population there and the reputation of the United Nations was incredibly tarnished by its lack of adequate action and ability to quell the fighting. From 1992-1993, Croats, Bosnian Muslims, and Serbians carried out brutal campaigns of ethnic cleansing of opposing groups inside their controlled territories of Bosnia-Herzegovina. Much of the ethnic violence culminated in a massacre in 1995, as the UN-designated safe haven for Bosnian Muslims of Srebrenica was infiltrated and overrun by Serbian forces, resulting in 7,000 deaths in full view of the feeble United Nations peacekeeping forces. To cap off the decade, in the hotly contested region of Kosovo, the UN Security Council was unable to come to a decision about how to proceed as ethnic tension and violence escalated from 1993-1997. A NATO-led intervention and bombing campaign attempted to broker the situation after Serbian forces began a brutal crackdown on Kosovo rebels; the result was hundreds of thousands of lives and homes lost and the creation of countless battered refugees. The United Nations involvement in the Balkans during this decade has been described as “a spectacular setback” and “collective spinelessness” in a period of “horrendous failures.”⁶ No one was more aware of the change that needed to happen than UN Secretary General of the time, Kofi Annan.

Former Secretary General Annan was the loudest advocate of greater action by the United Nations to prevent humanitarian atrocities because of the deadly conflicts that occurred during his term, despite the fact that they also added some controversy to the greatness of his legacy. One of Annan’s principle concerns was the functioning of the United Nations Security Council and how difficult it was to come to timely and appropriate decisions; on the other hand, it became almost easy to allow humanitarian disasters to continue unabated. The Secretary General became very vocal throughout the 1990s and early 2000s about the inhumanity of the genocide and ethnic cleansing campaigns that were occurring under his watch and attempted to engage the Security Council in thoughtful discussion. He challenged the Secu-

6 Susan L. Woodward, “The Security Council and the Wars in the Former Yugoslavia,” in *The United Nations Security Council and War: The Evolution of Thought and Practice since 1945*, ed. Vaughan Lowe et al. (Oxford: Oxford University Press, 2010), 406

urity Council, as well as the wider international community, to work to avoid “future Kosovos,” in which the UNSC was deadlocked about whether or not to intervene to prevent a crisis from getting worse, and “future Rwandas,” where member states lacked the political will to take decisive action in the face of genocide and other humanitarian atrocities⁷. Although Annan’s position was largely powerless in the face of the Security Council member states, he nevertheless awakened a sense throughout the international governance community that new conceptions of issues like sovereignty and rights were needed. In his 2000 Millennium Report, Annan combated the issue of sovereignty directly in his challenge to the UN Security Council: “If humanitarian intervention is, indeed, an unacceptable assault on sovereignty, how should we respond to a Rwanda, to a Srebrenica, to gross and systematic violation of human rights that offend every precept of our common humanity?”⁸ Kofi was later the champion of the R2P doctrine, after it had been developed by the International Committee on Intervention and State Sovereignty.

The Responsibility to Protect doctrine is hailed by many as having Canadian roots, and although the movement began in response to Kofi Annan’s challenges, it was picked up and essentially moulded into policy by former Canadian Foreign Affairs Minister Lloyd Axworthy. Working with the Canadian government, he by and large formed the ICISS, made up of notable scholars and professionals including Ramesh Thakur and Michael Ignatieff. Following the crises of the 1990s, dialogue widely disseminated beyond the upper echelons of global governance, coming to an agreement in Canada and elsewhere that whether or not humanitarian intervention was given a new mandate, something must be changed. The International Commission on Intervention and State Sovereignty was set up in 2001 to deal with this new discussion about humanitarianism, and possibly find a solution for it. Professionals, academics, and intellectuals on the subject from across the globe were brought together to “wrestle with...the complex issues involved in the debate.”⁹ Not only did Axworthy initiate the committee, but he also served as the chair of the

7 Bellamy, *Global Politics and the Responsibility to Protect*, 162

8 United Nations Department of Public Information, “Background Information on the Responsibility to Protect,” Outreach Programme on the Rwanda Genocide and the United Nations, <http://www.un.org/en/preventgenocide/rwanda/about/bgresponsibility.shtml>

9 Ramesh Thakur, *The United Nations, Peace and Security: From Collective Security to the Responsibility to Protect*, (Cambridge: Cambridge University Press, 2006), 247

Advisory Board and eventually his “brainchild” of a concept was formed into a doctrine that would “impose upon the United Nations an obligation to shield people all over the world from genocide and ethnic cleansing at the hands of their own governments.”¹⁰

Canadian ambassador to the United Nations at the time, Allan Rock, was largely responsible for pushing the newly created doctrine onto the UN agenda and from there former Secretary General Kofi Annan championed it into official UN policy. Although it was controversial at first, the international community clearly began to widely accept the concept and Rock reminded his colleagues: “Would you rather live in a world in which that power is there but there are no rules to define how it’s used? Or where there are clear rules governing its exercise, and you can participate in developing those rules?”¹¹ Not long after the International Commission on Intervention and State Sovereignty published its Responsibility to Protect Report, Secretary General Annan convened a High Level Panel on Threats, Challenges and Change to report on how the United Nations should confront current and upcoming security threats in the 21st century¹². The report it published, entitled *A More Secure World: Our Shared Responsibility*, endorsed the Responsibility to Protect doctrine in its entirety, setting out guidelines for its use and recommending it be adopted into UN law for countries to be held accountable for humanitarian disasters and for the legitimate authorization of force for intervention. Kofi Annan published an additional report in 2005, *In larger freedom*, which reinforced his wholehearted approval and avid activism in favour of R2P. The Responsibility to Protect was unanimously adopted in 2005 at the UN World Summit, and since then has been reaffirmed in resolutions 1674 in 2006 and 1894 in 2009, which established a joint office for R2P and the prevention of genocide¹³.

For the majority who believe in R2P, not only does it affirm the right of countries to intervene, it mandates that states are obliged to take action when necessary. The simple fact alone that a commission

10 Luiza CH. Savage, “Canada’s ‘responsibility to protect’ Doctrine Gaining Ground at the UN,” *The Canadian Encyclopedia*, <http://www.thecanadianencyclopedia.com/articles/macleans/canadas-responsibility-to-protect-doctrine-gaining-ground-at-the-un>

11 *Ibid*
12 United Nations Department of Public Information, “Background Information on the Responsibility to Protect

13 A. J. Bellamy and P. D. Williams, “The new politics of protection? Cote d’Ivoire, Libya and the responsibility to protect,” *International Affairs* 87(4) (2011): 827

like the ICISS was set up speaks to the relevance and urgency of the issue of intervention; clearly the non-interventionist views that originated in historical conceptions of statehood and international relations are not sufficient for the modern global society. Furthermore, ideas about nationhood and isolationism that ignore a common humanity seem to be weakening, not just with the deep inset of globalization, but with the empathy and incredible disgust that comes with the expansive media coverage of humanitarian disasters and bloody civil wars.

It has been argued that the adoption of R2P signals a trend in international relations that began with massacres like Rwanda and has reached its culmination with the recent intervention in Libya. Resolution 1973, which established a NATO-imposed no-fly zone in all of Libyan air space in response to government crackdowns on rebellions and demonstrations, authorized all necessary means in the form of military force to protect civilians against dictator Moammar Gadhafi's response. The Libyan crisis is the first time that the Security Council authorized the use of force for human protection against the will of a functioning state since the adoption of R2P¹⁴, and although it is still much too soon to argue for a definitive new policy in the Security Council, some would argue that a new "politics of protection"¹⁵ is showing itself, and that it has four characteristics. International society is appearing to be explicitly focused on civilian protection and the Security Council is proven to be willing to use military force for human protection. Additionally, the relationship between the United Nations Security Council and other stakeholders is becoming very crucial to decision-making and authorization of force, and cautious states are now agreeing to respond to crises through the body of the Security Council¹⁶. These trends, while nevertheless optimistic, are controversial in conjunction with R2P because it is so new that not enough time has passed for them to be proved concrete and also because the track record of the UNSC in terms of intervention has been so mixed.

The United Nations was founded on the principles of the sovereignty of nation states, which originally gave it the task to moderate between but not within states. This stance is becoming outdated and dangerous as the world is faced with growing con-

cerns of civil war, internal conflicts, government brutality, and intrastate genocide. The Responsibility to Protect has emerged as an intellectual, legal, and moral framework for international engagement in protecting civilians, and yet there is still a wide range of differing world responses to humanitarian atrocities. The Security Council is the governing body through which most UN authority flows and all judgments regarding military action are made, and therefore essentially decides the fate of countless populations. During conflicts in Bosnia, Rwanda, Kosovo, and Darfur, the UN Security Council didn't respond properly, resulting in a huge number of deaths and unimaginable suffering. The intervention in Libya, unlike Darfur, was swift, authoritative, and militarily superior to commonplace UN peacekeeping operations. A consistently abided by intervention policy is necessary to protect civilians in crisis situations, important for bolstering and maintaining the legitimacy of the United Nations as a guiding inter-governmental institution, and crucial for the preservation of the concepts of human rights and international peace and security. The Responsibility to Protect is most definitely a significant step in working towards that consistent UN response to humanitarian disasters. The United Nations Security Council no longer has to worry solely about safeguarding sovereignty, but when it is now legitimate and urgently necessary to bypass it; R2P sets out clear guidelines for the international community but still requires the initiative of UN member states to carry out appropriate action.

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¹⁴ Bellamy, "The new politics of protection," 825

¹⁵ Ibid

¹⁶ Ibid

GOVERNANCE AND GOVERNMENT IN THE ARAB SPRING

HYBRIDITY. REFLECTIONS FROM LEBANON

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INTRODUCTION

The international community increasingly accepts that peace, security and development are decisively shaped by 'good' governance and institutions (World Bank (WB) 2011; Organization for Economic Co-operation and Development (OECD) 2008). This observation is only reinforced by current developments in the Middle East and North Africa (MENA) presented as the Arab Spring¹. Dynamics in Tunisia, Egypt, Libya, Yemen and Syria have nothing so much in common as their mix of socio-economic dilapidation and political-institutional despondency. Corrupt, unrepresentative and increasingly ineffective state institutions have provided much of the seeds for the current developments.

Yet, there is a pivotal aspect of governance that has been under-represented in the analysis of and response to the Arab Spring. This is the deceptiveness of the equation of governance with government. Analysts and policy-makers have construed the Spring as the bankruptcy of authoritarian government, but overlook the significance of the revolutions as an indication of resilient non-state governance. This disqualifies opportunities to build on existing and emerging non-state or semi-state governance arrangements.

The aim of this paper is to offer an alternative frame for engaging with the Arab Spring. With reference to Lebanon, a country on the brink of being sucked into the upheavals, I propose that studies of the Spring would benefit from focusing on 'twilight institutions' and 'mediated stateness' in 'hybrid political orders' rather than on 'fragile governments' in 'failing states.' As a sensitizing exercise, the paper does not seek to present a detailed empirical analysis.

The paper consists of four sections. Section 2 discusses the state-centered discourse that dominates analyses of the Arab Spring. In section 3, I juxtapose this state-centered perspective with a governance-oriented view on the Spring that is explicated in section 4 with illustrations from Lebanon. Section 5 concludes and offers a research agenda.

STATE FRAGILITY AS DOMINANT DISCOURSE

Both policy-oriented and academic scholars see the Arab Spring as an opportunity to reevaluate political relations with MENA countries, a sentiment partly driven, it seems, by a desire to move beyond 'Iraq' and 'Afghanistan' (de Vasconcelos 2012:7). In line with this, while many analysts underline the economic causes and consequences of the Spring (Malik and Awadallah 2011; Khalaf et al. 2011), the majority of analyses adopts a political-institutional approach. Concepts like 'governance' and 'institutions,' seem to provide the main explanatory utility for the 'Spring watchers' (Janssen et al. 2012:24; Joffé 2011:508).

The Arab Spring is overwhelmingly hailed as a break-down of authoritarian resilience (Aerts et al. 2012; Lynch et al. 2012:1). In tandem, the developments in the MENA region are often construed as a wave of democratization (de Vasconcelos 2011; Dadush and Dunne 2011:132). El Kasm (2012) muses that "the collapse of traditional authoritarian structures now creates a democratic opening for public debate" and Ghanem (2011:33) is certain that "the transition to deeper democracy is inevitable."

The attempt to understand the developments in the region, appears to be dictated by a fixation on the role of the state and the nature of the political system. This is not surprising considering that many of the grievances voiced by protesters were political. Also, there is ample attention for the relations between state and society. Such attention is signalled by reference to citizenship (Meijer 2012); the "reawaken-

ing of political culture" (Amery 2011:140); and the social contract (Sakbani 2011). Yet despite this attention for civil society, the presentation of the Arab Spring as a failure of government is inherently state-centric. Sakbani (2011), for instance, calls the Spring the result of "a catalogue of [state] failures." This, I argue, is related to its drawing on the fragile or failed states paradigm.

The notion of the 'fragile' state (risking to degenerate into a 'failed' state) has gained currency in academic and policy circles over the last decade as a conceptual response to the post-Cold War rise in intra-state conflict (Leenders 2010:173). Fragile states are described by the OECD (2008:14) as unwilling or incapable to guarantee security, development and human rights. Naudé et al. (2012) see fragile states as affected by conflict; politicization; institutional weakness and multiplicity; and vulnerability to shocks.

The fragility paradigm's underlying conception of the state prioritizes military (Weber 1964:154), territorial (Giddens 1985:20) or legalistic (Akinrinade 2009:14) sovereignty. This generates an emphasis on the exclusiveness of the state in several roles and functions, as the idea of the state on which the fragile state concept draws is intrinsically entrenched in European histories of state development. States are expected to have certain characteristics – recognized boundaries; a monopoly of violence; an effective taxation structure – and fulfil certain functions – guaranteeing security; services; and political representation (Milliken and Krause 2002). Countries in which the state does not meet these criteria are defined based on this apparent deficiency. They are described as 'failed states' (Ghani and Lockhart 2008); 'weak states' (Rice and Patrick 2008); 'quasi states' (Jackson 1990); or 'fragile states' (McLoughlin 2010). Underlying these concepts is the supposition that anarchy ensues in the absence of a 'strong' state and that state fragility undermines international security (Berg Harpviken 2010; Rabasa et al. 2008). The response to this "love affair with the concept of the sovereign state" has been an emphasis on state-building (Richards 2005:17). In all, the fragile state concept is problematic for various reasons (Overbeek et al. 2009:24). It is extremely broad; teleological; unable to distinguish between causes, effects and characteristics; and too closely associated with normative policy (Duffield 2007; Chandler 2006).

In line with this state-centrist paradigm, the bad governance that ignited the Arab Spring and that analysts focus on is governance by governments – which explains a preoccupation with state sovereignty (El Kasm 2012) and hegemony (de Vasconcelos 2012). Following the fragile state logic, analyses have strong normative undertones, with sometimes barely suppressed surprise that "they are like us after all" (de Vasconcelos 2012:11) and celebration of the MENA's chance to "rejoin history" (Sakbani 2011).

Others note that 'stability' (as bulwark against civil war) has been used to blackmail populations into unfavorable social contracts – with the support of Western states (Haseeb 2011:119; Hollis 2012; Dadush and Dunne 2011). Amery (2011:141) stresses that the fragility of the MENA does not only lie in its current governing, but in the legacies of its colonial governing. This is also recognized by Shelly (2011:170) in his dissecting of the Orientalist logic in Arab Spring analyses (see also Jahshan 2011:122) and by de Vasconcelos (2012) who sees the Spring as the ultimate refutation of a 'clash of civilizations' (see also Dabashi 2012).

Nevertheless, in line with fragile state thinking, an implicit prescription of state-building as the natural reaction to state failure is apparent in many accounts of the Arab Spring (de Vasconcelos 2011:3; Janssen et al. 2012:35). Sakbani (2011) sees "the abandonment of the concept of the modern citizen state and the descent into a pre modern norm of state based on family, region, tribe, sect or party" as the key cause of the revolutions and, hence, the building of such a 'modern citizen state' as the core response to them. Yet what is now construed as the inevitable break-down of untenably fragile states has long been regarded as the key to state stability and resilience: the very 'adaptive authoritarianism' that is now seen as cause for downing the system and democratization has long been seen by Middle East scholars as the very reason for the absence of failed states in the region (Leenders 2010:184; Bellin 2012).

This observation that Spring analysis is overly state-centered seems to be contradicted by the vast attention for the role of 'civil society' in the Arab Spring and its envisioned leadership in the post-Spring era (Keane 2011). Cannistraro (2011:40) distinguishes between traditional opposition parties; intellectuals; social movements; and "disparately as-

¹ The term 'Arab Spring' heaps together diverse and different phenomena and suggests a (positive) normative evaluation. For the sake of readability, however, I will use it to broadly connote the uprisings in the region

sociated Muslims.” The role of non-governmental organisations (NGOs) and youth movements and their ‘new media communication’ has been discussed at large (Aerts et al. 2012; Jahshan 2011:125; Anderson 2011). Diwan (2011) and Sakbani (2011) refer to the mobilizing role played by the “Arab street.” Labour movements have been lauded for providing similar mobilizing capacity as evidenced in the accounts by Anderson (2011) for Tunisia and Joffé (2011:520) for Egypt.

These notions of civil society nevertheless display a singularity of governance; an incapacity to comprehend governance – the provision of security, welfare and representation – by non-state organizations. Ghanem (2011:130) illustrates this tendency to, instead of acknowledging existing governance arrangements, see state and non-state governance as incompatible:

[there is] the inevitable need to overcome this contradiction: between modern state structures and primordial and tribal structures; between nationalism and internal religious and clan splits and affiliations; [...] between national ideologies and transnational ones, Islamic, Arab, or otherwise; between democratic procedures and pseudo-democratic, authoritarian structures and state machinery. The basic duality did not work, and it cannot work anymore.

Thus, whereas NGOs, civil society organizations (CSOs), unions, youth and women’s movements and political parties are usually included in ‘civil society,’ non-state armed governance actors – defined here as those organizations with the means and ambition to provide a constituency with security (through regulating internal use of force and offering protection from external threats), welfare (social services) and political representation (Arjona 2010) – are not². There are several reasons for this. First, the very notion of non-state governance is an anomaly to the Weberian state concept. Non-state governance is often associated with conflict – as apparent in the ‘rebel governance’

² Non-state governance is often associated with NGOs, businesses and security companies (or even gangs). These, however, engage in governance with the consent of the government and tackle one domain of governance – security, welfare or representation. Non-state governance actors, do not seek the state’s permission to engage in governance. They are also active in all three governance domains.

Arab Spring developments are also often analyzed through Social Movement Theory (Leenders and Heydemann 2012). Where social movements tend to focus on specific issues and tailor their institutional capacity to mobilization, however, non-state governance actors encompass security, welfare and politics and invest more in structural institutions for governance

terminology (Mampilly 2011). Also, many of these actors are Islamic and seen as incompatible with ‘modernity’ or democracy (Jahshan 2011:123; Fisk 2011).

HYBRID GOVERNANCE AS ALTERNATIVE PERSPECTIVE

Governance – the organization of the provision of security, welfare and political representation – matters for explaining the origins of the Arab Spring. Insecurity in the form of arbitrary justice and intelligence agencies operating with impunity has provided fuel for the protests (Bellin 2012:134). Crumbling public services have been a major trigger (Lynch et al. 2012:10). And corrupt and unaccountable political representation has perhaps been the most blatant instigator of the revolutions (Bellin 2012:136). As such, it makes sense to assume governance matters for the future (and aftermath) of the Spring as well. The question is who will be doing this governance.

The dominant analyses discussed above suggest governance belongs to government. I do not argue that this emphasis on reinventing political systems and reinvigorating state institutions is undesirable. Rather, I suggest it is incomplete. I propose that an exclusive focus on a sovereign state and a depoliticized civil society stalls the development that the protesters in Tunisia, Egypt, Libya, Yemen and Syria – however diverse and diverging – demand. This is because such a focus is too entwined with the fragile state perspective that highlights what is not there and what is not working. What scholars and policy-makers need is a perspective that allows the identification of actors, mechanisms, resources and capacities that are there and that are working. El Kasm (2012) tellingly proposes “a structural redefinition of Arab governance,” but a redefinition grounded in “pragmatism.”

Boege et al.’s (2009) hybrid political order concept could be one such perspective. Boege et al. argue that while institutions and governance are necessary for peace, security and development, these need not be state institutions and governance. They define hybrid political orders as countries that do not have a single focal point of governance. A state apparatus represented by a government can play a significant role in socio-political life, but it is not the only (or even most important) actor involved in governance. Other organisations that are active in security, wel-

fare and political representation (and are therefore armed, have a social service structure and a political representation) exist. This highlights the state as one of several reference points for governance – in clear opposition to the dominance the state is awarded in Weberian assessments (Migdal 2001). The multiplicity in governance stipulated by the hybrid political order thesis emphasizes state-society interaction. It is developed in concepts like the ‘mediated state’ (Menkhaus 2008) and the ‘twilight institution’ (Lund 2006) that give substance to the relatedness and simultaneity of state and non-state governance³.

The idea of hybrid political order approaches governance from the perspective of what is, rather than what should be (Kraushaar and Lambach 2009:4). As such, it shows how crucial civil society actors are under-represented in analyses on the onset of the Arab Spring and visions for the future governance of the MENA. Joffé (2011:514) observes that “in every case where a liberalised autocracy was instituted, there was a common thread. This consisted of the fact that autonomous organisations emerged, not formally controlled by the state, that could address predominantly social concerns and, on occasion, political concerns.” The invisibility or misrepresentation of such organizations in many analyses offers a partial explanation for the surprise by which the Spring took many scholars (Aerts et al. 2012; Gause 2011).

Two categories of societal actors involved in the Arab Spring especially have gotten less attention than they deserve: informal organizations (Observatoire de l’Afrique 2011) and organizations (able of) competing with the state for governance primacy. In the first category, governance by tribal organizations is most apparent. This is often associated with lack of ‘modernity’ and paternalistic and clientelist authority (Leenders 2010:180). Indeed, such governance should not be romanticized. Yet developments in Libya and Syria have demonstrated that these societal structures also “provided safety and security as well as access to goods and services” – it was not for no reason that “it was along such networks that Libyan society fractured when the regime’s capacity to di-

³ Menkhaus (2008) suggests that states in hybrid political orders often opt for a pragmatic form of engagement that allows them to govern through, rather than against, non-state actors. Lund’s (2006:689) concept of twilight institutions renders visible that the idea of a powerful state with an intention and a higher rationality – however divergent from the incoherence and incapacity characterizing ‘real’ states – is a construct both the government and non-state governance actors depend upon to legitimize their governance

vide and rule began to unravel at the beginning of the protests” (Anderson 2011). Janssen et al. (2012:27) describe how Syrian traditions of inter-sectarian cooperation formed the foundation for “the largely self-sufficient, self-governed communities that have arisen following the emergence of the FSA [Free Syrian Army] and the retreat of the state from areas that it can no longer control.” These communities have in some cases been institutionalized in Local Coordination Committees (LCCs) that have formed fledgling “grassroots social services systems” and “have already shown the ability to work with armed groups, to the extent that around 40 units of the FSA have signed codes of conduct with their local committees” (Janssen et al. 2012:27). In an exceptional recognition of non-state governance pertinence, Janssen et al. (2012:27) consider these LCCs the “most likely starting point for any international involvement” in Syria. This is in line with earlier work by Leenders (2010:186) highlighting the contribution of “tribes and tribalism” to Middle Eastern states, as a “practical and symbolic counterweight to state coercion.” If tribes can contribute to more legitimate governance during authoritarianism, they might do so after. If they can be mobilized for instigating resistance – Leenders and Heydemann (2012) show how, in Syria, it was exactly in those areas where clan-based and tribal social structures were most resilient that the revolution has started – they might be mobilized for governance.

In the second category of under-appreciated non-state governance organizations, the most important actors are perhaps Islamic organizations. These have received ample attention as a potential threat to nascent democracy, but have not always been acknowledged as governance actors in their own right. Joffé (2011:517) describes how Islamic movements – such as the Egyptian Muslim Brotherhood (Lynch et al. 2012:151) and Tunisia’s An-Nahda (Totten 2012:25) – “require and therefore create bureaucracies or take over existing administrative structures.” Mosques, charities and schools, can in such a context provide security, welfare and representation parallel to state institutions. Joffé (2011:517) goes as far as suggesting that “liberalised autocracies, ironically enough, set up the conditions for their own demise by creating space for the evolution of autonomous precursor movements” (see also Leenders 2010:189). From a hybrid political order perspective, it is insufficient to see such schools and charities as a mere

collection of CSOs. Under the overarching agency of a broader movement, they are elements of a more comprehensive governance network.

Research in other regions, predominantly sub-Saharan Africa, has shown that there are indeed many local governance constellations in situations of 'fragility' that add up to patchwork systems of security, services and justice (Raeymakers et al. 2008; Clements et al. 2007). The hybrid political order perspective allows analysts to locate such non-state governance with reference to the Arab Spring and consider the (possible) constructive contributions of non-state actors to post-Spring order. As it is, these actors are too often dismissed as backward 'spoilers,' which is not only unsatisfying academically, but unwise with regard to the situation on the ground that demands getting socio-economic development on track.

LEBANON AS ILLUSTRATION

Lebanon serves to illustrate the added value of the hybrid political order perspective for analyzing the role non-state governance actors might play throughout the Spring⁴. It has not witnessed a 'Spring of its own' – and is unlikely to (Haseeb 2011:114) despite several protests against Lebanon's sectarian system in February and March 2011 (Cannistraro 2011:41). Yet Lebanon is heavily affected by the revolution-turned-civil-war in Syria (Stel 2012b:25). There is intense fighting in North Lebanon between Sunnis and Alawites instigated by the Syrian conflict (Farell and Safwan 2012). The refugee flow from Syria has strained the Lebanese economy and, in some cases, societal stability (Dettmer 2012). Occasional raids by the Syrian army to attack Syrian insurgents operating from Lebanon have upset life in the large border region (International Crisis Group (ICG) 2012:iii). Moreover, the affiliation of Lebanon's two political camps with the rival Syrian and regional powers – March 8 with the Syrian regime and Iran and March 14 with the Syrian rebels and the Saudi-American axis⁵ – has resulted in an extremely

apprehensive political sphere, as evidenced by a series of kidnappings in mid 2012 and the shock bombing that killed general al-Hassan (Samaha 2012; Botleho and Abedine 2012).

The political struggle over government control between March 8 and March 14 can be seen as the meta manifestation of the local governance offered by these movements. The political parties constituting Lebanon's opposing political blocks are much more than political parties. They are non-state governance actors, each with their own – more or less sophisticated – armed organization (Harik 1994), administrative system (Baylouny 2010), welfare structure (Cammett and Issar 2010), international contacts (Hirst 2010) and politico-ideological program (Hamzeh 2001). While Hezbollah is often singled out as 'non-state sovereign,' (Stel 2009) it can convincingly be argued that all Lebanese political parties constitute non-state governance entities substituting for, but also undermining and co-opting, state governance. In line with the stand-off between 8 and 14 March, Hezbollah and Future are arguably the most important political actors, certainly concerning the Arab Spring (ICG 2012).

In short, in Lebanon it is the unilateral behaviour of non-state governance actors – March 8, specifically Hezbollah, and March 14, represented by Future – that is likely to determine Lebanon's role in the Arab Spring, much more than the conduct of the Lebanese state or government. Yet despite, or perhaps because, of Lebanon's 'weak' state, observers are often pre-occupied with state sovereignty, lamenting the prevalence of 'states-within-the-state' (de Vasconcelos 2011:33). Following the limitations of the fragile state discourse, these preoccupations with the weakness of the state and the failure of governance obscure the strength and relevance of non-state organizations behind the state that do much of the governance on the ground.

As such, it is misleading to look towards the official disassociation stand declared by the Lebanese state to determine how Lebanon will fare in the Arab Spring. Rather, it is Lebanon's non-state actors that will determine Lebanon's positioning. The ICG (2012:i) notes that "Lebanon's two principal coalitions see events in Syria in a starkly different light – as a dream come true for one; as a potentially apocalyptic nightmare for the other." In light of the

state's inability (ICG 2012:27)⁶ it is the governance capacity of Lebanon's primary non-state governance actors that matters. This particularly regards their management of foreign alliances (Hezbollah's support for Assad and Future's implication in the Syrian insurgency); their appetite to seize the Syrian events as an opportunity to settle domestic struggles (ICG 2012:16); their ability to maintain territorial control, especially near the borders (ICG 2012:5); and their capacity to control their 'rank and file.' The ICG (2012:6) warns that "already, both Hizbollah and the Future Current have proven unusually ineffective at containing grassroots violence originating from elements they traditionally can control – such as the Meqdad family or Tripoli's Islamists."

The power of non-state governance actors is a two-sided sword and risks polarizing and escalating socio-political dynamics. It is this negative component that has gained attention by analysts of the Arab Spring (Dabashi 2012; Cannistraro 2011:39). Yet rather than focusing on what is not there – a strong democratic state able to govern satisfactorily and thereby steer Lebanon away from Spring conflicts – it would be useful to apprehend how the governance capacities of non-state actors that are there might be geared towards constructive engagement in the Spring by containing tit-for-tat sectarian retaliations; providing relief for refugees (and deescalating their presence); and opening up alternative diplomatic channels. I do not contend that Lebanese non-state actors can provide a or the solution to the current spill-over crisis, but their potential in this regard, however flawed or partial, should not be discarded either.

CONCLUSION AND RESEARCH AGENDA

In recent scholarly conceptualizations of the interconnectedness between peace, security and development, a key role has been reserved for notions of governance. The Arab Spring has compellingly reinforced this realization. Yet a key predicament of the analytical focus on governance and institutions is that it often statist. This preoccupation with the state frequently follows from adherence to the fragile state paradigm that takes its guidance from European, Weberian state exemplars. With reference to the Spring, the fragile state perspective then focuses on the failure of the state to the detriment of attention

for existing governance and functioning institutions beyond the state. The hybrid political order perspective offers an alternative conceptual frame that is better suited to tease out governance dynamics that are informal or non-state. As such, it is perhaps more responsive to the pragmatic need voiced by many in the MENA region for reviving welfare and socio-economic development.

This does not mean current studies on official political systems and formal state institutions are not useful or that the analyses of the causes of crumbling authoritarianism should be abandoned. But they could be appended with accounts of the capacities of non-state actors involved in the Arab Spring whose power should not only been seen in terms of mobilization, but also as a potential for governance. How governance activities of these organizations have enabled them to help steer the revolutions and how it might help to follow-up on the uprisings deserves further scrutiny. The (potential) relations and ties between state and non-state governance activities and institutions merit consideration. We need to get more insights on 'what is there to work with,' beyond degenerated state apparatuses.

The aim of this paper has been to offer an alternative sensitizing frame for engaging with the Arab Spring. Hence the thoughts presented were painted with broad strokes and the suggestions for further research posed below should be taken generically. Clearly, the focus on the role of non-state governance actors in and after the Spring might be more relevant for some countries than for others.

While the Tunisian An-Nahda movement's "organisational capacity was stripped to nearly nothing by years of repression," it could nevertheless be interesting to further explore the grassroots service, security and representation structures of this Muslim Brotherhood-inspired organization to investigate if and how they can prop up the current reform process (ICG 2011c:8). Egypt's Brotherhood, too, can be approached more structurally as a governance organization in its own right (specifically with reference to its extensive social welfare structures), so as to better understand (the duality of) its contribution to state governance in the form of the political party it has established (ICG 2011a:25). In Libya, beyond the need to link studies on clan institutions more directly to Arab Spring developments, it is worth-

⁴ Lebanon's representativeness vis-à-vis the rest of the MENA region is contested. On the one hand, Lebanon's eminent thinker Samir Kassir was one of the first to write about his wish for a 'spring of the Arabs' in 2005 (Diwan 2011) and Lebanon's 2005 Independence Intifada is sometimes claimed to be the preliminary inspiration for the eventual Arab Spring in other countries (de Vasconcelos 2011:33). On the other hand, Lebanon's relatively 'weak' coercive state apparatus makes it an exception in the region

⁵ After the end of the Syrian occupation in 2005, Lebanese politics has been dominated by a polarized competition between two coalitions. March 8 is led by Hezbollah and Amal, both Shiite parties, and the Christian Free Patriotic Movement and is considered pro-Syrian. March 14 is led by the Sunni Future Movement and various Christian parties and is regarded pro-Western

⁶ For an overview of Lebanon's state apparatus and political system, I refer to Stel (2012a:9-12)

while to look into societal institutions co-opted by Qaddafi. His 'Men of the Tent' and Revolutionary Committees seem too tainted to play a constructive role (ICG 2011d:10-11). But the position of the Social People's Leaderships, that "transformed the tribe from an informal institution into a formal partner" and that have at times operated to help resolve socio-economic problems or mediate sensitive societal issues could be of a different nature (ICG 2011d:12). In Yemen, while the "spectre of descent into tribal warfare" is real, the reservoir of tribal governance capacity should not be ignored and the position of tribal-based movements both within the protests – an estimated fifty per cent of the protesters at Sanaa University were tribesmen – and after them is eminent (ICG 2011b:ii, 4). In Syria, apart from the LCCs, regional (Kurdish) governance structures and their (lack of) support for the revolt as well as the institutional resources of Islamic organizations offer handles for discussing post-war governance (ICG 2011e:12-17).

Such research might demonstrate that it could very well be the combined governance by and beyond the government that holds the key to the MENA's (post-)Spring development.

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IN THE SHADOW OF THE 9TH OF APRIL: Resistance under Nazi occupation and its impact on postwar Danish security policy, 1945-49

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In memory of my grandfather

Johannes Hjortshøj : a man I never knew, who risked everything for me



INTRODUCTION

This paper seeks to examine the role played by the continued legacy of the violent Danish resistance to German occupation in the politics, culture and media of the immediate postwar period, with a view to clarifying whether that legacy played any role in the decision to join NATO. The abrupt shift from pre-war neutrality to a policy of active partnership with the Western powers in the emerging Cold War requires explanation, as it was far from inevitable in its time and place. It is precisely this transformation that will be studied, with a specific focus on the activities of Resistance fighters and their supporters.

Following a humiliating occupation by a totalitarian government, the Resistance and its activities allowed Danes to regain some national pride and confidence in their prewar democratic system, in spite of the many ambiguities and uncertainties of said occupation. This already being well-established, however, the tangible effects on Danish politics will be scrutinized more closely, in particular those relating to security policy and official reactions to the emerging Cold War. The first section deals with the Resistance itself, its goals, character, and impact in the military and political fields, along with new issues brought up by liberation. This is followed by a summary of events and circumstances surrounding the signing of the North Atlantic Treaty. Lastly, an overview of the presence of former Resistance fighters in the printed media of the period, as well as their influence in the Danish military, will allow for a concrete evaluation of the postwar influence of Resistance ideas and beliefs. The negotiations for a Nordic defence union from 1948 to 1949 will also be considered, both as a serious alternative for Danish security policy and as a reflection of differing approaches to the growing Soviet threat among comparable Scandinavian countries.

After liberation

The surrender of Wehrmacht forces in Denmark on the 5th of May, 1945 marked the end of a bitter struggle by local Resistance fighters, who had carried out many assassinations and acts of sabotage against German officials, local collaborators, and infrastructure aiding the German war effort. In 1944, different Resistance groups could count over 1,000 active saboteurs among their number¹. Their main targets were railway tracks and industrial plant².

¹ Lidsgaard, Bo. *Kampen om Danmark 1933-1945*. Copenhagen: Gyldendal, 2005, p. 572-573

² Keegan, John éd. *The Times Atlas of the Second World War*. New

The overall impact of the Resistance on German exploitation of the Danish economy was, however, minimal, and its fighters were characterized by deep ideological divisions, in particular between Communists and other groups³. During the occupation, Resistance groups established the Freedom Council (Frihedsrådet) to coordinate their activities and overcome divisiveness. One of its key figures, Frode Jakobsen, said of the postwar view of the Resistance :

*“We should, in the political arena, tolerate some exaggeration of our efforts, if only to furnish the struggle for freedom with a positive image.”*⁴

He also admitted to the practical ineffectiveness of his own Resistance cell, calling for “broad, rather than deep resistance” such that “each individual chooses a side in the World War.”⁵ The main contributions of the Resistance were thus symbolic, providing credibility to Denmark’s far from certain status as an Allied nation during and after the war, as well as relieving the conscience of a largely passive population.

Following the heady days of liberation by British troops, Denmark faced a situation that posed a serious challenge to its traditional neutrality. Events such as the Soviet occupation of Bornholm until 1946, the Berlin blockade and the Prague Coup heightened tensions with, and fear of, the Soviet Union, and signalled the emergence of a global confrontation between it and the United States that could have catastrophic consequences for small countries caught between the superpowers.

Denmark’s neutrality had been seen as the best guarantee of its independence since the humiliating defeat to Prussia in 1864, but this traditional view was challenged by the Second World War, which combined the all-mobilizing total warfare of the First with devastating new technologies and a new ideological ferocity. In spite of this new global situation, the Danes, though not harbouring much sympathy for Communism, also viewed any association with the West as a potential risk of entanglement in a conflict Denmark could not possibly survive, let alone win. The conservative politician John Christmas Møller expressed the prevalent sentiment in 1947 :

*“Fortunately, we agree that we do not wish to enter into any bloc, on either side.”*⁶ The Social Democrat prime minister Hans Hedtoft, elected in 1947, stated similarly in an early 1948 radio interview : *“We should not place our country within any bloc. We are a UN member state and must do our duty there as a Nordic country. We should work to realize the democratic ideals expressed in our constitution, and retain our right to express our opinion freely to the West as well as to the East. I must add that I do not believe it to be in the Nordic interest to deepen the all too obvious differences between East and West. A final conflict between the great powers that cooperated to win the war would be a disaster for us all – perhaps even more so for the Nordic countries.”*⁷ There was, then, a political consensus reaching across party lines on the desirability of maintaining Denmark’s traditional neutrality. Even so, the country found itself firmly integrated in a Western alliance no more than two years later. How did this happen ?

Forced by circumstance ?

On the 4th of April 1949, in Washington DC, foreign minister Gustav Rasmussen signed the North Atlantic Treaty incorporating Denmark into the new NATO alliance⁸, with the support of just about half of the Danish population⁹.

Most of the postwar period up to this point had been characterized by a strong willingness in the political arena to either maintain Danish neutrality or enter into a Nordic defence union. Thus, Denmark’s entry into NATO and the shift in public opinion leading up to it cannot solely be attributed to external factors such as the liberation by the British army, the growing American presence in Greenland or even any one of several menacing Communist manoeuvres.

This becomes particularly clear when noting that 51% of the population supported renewed negotiations for a Nordic defence union in 1949, i.e. even after such frightening events as the Prague Coup, which has been the traditional point of reference for explaining Denmark’s entry into NATO¹⁰. The 49% opposing intra-Nordic negotiations can be divided into two camps : the Communists and social liberals on the one hand, refusing to enter into any agree-

ment that would compromise Danish neutrality, and those supporting a North Atlantic alliance under the auspices of the United States. These voices, numerous though they were, remained a divided minority in relation to those advocating a common Nordic security policy that rejected what we now take for granted as the inevitable logic of Cold War power politics, the odd exception such as Sweden notwithstanding. Considering that neither public opinion nor the political class were strongly in favour of joining a broader Western alliance, it seems clear that other factors must be seized upon to explain the decision to enter NATO.

The spirit of Resistance in postwar media

The influence of former Resistance fighters on the immediate postwar discourse was above all through the continued activity of illegal wartime publications expressing Resistance-friendly views, which enjoyed great credibility among readers due to the heroic deeds with which they were associated.

An important figure in this respect was Børge Outze, the radical journalist who founded what would become the paramount illegal newspaper, *Information*¹¹. It was a key channel of the will to resist German occupation among Danes, both as the sole source of news from occupied Denmark in Allied countries and as a representative of non-communist views among Resistance fighters¹². Outze refused to stop publishing *Information* after the war, seeking to establish it within the prevailing media landscape. The major dailies doubted it would survive for very long¹³, and the editor-in-chief of the largest Danish newspaper, *Berlingske Tidende*, is said to have remarked : *“You’ll break your neck, Outze!”*¹⁴

Initially, low circulation figures seemed to confirm this view ; in 1945, *Information* had only 23,360 readers against 184,137 for *Berlingske* and 180,791 for *Politiken*¹⁵. These numbers do not tell the whole story, though : as the preeminent illegal newspaper, *Information* did not suffer the drop credibility of major papers that agreed to self-censorship during the

occupation¹⁶. For this reason, it punched above its weight in immediate postwar debates.

Outze sought from the outset to defend the legacy of Resistance in the public discourse, criticizing what he viewed as politicians’ “counter-movement” to discredit the Resistance. He defended in particular the extrajudicial killings and other actions carried out against collaborators¹⁷.

This criticism reflects that the Danish Resistance did not see its role as being restricted to the mere hindrance and eventual expulsion of the Wehrmacht : they view their role as also extending to the restoration of Denmark’s democratic institutions and protecting them from future threats. Outze’s colleague, Erik Seidenfalden, published an analysis of the Danish government’s policy of accommodation from Sweden in 1943 : *“Nationalistic war cries are not what is needed at the moment. We will rediscover reason in continuing upon this path that was interrupted – and strengthened by its encounter with – German Nazism, in developing and improving democratic Denmark in its institutions as well as in the conscience of individuals. There is surely no better guarantee of survival that a small people can create through its own efforts.”*¹⁸

Information survived and continued publishing well beyond this period, and the Freedom Council served as a “quasi-government” in the immediate aftermath of liberation¹⁹. Børge Outze was an ardent supporter of NATO and a Western alliance, and regularly wrote editorials along with Seidenfalden arguing against the neutrality that, in his view, had led to the disaster of the 9th of April 1940 (the date of the German attack). Neutrality was insufficient to protect Denmark in the superpower conflict of the Cold War : *“The United States is the only country from which Denmark can hope to receive a sufficient quantity of weapons...”*^{20,21}. This viewpoint grew in popularity in the immediate postwar period, with *Information* gaining about six thousand readers, or a 27% increase in circulation, between 1947 and 1949, with 28,442 readers in 1949²². This is, for compari-

York: Harper & Row Publishers, 1989

3 Christensen, Claus Bundgård et al. *Danmark Besat: Krig og Hverdag 1940-1945*. Copenhagen: Høst & Søn's Forlag, 2006, p. 465

4 Ibid, p.707

5 Ibid, p. 555

6 Ibid

7 Ibid, p. 272

8 Ibid, p. 268

9 Ibid, p. 286

10 Ibid

11 Lidegaard p.400

12 “Historie.” *Dagbladet Information*. <<http://www.information.dk/historie>>

13 *Dagbladet Information*

14 Ibid

15 International Federation of Audit Bureaux of Circulations, Dansk Oplagskontrol. “*Dagblade 1930-2009*.” Copenhagen, 2010

16 *Dagbladet Information*

17 Christensen p.682

18 Lidegaard p.574

19 Christensen p.493

20 Lidegaard p. 391

21 “Kommunismen som militært problem,” “Danmarks forsvar i den nye situation.” *Dagbladet Information*. 1st march 1949, page 1 (“USA er det eneste land hvorfra Danmark i øjeblikket kan gøre sig håb om at faa vaaben i det fornødne omfang...” – translated by the author)

22 International Federation of Audit Bureaux of Circulations, Dansk

son, a higher circulation than the Danish Communist Party's *Land og Folk*, and about two-thirds the circulation of the Social Democratic *Aktuelt*, meaning that *Information* had an influence on public opinion roughly corresponding to that of a major political party²³. Alongside *Information*, Resistance fighters entered politics of all ideological stripes, from the conservative John Christmas Møller to the Communist Aksel Larsen, with Social Democrats and others in between. With the notable exception of the Communists, nearly all these former Resistance men promoted an active pro-Western outlook. But given that support for Danish entry into the North Atlantic alliance did not even approach half the population a mere two months before the final decision in 1949, their influence and activities in politics and the media cannot provide the only explanation.

The army and Hjemmeværnet

Any attempt to elucidate the changes of the immediate postwar period must also consider the role of the Danish army.

The army suffered a humiliating defeat in April 1940, but subsequently underwent a remarkable transformation of its public image in the course of the occupation. Seeking to survive and protect its institutional interests in a new and uncertain situation, it went from being perceived as an elitist body hostile to the workers to being instead viewed as a possible protector of their interests²⁴.

This transformation could not have taken place without the Social Democrats, whom their chairman Hans Hedtoft called upon in 1941 to "re-educate themselves" on questions of national defence²⁵. As the largest party of the Danish workers' movement, and at times of the political landscape as a whole, the Social Democrats made possible the postwar military buildup. In particular, the meeting of generals such as Gørtz, who insisted that "Denmark cannot be a military vacuum²⁶" with Social Democratic politicians in Odense in 1942 served to change the strongly neutralist opinions of the latter. This meeting can in fact be seen as the first step towards abandoning

Oplagskontrol. "Dagblade 1930-2009." Copenhagen, 2010

23 Ibid
24 Olesen, Thorsten Borring and Poul Villaume. *Dansk Udenrigspolitik Historie, Bog 5: I Blokopdelings Tegn 1945-172*. Copenhagen: Gyldendal Leksikon, 2005, p.102
25 Ibid
26 Ibid

Denmark's traditional neutrality; the anti-neutralist campaigns of the former Resistance in the immediate Postwar period would not have had nearly as much effect without a Social Democratic change of heart on national security questions. Though far under half the population supported the signature of the North Atlantic Treaty in 1949, the decision was in the end taken by a parliamentary majority that only the Social Democrats could provide.

The army played two major roles during the occupation. Firstly, many former soldiers joined the Resistance, organizing ventegrupper, or small armed groups preparing themselves for open warfare on Danish soil, with many being imprisoned by German authorities and going on to serve as officers in the postwar army, bringing with them values and experiences from the Resistance²⁷. Though these armed groups were forced to integrate into the official Danish army after Germany's surrender, and thus lost their independence, this also placed them firmly within organs of state power, where they could exercise their influence²⁸.

Secondly, fleeing remnants of Denmark's military organized a Danish Brigade in Sweden, which grew from just 30 men in 1943 to a sizeable exile army of over 5,000 troops on the day of liberation²⁹. In addition to assisting British forces in their occupation zone of Germany in 1947³⁰, it was part and parcel of British attack plans in May 1945, and therefore of great symbolic value for cementing Denmark's doubtful status as an Allied nation³¹ (more Danes died fighting for Germany on the Eastern Front than resisting Nazi control at home)³².

In the same month as the NATO decision, a Danish national guard, Hjemmeværnet, was established³³. The enormous quantity of weapons in circulation post-liberation was worrying for the government^{34,35}, which required Resistance fighters to follow a set of territorial defence regulations published in Septem-

27 Captain Digmann, P.M.V.B. Letter recommending lieutenant Johannes Hjortshøj for a promotion, 11 October 1945

28 Christensen p.639-640

29 Christensen p.619

30 Hertel, Hans and Bo Bojesen. *Bo Bojesens Danmarkshistorie*. Copenhagen: Gyldendal, 1994, p.44

31 Hansen, Ole Steen. 1945: *Kampen for Europas og Danmarks befrielse*. Valby: Borgens Forlag A/S, 2005, p. 259

32 Davidsen, Leif and Karsten Lindhardt. *Østfronten: Danskere i krig*. Copenhagen: Høst og Søns Forlag, 1999, p. 7

33 Hansen p.464

34 "De fire enheder." *HJV Magasinet*: march 2009. 34-39

35 "De har været med hele vejen." *ibid*. 46-49

ber 1945³⁶. Even so, it was not the Danish government as such, but rather the Freedom Council that took the initiative to organize former fighters, launching a voluntary national guard project at a conference in Odense in 1945^{37,38}. Indeed, the modern-day national guard, *Hjemmeværnet*, consciously traces its background and roots to the wartime Resistance in its official historical materials³⁹. While the *forsvarsvilje*, or willingness to defend Denmark, that these institutions represented certainly made its mark on the political landscape, it was not the crucial factor in the decision to enter NATO.

The failure of the Nordic project

Before 1949, and even up to the month before the signing of the North Atlantic Treaty, most Danes preferred a security policy centred on a defence union between the Scandinavian countries: Denmark, Norway and Sweden⁴⁰.

This was in large part a personal project of prime minister Hans Hedtoft, who warmly received a proposal from the Swedish government on the 22nd of April 1948⁴¹. But in spite of Hedtoft's personal charisma, all three countries having Social Democratic governments, and Sweden's credible military might, the defence union never materialized. Why was this?

The Swedish prime minister Tage Erlander envisioned a union in which Danish and Norwegian defences would be as developed as Sweden's, and which would remain completely neutral in the superpower conflict; he wished, in other words, to incorporate all of Scandinavia in a Swedish sphere of neutrality. The Norwegian leader Halvard Lange, on the other hand, did not believe in the possibility of success or security without American support. Informed both by Norway's great suffering under Nazi occupation and its shared border with the USSR, he wanted a Nordic alliance firmly under American tutelage. It was thus Hans Hedtoft's mission to reconcile the differences between Norway and Sweden, though this proved to be to no avail⁴².

36 "Historisk baggrund." *Hjemmeværnet*. <<http://www.hjv.dk/Om%20HJV/Sider/Om%20hjemmev%C3%A6rnet.aspx>>

37 "Aldrig mere en 9. April." *HJV Magasinet* p. 32-33

38 Lidegaard p.514

39 *HJV Magasinet*

40 Hammerich p. 285-286

41 *Ibid* p. 280

42 *Ibid* p. 280-284

Furthermore, Denmark's will to neutrality was damaged by the United States' refusal to provide arms to a neutral Nordic alliance, most likely influenced by its pursuit of military bases in Greenland⁴³. Though similar in many respects, the Scandinavian countries could not find enough common ground to pursue a common independent course in a challenging global situation.

Following the failure of Nordic negotiations, Hedtoft had only two options left: either maintain the prewar neutrality that ended in disaster on the 9th of April, or accept entering NATO and the Western bloc. This was, of course, no choice at all; the experience of invasion, and the emergence of a heroic Resistance narrative, transformed not only popular consciousness, but the views of the Social Democratic Party, from being firmly pacifist to being just as strongly pro-Western. Deprived of his Nordic dream, Hedtoft thus signed his country out of neutrality for the first time since 1864, with public opinion still ambivalent, but with the necessary majority in Parliament.

CONCLUSION

It is tempting, when examining the process by which Denmark moved towards integration in the Western bloc between 1945 and 1949, to attribute everything to external factors, in particular the growing self-assertion of Soviet communism.

However, as we have seen, a credible and popular alternative to both neutrality and NATO existed. When the time came to negotiate the specific form of a Nordic defence union, Hans Hedtoft faced two obstacles that ended up derailing the project: the insistence of the Norwegians on an American security umbrella, and American unwillingness to support a neutral Nordic union militarily, unpalatable to the Swedes and to the Danes, respectively.

Throughout the period, and up to the failure of these negotiations, the Danish Resistance came to represent not just a heroic palliative to the unpleasant ambiguities of occupation, but a new sense of duty towards Danish democracy quite different, both from what was now seen as cowardly neutrality, and from the jingoistic militarism of a more distant past. It coupled cherishing the human-

43 Skou, Kaare R. *Dansk Politik A-Å*. Copenhagen: Aschehoug Dansk Forlag A/S, 2005, p. 512-514

ist and liberal values towards which Nazism had been such a brutal affront with a hard-nosed willingness to place hard work, time and resources into defending said values from new potential threats. For all but the Communists, the Soviet Union seemed to present just such a threat. This new worldview asserted itself in an overtly political fashion, and the Resistance itself was scarcely over before its legacy was being widely used (and, in some cases, abused) in politics and the media.

Thus, even in the wake of the failure of the Nordic defence union, Denmark might once again have set upon a path of neutrality following the Second World War, had it not been for the active advocacy of self-defence coupled with Western solidarity on the part of the former Resistance. After all, its post-1864 neutrality was also decided based on a military humiliation to Germany, in a troubling and uncertain international environment. What had changed since then was not just the scale and brutality of warfare, or the sharpening of ideological, rather than purely expedient, divisions between nations; Denmark had also entered into a new era in its history as a small state, one in which it shouldered greater responsibilities and could no longer count on being a bargaining chip of the Great Powers for its survival.

The decision to join NATO itself was of course made by a vote in Parliament, and this was decided by the shift in Social Democratic mentality from pacifism to a firm, and in the view of many contemporaries more realistic, pro-Western stance. Hedtoft did not get the Nordic union he wanted, and the new security mentality of Danes encouraged by the Resistance made the resulting choice very easy indeed.

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Name of newspaper	1940	1941	1942	1943	1944	1945	1946	1947	1947	1949
Aktuelt (tidl. Soc. Dem.)							49,56	55,93	52,78	51,06
Berlingske							29,40	30,50	33,70	33,64
Altetnavis							5	7	6	9
B.T.	23,9	21,8	23,5	28,1	28,80	38,5	44,28	50,56	67,84	72,92
Berlingske Tidende	60	43	33	42	1	55	8	7	5	4
Dagens Nyheder	114,	123,	129,	141,	149,3	184,	186,5	189,6	190,8	188,9
	766	821	859	768	47	137	03	21	92	98
Ekstra Bladet							39,72	41,06	37,99	37,61
							8	5	8	1
Information	46,2	45,9	49,6	58,2	61,77	75,5	76,51	74,98	81,46	91,01
	78	47	45	65	4	46	1	7	9	1
Jyllands-Posten							23,3	24,40	22,56	28,44
Kristeligt Dagblad	24,6	30,9	34,5	40,1	46,02	61,0	65,06	72,02	68,28	66,09
	10	58	95	12	5	85	2	8	5	8
København	15,4	17,5	18,2	18,4	19,10	20,3	22,40	21,92	23,40	22,78
	29	85	02	54	0	25	5	7	8	3
Land og Folk								21,02	19,64	
								0	2	
Politiken								33,54	26,92	23,58
Nationaltiden								6	0	9
de	114,	207,	119,	136,	142,6	180,	174,3	171,1	176,6	169,0
Social-Demokraten	400	843	566	750	32	791	00	59	35	94
Total	39,5	43,1	42,8	48,5	46,72	48,4				
	89	62	27	11	4	71				
		40,9	43,7	46,1	46,89	50,7				
		70	20	76	5	42				
	379,	532,	461,	518,	541,2	683,	712,1	784,9	852,0	829,8
	032	129	947	178	98	012	79	18	35	85

Appendix A : Circulation table for main Danish dailies, 1940-1949 (Source : Dansk Oplagskontrol)

CONSTRUCTING AND DECONSTRUCTING THE CONFLICT IN TRIBAL AREAS OF PAKISTAN: Why to account for economic inequality and deprivation to measure successful insurgency

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The turmoil and instability in Afghanistan since the 1979 Soviet invasion is believed to be the result of Al-Qaida and Taliban fighters infiltrating across Afghanistan's border into the Pakistan's tribal areas. Sharing similar ethnicity, culture and values, the Taliban fighters and Al-Qaida members found it expedient to settle in the region and continued to carry their fight against the West, Government of Pakistan (GoP) and Afghanistan in the form of lethal suicide attacks. The Federally Administered Tribal Areas (FATA) of Pakistan is the most underdeveloped region of the country with 60 percent of the population living below the poverty line¹ compared to 22 percent nationwide². Per capita income is 50% of the national per capita income and per capita development expenditure is only 33% of the national average³. Despite providing nearly \$2 billion annually in military aid to Pakistan Army for the FATA and Khyber Pukhtunkhwa (KPK) region⁴, militancy is still seen to be on the rise. The conflict has not only destroyed the existing economy and infrastructure, but also has a huge impact on the local population causing scores of civilian deaths and creating increased number of refugees or Internally displaced peoples (IDPs).

The Taliban-led insurgency in the FATA, although considered similar to the previous insurgencies in terms of type of warfare, objective and ideology, has some major differences compared to the 1979 insurgency. For instance the Afghan mujahideen who fought the soviet invasion and also the uprisings against the British Raj were publicly supported by the people of the FATA and Afghanistan whereas the present wave of insurgency is perceived as negative by both the Afghan and Pakistani populace⁵. Further to this, it is self driven as compared to the previous

insurgencies as it is generating its own finances and recruitment is mostly conducted through its own jihadi media. According to a March 2010 Gallup Survey conducted in Afghanistan and Pakistan, the Taliban popularity remains at two and four percent in Pakistan and Afghanistan respectively⁶. Also the mujahideen movement of 1980s included all Afghans from various ethnicities where as the Taliban-led insurgency is mainly Phuktun based.

British development goals in the FATA were centred on security reasons rather than humanitarianism. These construction projects brought limited economic gains to the tribes and they remained peaceful for a long time. Since 1947, while the rest of Pakistan, including the KPK (Khyber Phuktunkhwa) aka North West Frontier Province, continued to witness political developments and reforms, FATA remained stagnated in old archaic system of governance there was continuity in the policy of the Pakistani state after 1947 with the pre-independence policy of the Raj. The only time when Pakistan started paying attention to the FATA since independence was after the creation of Bangladesh in 1971. It was mainly due to the potential threat of further breakdown of the country in case the border region is neglected. In order to control the situation, Rs. 4.4 million were allocated by the GoP as developmental budget for the six FATA agencies⁷ in 1971-1972⁸ which increased to staggering Rs. 300 million by 1977 excluding allocations by autonomous bodies such as Water and Power Development Authority (WAPDA) and others⁹. In addition to this, the Bhutto administration also facilitated the attainment of passports for the citizens of FATA so that the residents could travel abroad. The people of the FATA also travelled to other part of Pakistan for work.

1 ICG Asia Report No. 125. (2006)
 2 Baber, M and Recknagel, C. (2011)
 3 ICG Asia Report No. 125. (2006)
 4 Mason M, C and Johnson H, T (2008:76)
 5 Amin, Tahir (1984)

6 Julie Ray and Rajesh Srinivasan (2010)
 7 Which are equivalent of districts
 8 Global Security Website
 9 Ibid

Apart from increasing Islamism in the region, the early 1980's also saw an increase in remittances with the oil boom but they started to fall with the oil prices falling thus affecting the demand for labour in the Persian gulf¹⁰. The economic boost for the region was temporary and the business experience of returnees from the Persian Gulf was not utilised due to lack of infrastructure in the region. In addition, the eighties and nineties also saw the inflow of Afghan refugees offsetting the positive effects remittances have made in the region during the period of oil boom. Estimates of the number of refugees between 1980 and 2000 are estimated around 3.2 million people with the peak inflow in the 1980's¹¹. 87% of refugee households had at least one member who was a wage-earner, whether merchant, tailor, farmer, trucker, or drug-trader¹². The arrival of refugees further worsened the socio-economic situation of the ordinary people of the FATA who were seen as warm heartedly welcoming the Jihadi mullahs considering them as a hope of bringing change and justice when compared to the prevailing structure. This involvement of foreign militants continued with the further strengthening and thus solidifying the uprising taking place by the radical mullahs in the region over the tribal maliks. The FATA has been highly disadvantaged in receiving Federal government's attention and therefore has not received enough funds for its development programs since 1947. FATA received less than Rs 1 billion in funds (development budget) from the federal government since independence until 2001¹³ which was then increased to Rs 12.9 billion in 2008¹⁴. Despite the increase in the development budget, the per capita government funded development investment is only Rs.905 not even half of the national per capita government funded investment of Rs.2044¹⁵.

The people of the FATA are easily susceptible to such insurgencies because they hope for better socio-economic conditions and opportunities. In contrast to authors such as Mamdani (2002), Ahmed (2007), Kemp (2009) and others who focus on tribal structures, historical factors and religious ideology as primary factors in FATA conflict, my research focuses on how conflict has been directly exacerbated by

economic underdevelopment relative to the Pakistani state. Based on my interviews conducted this summer in FATA, Peshawar and Islamabad, there was a recurrence of statements highlighting the factors such as poor socio-economic conditions, lack of employment opportunities, prevailing system of Frontier Crimes Regulation (FCR) under which FATA is administered and lack of development assistance by the donors as major problems aggravating the FATA conflict.

In a statement made by a senior expert on FATA also hailing from the region and have worked in many different countries as an Ambassador said,

"The main problems of FATA are poverty, the isolation of the area, keeping it under the British Colonial System FCR which was imposed by the British in 1901 to pursue their own interest"

(Ayaz Wazir, 2012)

Similarly, another official working at the FATA secretariat highlighted;

"If you look at the Maslow's pyramid where the first or initial stage is the basic needs – probably FATA is still, after 65 years of independence, at the first block of Maslow's needs"

(Shakeel Qadir Khan, 2012)

Also mentioned by a tribal Malik :

"People are living in darkness still, here in settled areas we might experience couple hours of load shedding only but this is 21st century and those people have no electricity at all"

(Tribal Malik, 2012)

In another statement by a retired government official who also served as a secretary to FATA said,

"By providing social services and economic opportunities to the people of FATA will create a snowball effect thus bringing 50% of the required change. Many people in the tribal areas say that we hate this type of system but the problem is that we can't do anything about it"

(Brig.Mehmood Shah, 2012)

Similarly, another statement by a retired bureaucrat who extensively worked in FATA and Afghanistan as Political Agent and Ambassador stated;

"You will see change in the tribal areas, people will return back to tribal areas and they will begin to rehabilitate their own home when you give them electricity, you give them quality education and give them extensive

exploitation mineral programs and create economic activities for them. But create conditions, create infrastructure, reforming the structure would come later but now it is that the people getting killed every day and the whole area has been devastated with the military operation and by the activities of the militants themselves"

(Rustam Shah Mohmand, 2012)

A government official at FATA Secretariat highlighted the link between the lack of employment opportunities and conflict in case of FATA.

"We have to bring alternatives to these agencies in order to curtail militancy. If I don't earn then what will my dependants will do. So those people who go into militancy should have the option of sustainability and money – you have to save them from them"

(Junaid Khan, 2012)

Similarly a statement made by the President of International Human Rights Organisation also highlighted the same problem:

"In case of tribal areas, unemployment is 99% related to current situation of conflict in FATA. The educated people who don't have to hold a gun have left the place for better opportunities but those who couldn't had no other option as there are no solid educational institutes or employment opportunities. We don't have basic education facilities, basic human rights are missing, basic health facilities are not available. People are living in darkness still now, here in settled areas we might experience couple hours of load shedding only but this is 21st century and those people have no electricity at all"

(Habib Malik Orakzai, 2012)

In order to bring stability to FATA, initially GoP relied on military operations to resolve the conflict which is still ongoing. It draws attention to the fact that instead of bringing stability as normally perceived, it is actually aggravating the conflict given the worsening socio-economic conditions. As also highlighted by a government official,

"Army always head an operation but also always keep the civilian administration in the lead role, where as in the case of FATA when the local forces failed, the Army started operation on its own"

(Retired Government Officer, 2012)

Although lately the need to develop FATA was considered as an important strategy, in order to bring stability to the region, by both the Government of Pakistan (GoP) and International community, still the

amount of money injected in to this conflict region is minimal and thus criticised by most either working in the development sector or government sector in terms of scarcity of funds and conditions applied by the donors as highlighted by a government official at the FATA Secretariat:

"Scarcity of funds is the biggest problem. Also the aid coming is very restrictive and conditional and we are told all the time where we are allowed to spend it and where not. Being a project director I should have a leverage to change the modalities. I agree that you can't go out of larger frame but the conditionality restrict you a lot."

(Government Official, 2012)

CONCLUSION

The FATA conflict is complex but worsening socio-economic conditions are making the use of military as ineffective in resolving the conflict and bringing stability to the FATA. Previous studies conducted on FATA have failed to analyse the differences and inequalities that exists in the region and between the tribes. The ruling authorities are considered as incapable of providing justice as well as better opportunities. Hence strengthening the existing structure would not help in providing better socio-economic opportunities and living standards to the local people and would further accelerate the already existing violent conflict in the region.

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A SPECULATION ABOUT CHINA'S DEMOCRATIC LANDSCAPE IN 2030

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INTRODUCTION

When communism collapsed in Europe, Francis Fukuyama proclaimed that democracy had prevailed and that human history had ended (Fukuyama, 1989). His prediction was wrong. To date, China remains an authoritarian regime and a powerful changing force of the global order. Or is it only a matter of time? Just as Chinese Premier Wen Jiabao reasoned, China has to embrace democracy soon and make urgent political reforms to prevent an economic crisis and to distribute wealth more evenly. Otherwise, Wen feared that a historical tragedy like the Cultural Revolution could happen again (Smith, 2012).

Although China's top leaders call for democratic reform, they also assert that China will never adopt a western style of liberal democracy, which includes the separation of powers, free press, and extensive elections. Instead, the Chinese government conceive of a "socialist political democracy", in which the Communist Party of China leads the development of the system and an overwhelming majority of the people act as masters of state affairs (Information Office of the State Council of the People's Republic of China, 2005).

As such, China's progress towards democracy would be carried out at its own pace under strict government regulations. Would the current pace pick up incrementally, revolutionarily or would it slow down instead? What factors drive the democratic reform? And what possible scenarios will we face in the future?

This report is a speculative piece about China's democratic landscape in 2030. Ultimately, it argues that China's democratic progress is driven primarily by socioeconomic circumstances, somewhat by political considerations, and least by ideological motivations. Since the economic development in China has led to substantial changes in its social structure, the political representation of some social groups has run out of proportion with their economic might. The advantage of democracy is that it acts as an effective mechanism to achieve reconciliation among these interest groups. However, democratization will

most likely take place incrementally. This is because, although Chinese citizens might push for greater civic engagement and political participation, it is the Chinese government that fundamentally controls the development of democracy.

CURRENT SITUATIONS

China's economy has been expanding at a break-neck speed of 10% annually during Hu Jintao's 10-year presidency (Orlik, 2012). While this miraculous economic growth has raised the standards of living in general, it has also led to outstanding socioeconomic tensions. First, while the economic reform and open up policy has bred a rising middle class, it has also raised their awareness of their own rights and encouraged more strident articulation of discontent among them. Second, the multifaceted economic system launched by Deng Xiaoping has resulted in a disproportionate amount of wealth flowing to the coastal regions and a tidal wave of rural to urban migration. Third, the internationalization of the civil society through media and travel has cultivated a more open intellectual community. Last, the growing public outcry over corruption, pollution, cost of living and a whole range of social grievances is putting considerable pressure on the state to reform politically (Chu & Wong, 2010).

In fear of potential social upheavals, the state has already made attempts to become more accountable, transparent, and inclusive. It has made tentative steps towards democracy at the local governments level. For example, under the Organic Law of the Village Committees, all of China's approximately 1 million villages, home to around 600 million voters, hold elections every 3 years for local village committees. Shenzhen, China's coastal free enterprise zone at the forefront of China's economic revolution, could soon become a "special political zone" where direct elections for the chiefs will become a reality (Hill, 2011).

However, at the top of the political pyramid, changes have come much slower than at the bottom. In China, the only communist party-lead country

in the G20 grouping of major economies, decision-making power continue to be centralized within the 7-man Politburo Standing Committee and the 25-member Politburo (Lawrence & Martin, 2013).

The public has grown increasingly unsatisfied with the current pace of reform. As China transforms from an export-oriented economy to a consumer-driven one, its loss of economic dynamism to around 7-8% annually has already exacerbated public discontent among Chinese citizens (Economist, 2012). The inability to deal with other domestic problems effectively has also challenged the Communist Party of China's legitimacy. The prospect is devastating for the party as it has retained its authority mostly through the economic growth, the competent management, and the ability to quell destructive disorder (Ferguson, 2012). All are now on shaking grounds.

Neither is the international community pleased. Were democratic institution of restraint and reassurance in place, Japan and other neighbours would find it easier to settle conflicts with a regime whose observance of rule of law at home was matched by a commitment to international laws abroad. Beijing would also find itself better positioned to achieve its foreign policy goals, including integrating Taiwan into a "one country, two systems" model, reducing dissent in Tibet and Xinjiang, and convincing skeptical neighbours of its peaceful intentions (Twining, 2012). All these may sound too demanding for China at the current stage. However, in this era of globalization, the international community would expect China to catch up within decades what the western countries have experimented for hundreds of years.

DRIVING FACTORS

Multiple forces interplay to shape China's democratic reform. In this section, I have identified the two most influential driving factors: the emerging middle class and the transformative information technology.

The Emerging Middle Class

The rapid economic growth over the last three decades has bred an emerging middle class in China. Its members are characterised by their high and stable income, prestigious education, high-paying occupation (including professionals, managers and intellectuals) and leading consumer behaviour (be-

ing able to afford large houses, luxurious cars and expensive services) (Li, 2007). According to the 2011 City Blue Book released by the Chinese Academy of Social Sciences, a government think tank, 37% of China's urban resident population, or 230 million people, fell into this category (Economist, 2013).

Traditionally, the middle class is characterised as the "vanguard of consumption and rearguard of politics". This is because its members are primarily interested in economic wealth rather than political power. Since the launch of reform and opening up policy in 1978, the middle class has relied upon the state for its survival and prosperity. The state has even pushed for market transition towards a private economy at full speed since 1995. In essence, the state has guaranteed economic benefits to the middle class, which undermines its drive for political change (Zhou & Qin, 2010).

However, neither is the middle class a stalwart support of the state. Some scholars highlight its mercurial political inclination by portraying the middle class as "vacillating opportunists" who will "neither risk their vital interests to promote democratic changes nor refuse the benefits of democracy that a democratic system can bring to them" (Feng, 2010). Fundamentally, the middle class in China is neither pro-democratic nor against-democratic in nature. Its political preference is shaped by the socioeconomic conditions.

In fact, historical trends and political theories suggest that the middle class will probably challenge the authoritarian regime in China in the near future. According to Samuel Huntington, an influential political scientist, increasing economic and social developments tend to create a gap between the newly mobilized, educated, and economically empowered people and the existing political system. That is, there would be a growing disparity between the middle class's aspirations for political participation and the limited representation institutions are willing to give them. As such, revolutions against the existing political order tend to be led by rising middle classes who are frustrated by the lack of political opportunities (Huntington, 1968).

Indeed, evidence does suggest that the middle class is increasingly concerned about its socioeconomic circumstances and aware of its political prowess. According to a perception survey conducted by the Chinese Academy of Social Sciences, the middle

class tends to be more cynical about policy promises made by the authorities, more demanding about government policy implementation, and more sensitive with regards to corruption among officials (Li, 2010). They have also demonstrated their grievances through a growing number of protests. For example, the chemical plant protests in the prosperous Ningbo city reached an unruly crescendo when thousands of people marched through the streets (Wong, 2012). The fact that the city government finally gave in and agreed to halt the plant's expansion proves that the state is starting to make concessions to the grievances of the middle class.

Other than the desire to improve their socioeconomic circumstances, the middle class has grown increasingly discontented with the ruling authority due to their conflicts of interests. China is currently dominated by elite groups, such as government leaders, executives of large state-owned firms, and some influential economists. These powerful interest groups monopolize China's most lucrative business sectors. On the other hand, the middle class lacks economic resources and connections with powerful figures. Therefore, out of self-interest, members of the middle class will tend to support a democratic system in which their individual rights and private properties may be protected from potential encroachment by the elites, and the interests of the elites may possibly be redistributed to them (Li, 2010).

Furthermore, there is a growing anxiety that China's top leaders are considering establishing a mechanism to redistribute wealth from the middle class to the working class so as to rein in the economic disparity (Zhang, 2011). The potential changes to the pro-business policies, the cornerstone of middle class's support for the government all along, may undermine the group's commitment to the status quo in the future.

The Transformative Information Technology

According to China Internet Watch, the number of internet users in China has reached 457 million. Its number of broadband users has totalled 450 million. And 66% access internet through mobile phones (China Internet Statistics Whitepaper, 2012).

The widespread use of information technology would likely consolidate China's authoritarian rule

if the government is able to mobilize social support successfully. The government now desires to expose various forms of malfeasance, such as corruption and mine disasters in its effort to shift towards a more "people-centered" approach to governance (Xinhua News Agency, 2007). On the other hand, issues like religion, ethnicity and human rights are suppressed. In short, the information technology is expected to be an effective helping hand of the government.

Chinese leaders are also tempted to encourage nationalism online as a way of distracting the public from domestic woes (Economist, 2012). For example, China's preparations to hold the Olympic Games in 2008 fuelled patriotic sentiments. To some extent, it distracted the public attention from the Tibetan protests. China's neighbours are also fretful about the possibility that popular nationalism in China might goad the country's leaders to flex its muscles abroad, such as in the recent series of South China Sea disputes. China government's effective use of the information technology is facilitated by its sophisticated web-filtering technology. According to an OpenNet Initiative study, China's internet filtering regime is the most sophisticated effort of its kind in the world (Bambauer, Deibert, Palfrey Jr., Rohozinski, Villeneuve, & Zittrain, 2005). Besides, the authoritarian state plays a crucial role in charting the development of the internet and in conditioning the ways it is used by social, economic, and political actors. The very fact that the Chinese state acts as the designer of the internet development and the regulator of the content distributed online make it unlikely that non-state actors will exert sufficient political influence (Kalathil & Boas, 2003).

However, online information has started to form networks on a scale and with a speed that is beyond the control of the central government. For example, in July 2011, a high-speed train disaster near the city of Wenzhou caused a storm of criticism against the government on Sina Weibo, China's foremost microblogging platform that boasts of nearly 200 million users. The crash happened at 8:34 p.m., and by 2:00 a.m. the following day, there were already 500,000 microblog entries (Xiaoling & Gareth, 2012). What makes government's work of censorship even harder is that many people have learnt how to climb over the "Great Fire Wall" with special software. China's fast growing population of netizens have also grasped the skill of bypassing censorship by avoiding the use of taboo keywords.

For example, "being harmonized" now becomes the euphemism for being repressed (Liu & Chen, 2012).

Such transformations in the information technology has helped the less organized social groups overcome resources limitations and increased their chance of bringing about successful collective actions against the state. No wonder Premier Wen Jiabao commented during the National People's Congress in March 2006 that the government should listen extensively to views expressed on the internet (Ogden, 2011).

FUTURE SCENARIOS

In view of the current challenges and the key driving factors identified above, I have come up with three possible scenarios for China's democratic landscape in the next two decades, namely revolutionary democratization, political collapse and incremental democratization.

Revolutionary Democratization

If China's political system were to revolutionize, the most likely advocates would be the middle class. This is because China's most powerful ruling elites are least willing to let go of their centralized power, and the country's working class and other minority groups who anticipate democracy the most are currently powerless. Therefore, the rising middle class emerges as the most influential activists.

With the help of information technology, the middle class can push for more openness to express their opinions and greater participation in the decision making process. They can also request more freedom to check the state power and to make the Chinese government accountable to its people. As a result, the government will have to take into consideration public concerns and values into its decision making.

This rosy prospect is likely considering that the middle class will comprise a majority of the total population by around 2025 (McKinsey, 2006). However, the middle class might be powerful enough to start the revolution, but is it willing to do so? The answer is hardly definite. Bearing in mind that the new democratic landscape does not equate to the transfer of power from the state to the middle class. The middle class may be reluctant to empower the working class and other minority groups at the same time.

Unless they are utterly disappointed with the current situation, members of the middle class would be very cautious about breaking the coalition with the state.

Political Collapse

Instead of a popular uprising, a pessimistic view of the democratic landscape of China predicts significant social unrest and government corruption. When such social discontent and political failure have reached a critical point, a crisis will occur, especially in the financial realm where the loss of confidence can be deadly. The effects of this crisis may, in the extreme case, lead to a total collapse of the system. In a moderate version, the crisis could initiate a process of internal struggle within the party that may lead to fundamental changes in its policies. That may create a democratic opening as well (Pei, 2003).

However, a complete political collapse is unlikely to happen despite the pervasive fear of chaos. Although China saw 180,000 protests, riots, and mass demonstrations in 2010 alone -- on average about 500 per day, a closer examination reveals that the protesters tend to insist on declaring fealty to the Communist Party of China. This is mainly because most protesters view themselves as part of the system, not a challenge to it. Hence, popular movements generally seek to work within the system rather than to topple it. In fact, the release valve for popular anger could actually help strengthen the party by giving people a way to address that anger while maintaining a stable authoritarian rule (Fisher, 2012). Since the Chinese government has already taken serious investigations into these social upheavals and taken measures to solve the problems, the possibility of a whole-scale political collapse is very small.

Incremental Democratization

The most realistic prospect for China, and the one this report argues for, is the incremental democratization. The process of democratization cannot come too abruptly. Otherwise China may have to repeat the mistake the Soviet Union made two decades ago before its ruling communist party collapsed. It cannot afford to be too slow as well, facing both the international pressure and the urgency of the domestic problems. Therefore, the success of democratization relies heavily on the competency of the top leaders and the civic engagement of the public. Both forces need to co-

operate and strike the fine balance China must tread.

However, the problem with incremental democratization is that constant frictions and conflicts will arise among the different interest groups. Take the inner-party conflicts for example. Although China is a one-party state, members of the ruling party are not a monolithic group with the same values, outlooks, and policy preferences. Instead, the Chinese leadership today is structured by the checks and balances between two major factions -- the "elitists" and the "populists". Elitists represent the interests of the coastal region, including entrepreneurs, the middle class, and the foreign-educated Chinese nationals. The populists, on the other hand, often voice the concerns of the inland region, and represent the interests of farmers, migrant workers, and the urban poor. The dynamic of this inner-party democracy will push the political reform in China forward. However, in the incremental form of democratization, it is inevitable that two camps will face constant frictions and conflicts, and might achieve too little at a time (Liu & Chen, 2012).

CONCLUSION

According to the recent Asian Barometer survey, a very large majority of Chinese feel that their lives have gotten better economically in recent years. A majority of Chinese also believe that democracy is the best form of government, but in a curious twist, they think that China is already democratic and profess to be satisfied with this state of affairs (Chu, 2008). The implication of this survey is that China is never an ideological country. The Chinese people will not fight for democracy as an ideology per se. The socioeconomic circumstances and the political influence are at work to shape the future of the country. In the Chinese mindset, whatever form of political system ultimately serves to better the quality of life. As such, as long as the Chinese government can provide visionary leadership, sustainable economy and capability to address major problems, Chinese citizens will be pleased with an incremental form of democratization.

A final note on this view is that we must be cautious of what the Chinese themselves call the "bad emperor" problem. China's historical achievements over the centuries have been the creation of a high-quality centralized bureaucratic government. When

authoritarian rulers are competent and reasonably responsible, things can go very well. Indeed, such decision-making is often more efficient than in a democracy. But there is no guarantee that the system will always produce good rulers, and in the absence of the rule of law and electoral checks on executive power, there is no way to get rid of a bad emperor (Fukuyama, 2011). We have no idea what the next generation of Chinese leaders have in mind, thus we cannot be certain about China's democratic landscape in the next two decades.

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THE EUROPIAN UNION: A REALIST ACTOR?

The case of the European Neighbourhood Policy

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The European Neighbourhood Policy (ENP) has been the object of diverse scholarship since its inception in 2004. Given its range across sixteen of the closest neighbours to the European Union (EU), its multidimensionality, as well as dispersed EU policy-making structures, it is difficult to analyse or account for the ENP as a whole. Nevertheless, the increasing visibility of the EU as a global and regional actor in its own right renders an overarching debate over the ENP both pertinent and timely. Given the contention over the nature of the EU's 'actorness', an application of conceptual tools from international relations (IR) requires considerable adaptability. In this context it is pertinent to be cautious of parsimony, whereby an empirical base of causality and strategic actors must be coupled with considerations of spillover effects and path dependency. Realism can arguably offer the most conducive conceptual framework to this end, producing useful explanatory outcomes debates in what is an emergent field of scholarship. Accordingly, applying realism to the EU raises questions over some of the fundamental premises of realist IR theory. In order to examine this broader issue in relation to the ENP, the paper will commence by outlining terms of analysis and focus. Indicators of a strategic pursuit of EU interests will then be collated in terms of ENP policy instruments. Upon this basis, the paper will move on to examine the relevance of two key aspects of realism: geopolitical regionalism and normative hegemon identity. Finally, a technical and conceptual gap will be identified that explains strategic action on behalf of actors within the framework of the ENP, shedding light on the utility of a realist lens.

The ENP is neither 'conceptually complete nor operationally stable' (Lippert in Manners 2012) creating difficulty in selecting relevant countries, region, policy area, or political level to be subjected to examination. In other words, it is difficult to draw conclusions from the EU's 'cognitive process' in developing its external role (Marchetti 2006). This fluidity is sharpened by the ENP's being a 'composite

policy [...] at the crossroads of the foreign, security, development, enlargement, and trade policies of the EU' (Lippert 2007). Multidimensionality and incoherence require both prudence in the application of theory and selective examination of empirical indicators. This paper will hence argue in terms of causal (as opposed to constitutive) explanations of both exercise of normative power and evidence of a strategic pursuit of interest, which together characterise the ENP (Gebhard 2012). Given widespread reluctance to marry the EU with IR realism, much of its validity can be identified less in 'traditional' power politics (cf. Rynning 2011), rather than in its ancient premise of rational calculation and self-interest. Conclusions will primarily be drawn from scholarship on the Eastern neighbourhood as a crucible of the multitude of interests and problems shaping the ENP at present.

The pursuit of 'selfish' interests in the international sphere is a key behavioural characteristic of a realist actor of IR. With regard to the ENP, a number of indicators can be identified that clearly demonstrate the EU to pursue specific interests as a de facto unitary actor, which are integral to its security and prosperity. While a 'grand strategy' may as yet be absent, especially trade policy is an area of comparative coherence in this regard. To begin with, the EU as an economic actor is very much more 'traditional' in its global behaviour than in political or military terms. This is particularly clear from the empirical and normative perspective of ENP countries (Biscop 2012). The image of the EU is often determined more by the detrimental effects of EU protectionism and the new borders created (i.e. in Eastern Europe), outweighing the positive effects of ENP development or governance projects (ibid.). In addition, the ENP is a unilateral policy framework composed of bilateral agreements varying in comprehensiveness, forming what Smith calls 'the pyramid of privilege' (2004, 294). Bilateralism empowers the EU by strengthening its negotiating position vis à vis the respective neighbour. Browning and Joenniemi venture to call this asymmetry of power 'EU Realpolitik' (2008, 534).

This is reflected in the ability to set non-negotiable prerequisites like WTO membership or standards in competition policy or public procurement (cf. Raik 2012; Lippert 2007). The ability to in effect dictate trade agreements is enabled through legal intricacy and hence lack of interpretative discretion, allowing economic 'micro-protectionism' and stringency over cross-border security (Lippert 2007). The conditionality the EU can impose through market access also underlines the protectionist underside of FTAs. Regular country reports, furthermore, are a central component of 'reputational' pressure the EU can exert (Gebhard 2012). These not only set conceptual and budgetary priorities for ENP relationships, but also serve as an indication to the private sector¹, whereby the EU can exert pressure through 'shaming tools' (ibid.). Within the –prioritised– trade component of the ENP, the EU can thus not only pursue strategic economic interests, but effect considerable policy change within neighbouring countries in order to create a 'friendly' security and regulatory environment around itself.

Realism has hitherto played an at best secondary role in explaining EU foreign policy, being overshadowed by adaptations of liberal and constructivist ideas to define the EU's geopolitical identity. Nevertheless, in a regional context strategic EU engagement with its neighbourhood through the ENP can be argued to follow 'a very concise geopolitical logic' (Marchetti 2006, 16). This is often conceptually framed in an adaptation of Wallerstein's 'core-periphery' model (2004). The ENP becomes the mechanism whereby the core creates a relationship of asymmetric economic interdependence with the semi-periphery (Tonra 2012; Marchetti 2006). Marchetti's argument of the ENP's pursuing a two-fold aim of exerting influence over the region and preventative action against security threats frames the ENP as the core of a strategic EU foreign policy (2006). The implied behaviour of the EU as a regional power contrasts starkly to both liberal theory and political rhetoric that tends to strike a more altruistic note. Indeed, Missiroli argues that '[this] policy approach –stabilisation as a goal, regionality as a means– is typical of the security policy of any regional power.' (2004, 12). In addition, Biscop strikingly points to the affinity between the ENP and the European Se-

¹ The impact of country reports can be considerable, being widely publicised data used by investment consultants, political risk analysts, or rating agencies. These are likely to view deeper trade relations and policy convergence with the EU as a favourable indicator

curity Strategy (ESS), being formulated within a year of each other, and sharing emphasis on issues such as border control, organised crime, terrorism, and immigration (Biscop 2012). This may be compared with Wolfers' analysis of 'milieu shaping' as a foreign policy objective that is founded upon rational geo-strategic calculation such as it has existed since Thucydides (1962). The ENP hence translates 'the holistic approach of foreign policy advocated by the ESS into a concrete policy framework for relations with the Union's periphery.' (Biscop 2012, 73). In short, the role of the EU as a regional power is largely achieved through the ENP, whereby conceptual tools within the wider scope of realism gain relevance.

As outlined above, a key component of realism in IR is the exercise of power over a strategic geopolitical neighbourhood or region. This merits an examination of the extent to which the EU has become a normative regional hegemon, taking into account the difficulty of distinguishing socialisation from conditionality (Sasse 2012). The ability of the EU to project its norms beyond its borders as a normative hegemon coincides closely with Gramscian conceptions of power through preference shaping. This is in part a result of the transfer of policy instruments, institutions, and even personnel from Enlargement to Neighbourhood policies (Gebhard 2012). Enlargement thus permeates through to norms, giving the EU the power to shape the short-term 'desires', or even long-term trajectory of neighbours, despite the disappearance of the 'accession carrot' (cf. Schimelfennig and Sedelmeier 2005). In addition, Leino and Petrov argue that the abstraction of norms and values –by being both universally and specifically applied to neighbours– reveals the hegemonic undertone of 'common values' (2009, 671). Alternatively, the ability to project norms strategically can also be modelled as the ability of central EU governance to radiate beyond its borders (Browning and Joenniemi 2008; cf. Wæver 1997; Manners 2012). Dipping into constitutive theory, the Union's own experience as a constitutive process of normative convergence can determine the nature of its foreign policy in general, but neighbourhood policy in particular (Haukkala 2008; Tonra 2012). In short, the EU's trade and financial support 'carrots' are sustained and even legitimised as a result of the EU's ability to export its values and norms to ENP countries. This is particularly evident in the Eastern neighbourhood, where ideational clashes between Russia and the EU have to a large

extent defined political and macroeconomic policy shifts. The EU within the wider region of ENP countries can thus 'be envisaged as a regional normative hegemon that is using its economic and normative clout to build a set of highly asymmetrical bilateral relationships that help facilitate an active transference of its norms and values.' (Haukkala 2008, 1602).

Applying realism to the EU as a behavioural theory is difficult and in many ways inconclusive, given the fact that its very existence challenges conceptions of state competition and a 'billiard ball' world order. In an argument for a causal analysis of strategic actors, Carmen Gebhard makes a strong case for historical institutionalist analysis of the ENP (2012). Leading on from this, a technical and conceptual gap may be observed that accounts for some of the criticisms directed at the ENP for supposed inconsistency, as well as providing a framework for specific policy outcomes. As outlined above, there is a significant technical gap within the ENP as a 'composite policy' (Lippert 2007, 180). This limits the scope for structural innovation within the ENP and allows for interests represented within policymaking to be transferred to external relations. Conceptually, the nexus between 'partnership-type' and 'governance-type' relationships (Korosteleva 2012), or more broadly between multilateralism and bilateralism (Rakutiene 2009), reveals a fallback on behalf of the EU to the habits of previous policies now under the ENP umbrella, as well as to their nature as based upon a geopolitically realist export of the EU model to the wider region. An example is the explicit reference to the Copenhagen Criteria as an overspill from enlargement (Gebhard 2012). Given the inconclusiveness of attempts to define the EU as a regional or global actor (constitutive theory), the ENP may be analysed best if viewed as resulting from strategic institutional and other interests aggregated in the policymaking processes and policy designs of ENP components. An example may be observed within the oscillation of Eastern European countries between EU and Russian influence, and an unwillingness on behalf of especially Germany and France to risk relations with Russia over smaller neighbours (Lippert 2007). Re-considering Browning and Joenniemi's models of cross-border geopolitical interaction, the ENP can thus be viewed as a composite policy framework allowing the EU to behave strategically in view of lacking overall coherence or identity. On the one hand, this reveals the adaptability required of realism in an ENP context as well

as the significance of constitutive theory in helping to define a 'grand strategy'. On the other hand, causal theory and an appreciation of the EU's strategic aims and interests, makes use of the conceptual tools offered by realism upon an empirical basis, permitting insightful analysis of policy outcomes.

As demonstrated above, realism admittedly does not lend itself automatically to explaining the ENP. This is in part due to its origin as a theory of IR. Nevertheless, translating realism's key behavioural pillars into a conceptual framework can reveal a great deal about the EU's emerging role as an 'actor' or 'player' in a changing world order. In terms of strategic bilateralism and exercise of Gramscian normative power, the EU and its constitutive actors are revealed as very much concerned with security and power, reflecting both Hobbesian behavioural qualities as well as responsiveness to Waltzian structural imperatives. This perhaps challenges the perceived incompatibility between realism and 'non-traditional' strategic foreign policy tools today, an aspect much neoclassical realist scholarship is aiming to address. Constitutive theory, or in broader IR terms, constructivism, is highly relevant in identifying the underlying dynamics of the EU's external role. Nevertheless, to finish on a critical note, constitutive theory fails in translating the ENP into a policy historically and institutionally defined by concrete –if dispersed– interests and aims. These remain the terms of ever-relevant conceptions of international relations, especially in light of the dynamics created by an integrating global economy.

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HOW DID THE KEY THE CHINESE FISCAL REFORM AND THE CADRE EVALUATION SYSTEM AFFECT THE CENTRAL-LOCAL GOVERNMENT RELATIONS IN THE REFORM ERA (POST-1979)?

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By looking at official data of the World Bank regarding the growth of China's economy, the start of an extreme increase can be noted after 1979 and the mid 1980s. The drastic policy changes introduced by Deng Xiaoping, including the fiscal decentralisation of state authority, were inevitable for economic success and gave room for local leaders to energise the economy and attract foreign investment. This essay is first going to analyse the key features of the fiscal reform, why it was needed and how decentralisation was achieved. Secondly, we are going to describe the cadre evaluation system that organises the appointment of party members and their career opportunities. The main part of the essay is going to focus on the analysis of how such changes have affected the central-local government relations post 1979 and what type of regime has emerged. This essay examines how both fiscal reform and the cadre evaluation system have had great impacts upon the relationship of centre and local governments in China. The changes characterise the country's system and give it a unique form with federal elements in the fiscal sector. Monetary autonomy and the appointment system thereby work as push and pull forces in opposite directions regarding a federalist construct and regional autonomy. While both steps of the fiscal reform in the 1980s and 1994 have contributed to greater autonomy of China's regions the cadre evaluation system ensures national unity through centralist control over the rural appointees in the provinces. Through such control not only personnel but also active decision-making can be influenced.

According to the Chinese constitution from 1982, "the People's Republic of China is a unitary multinational state built up jointly by the people of all its nationalities" (Constitution of the Peoples republic of China: Preamble). The changes that were made in the post 1979 reform era regarding taxation rights greatly changed the dynamics and developed the nation away from a purely centralist construct. Ac-

ording to Saich, pre-reform China was a highly centralised taxation system that emerged at the end of the Mao years. It carried four distinctive characteristics. First, the revenues were centrally collected leaving Extra-Budgetary Funds (EBF) as an important income for local leaders. Arguably this highly contributed to corruption and mistrust. Secondly, in order to achieve Mao's will of rapid industrialisation, the revenue system was industry-centred which gave agriculture only a marginal role in budgetary revenues and ostracised much of the peasantry. Thirdly, the taxation system was simple with only a few charges and lastly, the system was highly redistributive. The strongest provinces were thereby heavily burdened through equalisation payments leaving fiscally weaker provinces like Guizhou without a negative incentive to produce own incomes in order to overcome budget deficits.

The beginning period of fiscal reform marked not only deep changes in political policy but also an ideological turnaround away from a purely centralist planned economy towards a capitalist system. Decentralisation in 1979 of the taxation system thereby marks an important milestone and had impacts upon the centre-local relationship. One of the main challenges of the old system was the unstable income that was assigned to the provinces through the fore mentioned redistribution. In order to achieve "more stable sources of revenues and to devolve more decision-making powers to local governments" (Kai-yuen, 2004: 73) fiscal reform was needed. One of the main features of the fiscal reform in the 1980s was the fiscal contracting system, which allowed local governments to keep a portion of the tax revenue that was locally collected. Such policies should have led to "more discretion over the disposition of local fiscal revenues though they were supposed to face a hard budget constraint and live within their means" (Kai-yuen, 2004: 73). The second feature was a shift towards a "freer rein given to local governments in

tapping off-budget resources" (Kai-yuen, 2004: 73). Alongside the unitary budget support assigned to by the central government the local budget consisted of extra-budgetary funds (EBF) usually collected in the form of fees and fines, and general taxation of companies. The fiscal decentralisation provided incentive for further industrialisation and thereby raised general tax revenue in many provinces. In comparison to the previous model, the provinces were more responsible in generating own profits but due to less adjustment payments also could not spend more than they had accumulated. The reform shifted the local-central relations towards a greater fiscal autonomy of the local and brought greater responsibilities for example the provision of goods and services to the provinces. The possibility to pursue economic activities individually created huge incentives and greatly contributed to China's economic growth.

On the contrary, higher individuality for provinces also led to local isolation and protectionism because "the imperfect policing of the common market allows local governments to insulate themselves from competition by erecting trade barriers" (Montinola, et al, 1996: 66). Such barriers, which usually protect nations from foreign forces from economic abuse, created detrimental effects on the Chinese domestic market. The reform has therefore unleashed an obstructive fight between the regions in order to achieve the highest growth rates and many provinces still trade more internationally than they do with each other (Saich, 2001). This logic can only be fully understood if the cadre evaluation system is taken into account, as will be addressed in detail below. However, the policies of the central regime induced the provinces to such installations, hindering economic prosperity of the domestic market and inter regional relations. The general decentralisation and fiscal quasi-federalism exacerbated regional inequality. Since some provinces have economic, geopolitical or strategic advantages and are more attractive for foreign investors, the reform period has made many rich but also brought immense burdens to lesser attractive areas. Such financial inequality further results in unequal goods and services throughout the nation. The resulting conflict over unequal standards also creates a notion of unfairness in the relationship between the centre and the provinces. After the reform the centre-local relations changed as the provinces not only had to report to the higher authorities but also found themselves in competition with their neighbours.

Although the initial fiscal reform from 1979 brought about the first overall economic success, the various contracting methods were unjust and mainly resulted in fiscal inequality between the provinces. Another reason for further reform is that such inequality was balanced by sometimes arbitrarily collected extra-budgetary revenue through fines and fees. The amount it reached in the early 1990s was about the same level as budgetary revenue (Montinola et al, 1995) causing great local anger and social unrest. The second major reform in 1994 described fiscal recentralisation and "replaced the old [...] contracting system with the new tax assignment system" (Whiting, 2004: 115). The new system allocated the collected tax revenue either entirely to the centre or to the local, only the Value-Added-Tax (VAT) as single exception which a shared amount between centre and province in a 75 to 25 percent relation. Tax revenues were distributed to the specific needs and tasks of central and local governments. According to Montinola, Oian and Weingeist (1995), the development can be described as federalism Chinese Style, which gives the central government enough fiscal revenue to provide the country's framework. This includes national defence, international relations and economic prosperity and the provinces have freedom to autonomously control policy and economic outcome, "as a result of this taxation reform, 65 percent of state expenditure now comes from local governments" (Li, 2006: 7). which allows influence over the provinces and their jurisdictions.

Despite the reform, China still struggles with high provincial competition. It encourages growth but fails to address the widening regional disparities as, "the economic status of China's provinces differs enormously from one to the next" (Li, 2006:7). Although the strategy of 'voting with ones feet' provides possible exit for peasants and foreign investors, it is seldom successful for the former. To hold local governments accountable for collecting arbitrary extra budgetary funds, the opportunities for migrating peasants are majorly impaired by economic constraints and the current hukou system of interstate residence permits. Without obtaining a new hukou, administered by local bureaucracies, the exit strategy cannot be realised further constraining fair competition between provinces. Local peasants can be forced to remain in the province to contribute to the labour force. Such limitation for farmers on free movement within China illustrates the power local authorities

hold over their citizens. Although fiscal decentralisation and the above mentioned reforms have given a greater share of responsibility and fiscal independence to provinces, any form of such freedom can be realised if the central regime allows so through its vertical control mechanism of cadre evaluation alongside the target responsibility system.

The cadre management system of the Chinese communist party describes a systematic career evaluation programme with predetermined goals for local officials based on the target responsibility system (TRS). The latter focuses on goals that are ranked by their importance for the country's development in 'veto power targets', 'hard targets' and 'soft targets'. Population control and social stability are thereby the most highly ranked criteria and whose fulfilment is crucial. Fiscal revenue and industrial production are key targets that have to be realised in order to be considered for promotion. Environmental and educational achievements are centrally considered as less important. Successful achievement of the targets by the local officials over an extended period of time result in promotion, negative results or the failure of meeting veto power targets in demotion. Such targets and the responsibility to evaluate the cadres used to be centrally governed by the highest authority in Beijing. Hereby it is often overlooked that judging local officials solely on their outcomes is not the most efficient and precise measurement of success. One official may meet a hard-target, like collecting fiscal revenue, through loans and therefore simultaneously accumulate higher debt. Whereas others have done so without borrowing money. Such overlapping evaluation is not covered by the TRS. One problem therefore lies in the corporate governance structure, however reframing it is certainly easier said than done. Since the accountability system is an intrinsic feature of China's political institutional design. It originated during the Maoist era to enable Communist Party institutions at all administrative levels to exert control over local bureaucracies and economies (Lieberthal, 2004: 186).

Such fiscal unsustainability amounts to an extreme burden on local expenditure (Fock and Wong, 2007). This aggravates the existing social problems of public healthcare, housing and guaranteed education for children. Although responsibilities were rearranged to the provincial and county level throughout the reform period so that "the system is now one of

one-level downward" (Saich, 2001: 146), the cadre management system guarantees the centre great control over lower level governments through career incentives and replacement. "The target responsibility system [is] a concrete manifestation of central control" (Kai-yuen, 2004 :72). Its force thereby works in the opposite direction from the fiscal decentralisation, which gives some autonomy to local provinces. In regards to centre-local relations the TRS balances the notion of federalism in China and heavily constrains local powers. If it is argued that the fiscal autonomy held by the provinces gives enough freedom to exercise without authoritarian influence, it is overlooked as even without touching the local revenues, the centre directly influences the local expenses through targets that are set from above. "The autonomy-reducing effects of unfunded mandates and legislated expenditures cannot be more obvious" (Kai-yuen, 2004: 86). Despite fiscal federalism, the targets are set out from above which results in a higher influence from the centrist government.

Lower level officials are required to sign an employment contract towards the tasks and quotas that have to be met. Since the ranking system focuses on the individual achievements of cadres and does not judge the specific unit's development as an entity, cadres are often motivated to push policies that are solely interested in meeting official targets and not in the welfare of the people. The rigorous subordination of environmental, educational, human rights and equality goals in the TRS are widely considered as an unsustainable ranking. Having social development of the citizens' lives continuously subordinated to economic growth and political stability is often criticised as leading to social unrest, itself considered a veto-target. The contradiction in fulfilment of targets thereby exacerbates this dilemma. Since soft-targets are currently the main reason for social unrest in the provinces, the ranking system often creates its own problems. This top-down approach influences the centre-local relations heavily. Although China can fiscally be referred to as a 'federal nation', the Nomenklatura system of party officials keeps political power in the centre.

This essay has argued that the reform introduced in modern Chinese history and the cadre appointee system is working in opposite directions regarding regional independence. The emerging Chinese form of federalism is unlike the western interpretation,

which constitutionally divides sovereignty among its constituent parts and protects individual rights with strong constitutional foundations through democratic and political freedom (Montinola, et al, 1996). After reform, the Chinese administration came closer to the federal challenge of creating a stable equilibrium between central unity and regional autonomy (Li, 2006). Although the constitution describes China as a unitary nation, fiscally speaking, the emerging state after the reform period did not resemble a purely unitary republic. As outlined above the contracting system between the levels of government led "China [to be] a de facto federalist state with local governments enjoying a high degree of fiscal autonomy" (Kai-yuen, et al 2004: 74). Consequently, it can be argued that autonomy on a financial level may conditionally exist. However, taking the tough handling of the central regime through target setting into account it becomes clear that regional autonomy is virtually non-existent. At the same time, the target responsibility system lacks a cross evaluation of overall efficiency towards meeting the targets which results in promoting not the most efficient local leaders, but those who follow the central criteria. The detailed targets that outline the recommended activities for the provinces are usually followed since the individual party officials are interested in personal promotion. Since such targets may not correspond with the actual demand of the people social unrest is inevitable. The strength of the centre-local relationship is therefore very biased to the former. The central authority in Beijing used the fiscal decentralisation to create a carefully protected field of political power for the provinces, which remains indirectly but heavily dictated by the centre. Reforming the evaluation system will be easier said than done since the target responsibility system is a substantial feature of China's institutional design.

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IN THE LIGHT OF RUSSIA'S PRESIDENCY AT THE G20, WHAT ARE THE CHALLENGES TO SUSTAINABLE DEVELOPMENT?

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Environmentally sustainable development is challenged by states' domestic economic structures that in turn hinder smooth international cooperation and trade in the said field. Sustainable development entails global integration since the issues that it addresses cannot be segregated in terms of industry sectors, generations and borders (Bayley, 2008: 24). Moreover the essence of sustainable development is ensuring that states' economic growth and progress is not reached at the expense of human environment and natural resources (Bayley, 2008: 25). Therefore, in the 21st century sustainable development is more than just a desirable strategy, it is imperative for the future of all states around the world. Furthermore, energy is one of the most prominent areas of sustainable development as it encapsulates not only the increase of production and use of renewable energy, but also improvement of diplomatic and trade ties between nation states in this field. Nevertheless, pursuit of sustainable development path especially in the energy sector both on domestic and international levels is faced with a variety of difficulties. In the light of Russia's presidency at the G20, this paper argues that challenges to domestic sustainable development in any state stems directly from the economic structure of that state or union of states. In result, different types of economies create divergent challenges to the attainment of sustainable development within a state and also beyond its borders. Consequently, different levels of development among states in the same region poses one of the greatest challenges to advancement of international cooperation in the sustainable energy sector as well as renewable energy trade. The EU, Russia and the relations between the two parties offer an excellent case study whilst evaluating strengths and limitations to the development of sustainable energy domestically and globally as well as advancement of its international trade. Henceforth they will be used as means of explaining the main arguments of this paper.

Although the EU represents one of the most active global players in advocating environmental policies and sustainable development (Carpenter, 2012, 168) it has several barriers to the production and utilization of renewable energy domestically. In order to comprehend these limitations it is important to have a brief overview of the EU's economic environment over the past decade. In general, ever since the introduction of the Euro, prices in the EU countries have drastically increased without a correlating increase in wages (Connolly, 2002). This caused the already high standards and costs of living and consequently costs of production increase even more. Furthermore, the economic environment for new and old businesses within the EU has deteriorated with the hit of the 2008 Financial Crisis. However even though, all said events made it difficult for the EU to maintain its ambitious stands on environment, in 2009 the European Commission (EC) introduced new policy regarding the consumption of renewable energy, Directive 2009/28/EC (Boute, 2012: 618). This policy requires all member states to meet individual targets of energy consumption from renewable sources that together will make up 20 percent of the EU's total recyclable energy consumption. Nevertheless, in the context of EU's current economic environment the production of sustainable energy resources is rather costly for the EU member states. Despite the fact that construction of renewable energy plants foster innovation, benefit the environment, create jobs and help meeting targets set by the Directive 2009/28/EC, numerous EU members lack the financial capacity to invest into these projects as well as face domestic social issues such as noise pollution and others. Therefore, one of the solutions that are proposed by scholars such as Anatole Boute and Patrick Willems is to seek joint projects with third parties namely Russia (Boute, 2012: 618). The North-West region of Russia has the capacity of being an effective and financially successful base for wind, biomass and hydropower energy plants (Boute, 2012: 620). However in spite of the geographic proximity and large renewable energy potential, this proposal is rather complicated to realize due to Russia's economic

development and the EU-Russia trade relations that are discussed later in this paper.

Russia is a state that generally is considered to be developing and with a relatively under industrialized economy (Karghiev, 2005: 16). Russia's renewable energy potential is faced with numerous obstacles that stem from the level of its economic development. Russia's legacy of the USSR planned economic system represents one of the main challenges to innovation and commercialization of sustainable development (Martinot, 1999: 50). This is due to the fact that historically the USSR did not consider renewable energy as a priority (Martinot, 1999: 51) hence today this sector of Russia's economy requires heavy investment in order to be competitive on the internal and international energy markets. Furthermore, although Russia's scientific and technical knowledge is of high standard, the capabilities to install, operate and maintain renewable energy technologies in Russia require imports of certain composite materials and improvement of the quality of production. Consequently, this adds to the cost of the initial project. Moreover, Russia's president in his 2009 speech at the Federal Assembly confirmed the persistent 'humiliating dependence on raw materials' (Sorokin, 2011: 32). Indeed Russia's federal budget revenue predictions for 2010-2012 gave oil and gas 43 to 46 percent from country's total revenue (Sorokin, 2011: 32). Furthermore, this reliance on fossil fuels relates to Russia's power sector, as it is highly dependent on non-renewable energy due to insufficient infrastructure and subsidized prices for gas and coal (Karghiev, 2005: 16). Apart from these characteristics of Russia's economy, when thinking of renewable energy partnership between the EU and Russia one has to bear in mind another potential obstacle, Russia's own targets for renewable energy. After looking at a variety of internal issues in Russia in sustainable energy sector one may claim that before cooperating with the EU in this field, firstly Russia will attempt to fulfill targets of its own. In spite of said cynical prediction, the idea proposed by Boute and Willems suggests that the project will have joint benefits and may compel Russia into cooperating with the EU. For instance, one of the benefits of mutual financing is a decrease in cost burden for both parties. Furthermore, technological exchange facilitates Russia's renewable energy industry. Finally, and most importantly energy created by the power plants in Russia are to be consumed by the EU and Russia thus assisting

the fulfillment of sustainable energy targets for both. However, in spite of beneficial prospect of the EU-Russia cooperation in the production of sustainable energy one has to acknowledge a number of known frictions in the EU-Russia relationship.

Today, the EU-Russia relations are not defined by overt military interest. Nevertheless, due to their geographic proximity, the experience of Cold War and continuing disputes in energy dialogues, one may argue that Russia and the EU's principal interests are marked by 'soft' and 'hard' regional security. Moreover, there are several difficulties in the EU-Russia relations that stem from underlying cultural and structural differences. Since energy is often considered to be an area of crucial state interest, when thinking of renewable energy trade one has to bear in mind how states' cultures and the political systems affect foreign policy arrangements (Rose, 1998: 166). In the case of the EU and Russia, longstanding ideational differences between them, to an extent, power the ambivalence in their relationship (Alison, 2006: 166). For instance, Hiski Haukkala sees that the EU's attempt to impose its norms and values on Russia pushed Russia to opt out from European Neighborhood Policy (ENP) thus bringing up Russia's concerns about its power in the region and sovereignty (Haukkala, 2009: 42). Moreover, due to their 'segregated' development, Russia and the EU extensively differ in domestic political and economic structures as well as the use of international frameworks. For instance, the EU finds it difficult to conduct 'fair' energy trade negotiations with Russia as the latter pursues domestic policy of acquisition of energy companies (Light, 2008: 16). Therefore, throughout energy negotiations Russia, due to its' state owned enterprises, is able to maintain a united front whereas Europe is left at the mercy of its various competing private companies (Hanson, 2009: 46). Furthermore, Russians do not fully comprehend how the EU bureaucracy works (Lukin, 2005: 58). This trend is evident even in the rhetoric of the president of Russia, as he does not understand 'what is taking the EU so long to resolve the visa dispute' (Ria, 2012). The EU bureaucracy's dependence on numerous national and supranational interests makes fast policy cohesion rather hard to attain. Moreover, accession of Post-Socialist states into the EU also contributes to this problem (Legvold, 2012: 431). Poland's veto on the upcoming EU-Russia cooperation talks in 2006 shows how individual member states are able to 'upload' their in-

terest and even impinge upon the interest of the EU. When referring back to the Directive 2009/28/EC one is able to see the potential issues for the cooperation on the project. The Directive requires strong institutionalization of the renewable energy projects thus calling for existing certifications reforms as well as creation of joint EU-Russia committees that will overlook the operation of the plants (Baute, 2012: 622). These bureaucratic requirements and already existing issues in the EU-Russia dialogue spill over into the conflict of multilateral and bilateral ties in the EU-Russia relations.

There are numerous frictions in the EU-Russia energy bargains due to the fusion of business sector with the government in Russia and the significance of energy sector as national interest. In Russia, after the collapse of the USSR energy security gained the status of the most important element national security strategy (Freire, 2012: 254). This explains the government's monopoly over the energy sector as well as refusal to participate in the EU multilateral agreements that may infringe upon this monopoly (Light, 2008: 19). The EU member states, such as Germany, recognize the importance of achieving concord in negotiations and thus often allow the use of bilateral over multilateral ties as in the case of Nord Stream pipeline (Light, 2008: 25). Furthermore, Andrew Moravcsik in his liberal intergovernmentalist theory argues that wealthier EU members such as Germany have greater influence over EU policies, since they have greater bargaining power or space. Moreover, Europe's willingness to comply with Russia's terms may indicate improvement of Russia's position in the region and its capabilities to outweigh those of the EU. With the recovery of Russian economy, Russia became more assertive in pursuing and even dictating its foreign policy goals such as refusal to ratify Energy Charter Treaty in late 2000s (Light, 2008: 18).

Although energy trade relationship between the EU and Russia has been labeled as 'interdependent', in reality there is an asymmetry in Russia's favor (Hanson, 2009: 46). For instance, development of Russia's energy partnerships in the East could be viewed as its alternative to Western integration (Legvold, 2007: 433). One may view the development of East Siberia-Pacific Ocean pipeline as diversification of Russia's economic ties and improvement of its strategic positioning in international relations as means to escape reliance on the European Mar-

ket and the turbulences that it is subjected to namely 2008 Financial Crisis (Freire, 2012: 255); thus moving from 'energy safety' policy to that of 'energy security'. On the one hand this kind of logic contributes to Russia's sustainable development, whilst on the other hand this very same logic impedes upon the future of sustainable energy cooperation between the EU and Russia. Therefore, diversification of the EU-Russia energy ties in terms of cooperating in renewable energy sector is not only a solution for domestic sustainable energy targets, but also an example of ambitious international partnership in the field of sustainable development. Moreover, since both parties were able and still are able to come to an agreement in the non-renewable energy sector, there is thus a potential to cooperate in the renewable energy sector; and since sustainable development is brought up by Russia during its 2013 presidency at the G20 one is able to argue for the high level of its willingness to collaborate in this domain.

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IN CONTRAVENTION OF THE CONVENTION ON THE RIGHTS OF THE CHILD: A Critique of the Practice of Selectively Providing Free Education at Primary School Level in South Africa

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LAW & LEGISLATION

Abstract: Post 1994 South Africa undertook various initiatives including the enactment of a Constitution which provides for the right to education and the enactment of the South African Schools Act which makes primary education compulsory. The steps are partly in line with the international law position that advocates for both compulsory and free primary education. However, neither the Constitution nor the Schools Act makes provision for free primary education. The Schools Act specifically provides for fee payments at primary school level with exemptions in certain specified circumstances. The approach by the Schools Act is undesirable because it is against the Convention on the Rights of the Child 1989 which South Africa has ratified. This paper critiques the practice of charging primary school fees in South Africa as a norm that is not only against South Africa's obligations under international law but also a norm that results in discriminatory practices in the provision of primary education in South Africa and in extreme cases results in children failing to acquire primary due to resource constraints.

INTRODUCTION

The South African Schools Act of 84 of 1996 (the Schools Act) states that education is compulsory between grades 1 to grade 9 or between the ages of 7 and 15¹. This provision is important as it provides for a compulsory opportunity for every child to acquire basic education in South Africa. By making primary education compulsory, the Schools Act supports the international law position which clarifies that "primary education is the most important component of basic education"².

¹ Compulsory attendance 3. (1) Subject to this Act and any applicable provincial law, every parent must cause every learner for whom he or she is responsible to attend a school from the first school day of the year in which such learner reaches the age of seven years until the last school day of the year in which such learner reaches the age of fifteen years or the ninth grade, whichever occurs first

² Implementation of the International Covenant on Economic, Social and Cultural Rights, General Comment no. 13 The Right to Education (article 13 of the covenant) (1999); Para 9. Although South Africa has signed

However, unlike the Schools Act, the United Nations Convention on the Rights of the Child (CRC)³ states that primary education should not only be compulsory but also free⁴. Indeed, the international position of compulsory and free primary education should be reinforced. Primary education is the forum of introducing basic education. It must be understood that a primary school is not the basic education. Rather a primary school is the medium or a place where children first have the opportunity to acquire basic education as part of primary education. Making primary education free for all as required by the CRC ensures that every child is able to acquire basic education without obstruction from resource or other constraints. Providing for free primary education is therefore important and the South African government ought to take that obligation seriously. Without free and compulsory primary education, the opportunity for children from poor backgrounds to get basic education is close to nil because their parents do not have the money and is still left to chance for the children from medium earning or rich backgrounds who depend on the good will and respon-

but not ratified the International Covenant on Economic, Social and Cultural Rights, In 1995, she ratified the Convention on the Rights of the Child which was adopted on 20 November 1989 and became operational on 02 September 1990. This Convention is based on four principles which include the right to education

³ United Nations Convention on the Rights of the Child (UNCRC) which was adopted on 20 November 1989 and entered into force on 2 September 1990. The UNCRC was signed 29 January 1993 ratified by South Africa on 16 June 1995

⁴ See, for example, the United Nations Convention on the Rights of the Child (UNCRC) which was adopted on 20 November 1989 and entered into force on 2 September 1990. The UNCRC was signed 29 January 1993 ratified by South Africa on 16 June 1995

Article 28(1) (a) and provides:

"1State Parties recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity, they shall, in particular:

(a) Make primary education compulsory and available free to all"

See also "The role of international law in South African health law and policy-making" at 135 Available at <http://www.section27.org.za/wp-content/uploads/2010/04/Chapter5.pdf> Accessed [25/10/201] "Ratification –the process by which a government formally approves the signing of an agreement. The state considers itself a party to the treaty after it has been ratified and is then bound under international law"

sibility of their parents who pay the school fees for them to attend school. South Africa does not provide for free primary education for all, a position that is in violation of the provisions of the CRC which South Africa ratified. Such an approach is criticized in this paper.

THE LEGAL FRAMEWORK OF PRIMARY EDUCATION IN SOUTH AFRICA

The Constitution of South Africa which is the supreme law of the land⁵ does not mention anything about the fee structure at primary education level. The Constitutional Court has never mentioned or stated that primary education is free for all in South Africa. Closer to primary school the Constitutional Court merely stated that unlike other socio economic rights provided by the Constitution, the right to basic education is an unqualified right⁶. Flowing from that point, the comments stated by the Committee above must be understood, basic education is not synonymous to primary education, rather primary education is the most important component of basic education. The meaning and connotation of basic education is beyond the scope of this paper, what needs clarity is whether or not South Africa has an obligation to provide free primary education, if so, whether South Africa has complied with such obligations. While we concede that the Constitution does not shed light on the issue of charging school fees for primary education, it is read together with other laws, in this instance laws governing the provision of primary education in South Africa notably the Schools Act. The Schools Act provides that public primary schools charge school fees and such fees are to be determined by a resolution by parents⁷. Parents who fail to pay school fees are liable unless they have been exempted to pay the fees in terms of the Schools Act⁸. With recognition of the fact that primary education is not free

under the Schools Act and the Constitution does not state that primary education is free, it is important to remember that international law forms an important informative and in the case of the CRC a binding body of law in South Africa. The Constitution states that, whilst interpreting the Constitution, the Court must consider both binding and non binding international law⁹. Non-binding international law refers to international law that has not been ratified by South Africa, whereas binding international law has been ratified by South Africa. The effect of ratification of international law is that the state ratifying undertakes to be bound by the provisions of the international instrument¹⁰. The CRC's provisions are therefore binding on South Africa by virtue of ratification. Also regarding children, the Children's Act of South Africa gives effect to the Republics binding international law obligations concerning the well-being of children. It is notable however that the children's Act does not say that primary education is free for all in South Africa rather it emphasises that that in all matters concerning a child, the child's best interests are of paramount importance¹¹.

THE CONVENTION ON THE RIGHTS OF THE CHILD

There is a huge body of international law that can inform this discussion on free primary education and South Africa may have ratified other Conventions that protect children's rights besides the Convention on the rights of the child. However specific reference to the violation of the Convention's right to free primary education is done in this paper because as stated by the United Nations High Commissioner for Refugees (UNHCR), "[w]hile child rights are set forth in a number of international legal instruments, the Convention on the Rights of the Child (CRC) is the most authoritative international legal instrument for the protection of children's human rights, with almost universal acceptance"¹². The Convention states that state parties agreed to make primary education available free for all¹³. To understand the need for free primary education for children the Convention also embodies two general principles that provide the context in which we understand the right of the child to free primary education. First in all actions that affect

children, their best interest must be taken into consideration¹⁴. Whilst the CRC itself does not define the meaning of best interest of the child, the UNHCR stated that it alludes to the overall wellbeing of the child considering the specific situations and risks that children face¹⁵. Second, children must be protected from any form of discrimination¹⁶. South Africa must give enough weight to these two principles of the Convention in order to fully understand why children need free primary education¹⁷. This paper will review the fee structure of primary school education in South Africa in light of the obligation on South Africa to provide free primary school and the two principles that underlie the CRC as stated above.

THE FEE STRUCTURE OF PRIMARY EDUCATION IN SOUTH AFRICA

There is not right to free primary education for every child in South Africa. The government has however introduced two policies for public schools, the non-school fees policy and the fee exemption policy applicable to fee paying schools¹⁸. The no-fee policy states that the poorest 40% schools should not charge school fees from grade R to grade 9 and its first implementation was in 2007¹⁹. To help in informing its judgement on the names of the 40% that should not charge schools fees, the Department of Basic Education "allocates each school a poverty ranking derived from national data on income levels, dependency ratios and literacy rates in the surrounding community"²⁰. The Minister then states that a school is a not fee school by publishing it in the Government Gazette – currently all schools ranked in quintiles 1, 2 and 3 should be no fee schools²¹. The government then pays to cover the costs of non-fee paying learners from its national budget²². The ranking of no-fee schools is according to the area in which the schools are situated, meaning that children who go to school in areas not depicted as poor have to pay school-fees²³. Although the no-fee policy has not made education free in South Africa, it is effective in ensuring that the learn-

ers from poor backgrounds have an opportunity to attend primary school for free. In fact, to justify how it has benefited the poor, in May 2010 the MEC for education Mhaule R stated that in 2010 the Mpumalanga provincial government's no-fee policy had been extended to benefit 699,157 children representing 71.31% of school going children in the province and a budget of R38.6 million had been set aside for that purpose²⁴.

On one hand, the fee exemption policy addresses the needs of learners from poor backgrounds who cannot pay school fees whilst they attend fee-paying schools. The Schools Act states that through a resolution parents can agree on an "equitable criteria and procedures for the total, partial or conditional exemption of parents who are unable to pay school fees"²⁵. The means test that compares the income of the parent(s) of the child relative to the fees that the child has to pay is the bases to exempt a learner from paying school fees²⁶. The Regulations Relating to the Exemption of Parents from the Payment of schools fees 2006 provide an application form that parents must fill and apply to the Chairperson of the School Governing Body (SGB)²⁷. Children who are automatically exempted from paying school fees include children in foster care, in a youth centre, in a place of safety, in an orphanage, abandoned children, a child who heads a family, a child without support or a child on the child's grant²⁸. To get an automatic exemption a parent or guardian must have a sworn statement or affidavit that is confirmed by the South African Police Service, any social worker or competent authority stating that the child is eligible for exemption or a court order. The documents must be handed to the principal of the school or a member of the School Governing Body²⁹.

24 Mhaule R "Policy and Budget Speech to be delivered by MEC for Education: Mpumalanga Provincial Legislature" available at <http://www.mpumalanga.gov.za/media/speeches/education/14052010.htm>. On the other hand, the Western Cape Education Department stated that it would implement a no fee system that would benefit 146,192 (or 15.9%) learners in 2006. found at Western Cape Education Department: Overview' available at <http://capegateway.gov.za/eng/pubs/news/2006/mar/128346> [Accessed] 12/07/2010

25 South African Schools Act 1996 Chapter 4 (2) (b)

26 Hall k and Monson J 'Free to learn: The School Fee Exemption policy and the National School Nutrition Programme' at 45-46 available at http://www.ci.org.za/depts/ci/pubs/pdf/general/gauge2006/gauge2006_freetolearn.pdf. [Accessed] 12/07/2010. States that the Exemption of Parents from the Payment of School Fees Regulations of 1998 set out a mandatory minimum means test for the granting of exemptions. During the Means to Live research period, the means test read as follows: "If the combined annual gross income of the parents is less than ten times the annual school fees per learner, the parent qualifies for full exemption." Partial exemptions were available for those whose income was more than ten times but less than thirty times the annual fees

27 "Guide for Parents: School fees in public school" <http://www.education.gov.za/LinkClick.aspx?fileticket=PnMQsprt7J4%3D&tabid=333&mid=1943>

28 Ibid

29 Ibid

5 Section 2, Constitution of South Africa, 1996

6 Governing Body of the Juma Masjid Primary School & Others v Essay N.O. and Others that: It is important, for the purpose of this judgment, to understand the nature of the right to "a basic education" under section 29(1)(a). Unlike some of the other socio-economic rights, this right is immediately realisable. There is no internal limitation requiring that the right be "progressively realised" within "available resources" subject to "reasonable legislative measures". The right to a basic education in section 29(1)(a) may be limited only in terms of a law of general application which is "reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom". This right is therefore distinct from the right to "further education" provided for in section 29(1) (b). The state is, in terms of that right, obliged, through reasonable measures, to make further education "progressively available and accessible."

7 South African Schools Act 1996 Section 3 (1) Subject to this Act and any applicable provincial law, every parent must cause every learner for whom he or she is responsible to attend a school from the first school day of the year in which such learner reaches the age of seven years until the last school day of the year in which such learner reaches the age of fifteen years or the ninth grade, whichever occurs first

8 Ibid

9 Section 39 (1) (b) of the South African Constitution, 1996

10 "EU Member States: Signing and Ratifying" found at http://europatentrights.eu/countries/signing_and_ratifying_a_treaty.html

11 Section 2(c) Article 9

12 UNHCR Guidelines on Formal Determination of the Best Interest of The Child at 6 found at <http://www.unicef.org/violencestudy/pdf/BID%20Guidelines%20%20provisional%20release%20May%202006.pdf>

13 Note 4 above

14 Article 3

15 Note 14 page 8

16 Article 2

17 Ibid

18 'Education Policy : School Fees' available at <http://www.etu.org.za/toolbox/docs/government/schoolfees.html> [Accessed] 12/07/2010

19 Ibid

20 Hall k and Monson J 'Free to learn: The School Fee Exemption policy and the National School Nutrition Programme' at 45-46 available at http://www.ci.org.za/depts/ci/pubs/pdf/general/gauge2006/gauge2006_freetolearn.pdf. [Accessed] 12/07/2010

21 Department of Basic Education

22 "Education in South Africa", Available at <http://www.saeduserVICES.com/pages/EducationInformation.aspx> [Accessed] 21/06/2010

23 "Education Policy : School Fees" Available at <http://www.etu.org.za/toolbox/docs/government/schoolfees.html> [Accessed] 12/07/2010

THE SOUTH AFRICAN POSITION ON PRIMARY SCHOOL FEES VIS A VIS THE CHILDREN'S ACT: A CRITIQUE

South Africa is in direct contravention of the CRC by not providing for free primary education for all. First, in fee paying schools, the Schools Act gives parents the power to determine the amount of fees to charge. Such an approach means that the level of income of parents at each public school where school fees is paid has a potential to indirectly determine the quality of basic education the children get. If a school has parents who are highly paid, they are able to pay higher school fees for their children as opposed to schools with parents who are poverty stricken. The potential impact of the differences in the income of parents is that learners with parents who have higher incomes receive a better education because the schools can afford to hire better teachers, to buy books for children and to provide the best learning facilities. Second, the fee exemption policy puts the fate of children from poor backgrounds in the hands of more affluent parents who vote to determine the fate of the poor parents. Such situation that can potentially expose the child and make them vulnerable to discrimination based on the income of his/her parents.

Third, the fee exception policy only applies to public schools and leaves no room for a private school to be compelled to exempt a child from paying school fees. There might be circumstances where the best interest of the child will dictate that the child should attend the private school. An example is when a poor mother works for a rich family staying in rich suburbs pushing an indigent learner far from a no fee payig public school. Such indigent learner staying in the vicinity of a private school does not have the slightest opportunity to be exempted from paying school fees by a private school even if it is the only school in the area that the child resides³⁰. In such circumstances it might be in the best interest of the child to access any school that in near where he/she stays. Forth, it is arguably true that children in private schools get a better education than those in public schools a situation that also discriminates against children attending public schools who are stuck with a poor quality education from the government. Private schools in South Africa attract

³⁰ It is still common to find black workers who are living with their white bosses and working as domestic workers. By not extending the fee exemptions to private schools there is a chance that these domestic workers might not find a public school for their children and yet they still do not afford to take their child to a private school. The end result might be that the school children will be separated from their working parent/parents to ensure that they get educated in a public school elsewhere

better-qualified teachers compared to public schools because they competitively pay their teachers whilst the government inadequately remunerates its teachers resulting in constant shortages of qualifies teachers in public schools³¹. Unlike private schools, township and rural public schools largely have volunteer teachers; some learners are educated in shacks and some walk long distances to go to school³². Due to lack of adequate funding, some public schools especially in predominantly rural areas also lack sanitation and water, which are basic services needed at any school. On the other hand, "formerly White schools appear relatively lavish, with schools provided with well-equipped laboratories and irrigated sports fields,³³" privileges that are not enjoyed by the Black majority of learners on public schools. The fee exemption system therefore indirectly penalizes those who enjoy free education by not providing them with a good education and not ensuring that there are opportunities for them to gain free entrance in private schools where there is need.

Fifth, fee exemptions also disadvantage children of well resourced parents by assuming that because their parents are well resourced, they will consequently provide school fees for them. That assumption is not always correct and places children at the mercy of irresponsible parents. The assumption is also against the CRC because free education is not for low income children or other categories of children it is an entitlement of every child³⁴. The state is obliged to "make" education free and not to "provide some" free education³⁵. *Sixth*, the fee exemption policy is also based on a rational of cross-subsidization where higher school fees might have to be paid by the more affluent parents to cater for the needs of the less affluent³⁶. This means that in fee paying public schools as school fees is increased to cater for the underprivileged children exempted from paying school fees, the number of children who fall into the exempted category might increase leading to a vicious circle that might see the afflu-

³¹ Roberst M "Crisis in education seems to be worsening. Administrators fight while kids suffer" found at <http://socyberty.com/education/education-problems-in-south-africa> [Accessed] 21/06/2010. There have been so many strikes by teachers regarding poor payment

³² Ocampo ,M L "A Brief History of Educational Inequality from Apartheid to the Present" available at http://www.stanford.edu/~jbaugh/saw/Lizet_Education_Inequity.html [Accessed] 21/06/2010

³³ Gibberd J, South Africa's School Infrastructure Performance Indicator System (2007 OECD) at 1

³⁴ Hodgkin R and Newell P Implementation handbook for the Convention of the Rights of the Child (2007) at page 421. See Governing Body of the Juma Musjid Primary School & Others v Essay N.O. and Others 2011 (8) BCLR 761 (CC)

³⁵ Ibid at 421

³⁶ Libisi C R Libisi C R The Quest for free education in South Africa. How close is the dream to reality (2008 Centre for Education Policy Development) at 5

ent parents shouldering the burden of paying school fees for indigent students and consequently opting to take their children to private schools where there are no fee exemptions³⁷. Further, the use of income to determine poverty of parents to determine exemptions often prejudices those who are slightly above or below the poverty line³⁸. Fee exemptions clearly show that the South African government does not understand the nature and rationale of the obligation to provide free primary education. The Committee on Economic Social and Cultural Rights elaborated separate from the CRC that:

The nature of this requirement is unequivocal. The right is expressly formulated so as to ensure that availability of primary education without charge to the child, parents or guardians. Fees imposed by the government, the local authorities or the school, and other direct costs, constitute disincentives to the enjoyment of the right and may jeopardize its realization. They are also often highly regressive in effect. Their elimination is a matter which must be addressed by the required plan of action. Indirect costs, such as compulsory levies on parents (sometimes portrayed as being voluntary, when in fact they are not), or the obligation to wear a relatively expensive school uniform, can also fall into the same category³⁹.

Sixth, the no fee system is based on the assumption that learners in schools come from the communities in which the school is situated which is not necessarily the case in all circumstances and can lead to wrong assumptions on reaching decisions about the list of schools that qualify for the no fee policy⁴⁰. For example, some of the township schools in Umlazi, Durban are ranked in a manner that qualifies them to be a no fee school. Then the schools in the neighboring Indian township in Chatsworth, are ranked as those who do not qualify for no fee exemption based on the fact that they are situated in presumably affluent areas. The difficulty with these quantile ranking system is that it fails to take into account of the realities on the ground. That is, most black learners attend Indian schools because they need quality education and assume that it is provided there. Consequently, the township schools have less enrolment of learners but receive more funding. The Indian schools with more learners from the townships receive less fund-

³⁷ Ibid at 10

³⁸ Ibid at 11

³⁹ Committee on Economic, Social and Cultural Rights, General Comment No. 11, 1999. HRI/GEN/1/Rev.8, para 7 page 62

⁴⁰ R Libisi C R The Quest for free education in South Africa. How close is the dream to reality, 2008 Centre for Education Policy Development page 11

ing or are not ranked as no fee schools⁴¹. Moreover, using the school and not the child as the unit of analysis to conclude whether the child should pay school fees hides the problems of the individual learner which might be of paramount consideration thereby disregarding the best interest of each individual child⁴².

Seventh, the no fee policy might also disadvantage learners from affluent backgrounds who too depend solely on the goodwill of their parents to finance their primary education. The rationale behind free primary education is the child's entitlement to primary education and not the child's ability to pay⁴³. In light of the above assessment, it is evident that the manner in which the no fee schools are identified fails to address the injustices of the past in that a poor child cannot access education if he/she lives in an area where fees are compulsory. The policy is thus unreasonable as it leaves out a significant segment of the society that might not be in a position to pay school fees⁴⁴.

RECOMMENDATIONS AND CONCLUSIONS

As part of its Millennium Developmental Goals, the South African government should develop plan to ensure that primary education is free and compulsory as the obligations go hand in hand according to the CRC. A non-fee or a fee exemption system does not make education free. Making education not only compulsory but also free safeguards the right to basic education for children since they are not always empowered to demand it and cannot wait to grow to finance their own education. The assessment in this paper indicates that the progress that South Africa has made to make sure that primary education is compulsory and selectively free is still far from achieving the results intended by the CRC which is provision of free primary education to every child. In conclusion, as long as primary education is not free, children have no guarantee that they will receive 'basic education'. South Africa should not only make primary education compulsory but also free.

⁴¹ The assessment of whether a particular school should be classified as a no fee school should not be based on, inter alia, geographical location of the school but should also assess whether every child in that area is in a position to afford school fees. Put differently, if the policy looked at each child's ability to pay school fees, poor children would benefit from the system

⁴² Libisi C R Libisi C R The Quest for free education in South Africa. How close is the dream to reality, (2008 Centre for Education Policy Development)at 5

⁴³ Coomans F, "Content and Scope of the Right to Education as a Human Right and Obstacles to Its realisation" at 198 in Dongers Y and Volodin V Human Rights in Education, Science and Culture. Legal Developments and Challenges (2008 UNESCO Publishing)

⁴⁴ Government of the Republic of South Africa and Others v Grootboom and Others (CCT11/00) [2000] ZACC 19; 2001 (1) SA 46; 2000 (11) BCLR 1169 para.45

THE DEATH OF ONE RAPE VICTIM: Unexpected Outrage for Changes in Laws and Customs in India

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J.F Kennedy once said, “The rights of every man are diminished when the rights of one man are threatened.” Individuals have different opinions about the extent of human rights that people should have but everyone agrees that the basic rights including the rights to live, the rights get educated and the rights to get equal treatment are invaluable. Regardless of gender or race, they are necessary and vital for a society to thrive. Unfortunately, such belief may have been suppressed in India for who-knows-how-long, leading to continuous sexual violence and murder that are mostly covered up due to the continuous male chauvinism and traditional beliefs and culture.

The world is aghast by the day-to-day barrage of new rape cases reported in India. Never been shed light upon, due to lack of protection for women and the continuous conservative social atmosphere, sexual assaults in India have rarely been punished. Reports were rarely made in the past but starting from the regrettable death of a 23- year old medical student who was raped by six gang members and was not protected by the police officers or the judicial system, continuous reports of sexual harassment are comprehensively reported through the outside media. Such preventable death and rape that happened a month ago and still continuing today, led people to question what the factor was that has led this appalling situation to continue and not shed the media’s light. Although there are various interpretations, traditional culture and sluggish laws in India are widely blamed due to their extreme patriarchal aspects. Keeping this in mind, in order to eradicate the horrific number of sexual assaults and discrimination against women, it is important balance culture and human rights through the means of enforcing the existing laws of protecting women and getting the support from the international society.

THE DARK SIDES OF INDIA’S CULTURE

The word “culture” can be interpreted differently by individuals but it is generally agreed that culture is beliefs, behaviors, objects, and other characteristics common to the members of a particular group or society. For India, customs that affect half of the population include a dark side: sex-selective abortion, child marriage and dowry. These customs, which are all violation of women’s rights, are illegal yet ubiquitously continued.

Starting from sex-selective abortions, these abortions are often done for various reasons. With the ever increasing population, it is still financially beneficial to have a boy instead of a girl. Additionally, having sex-selective abortions lessen the burden on the family with the dangers of sexual harassment that is widespread in India. According to the National Commission for Women, approximately one million baby girls are killed each year and the sex ratio between male and female are disparaging annually.

India is also notorious for its lack of protection of children in terms preventing child marriage. Approximately one third of child brides lives in India and according to UNICEF, around 50% of girls in India are married by 18 years of age. Child marriage is done in order to provide the young bride a better financial circumstances, protect them from rape and keep their virginity. However, the consequences of child marriage are brutal. According to India Development Gateway, child marriages can cause early maternal deaths, infant mortality and the increase of domestic violence.

While disappearing culture may be a heritage to protect, it is not so when the custom disappeared for the protection of human lives. Dowry is an exclusive culture in India where payment is given to the groom’s family along with the bride. The dowry system is causing a abhorring social problem of dowry

deaths, which are deaths of young brides who are murdered by their greedy in-laws in an effort to extort more dowry. Tortures including bride burning, sexual assault and acid throwing are frequently done and according to The Times of India, approximately one bride is burnt every hour due to the dowry system. This system was prohibited under The 1961 Dowry Prohibition Act but is still causing pains for the families of the bride and the brides themselves.

CURRENT INDIA LAW- A GATEWAY FOR SEX OFFENDERS?

At a glance, India law actually seems favorable to women. If a husband commits adultery, he would be jailed but women cannot be jailed for adultery. Women are also able to file a report on sexual assaults to the local police. Alas, when the laws are actually applied, Indian law just becomes a gateway for sex offenders to be freed from their wrongdoings.

To begin with, India’s court system is painfully slow, in part because of shortage of judges. With only 15 judges for one million people, the deficiency blocks the opportunity for women to actually punish sex offenders and are left to compromise. However, compromise does not exactly lead to sincere apologies or recompense but in a form of forced marriage. In a recent rape case of a 17-year-old Indian girl who was gang-raped, killed herself after the police pressured her to compromise and marry one of her attackers.

Additionally, there are not enough police to patrol the area to prevent sexual assaults from happening and public safety is never guaranteed. Many of the police lack training and equipment due to the lack of public funding. The police are also mostly men who are not sympathetic towards rape victims. With the overall social atmosphere in which men are not blamed, even rape victims are assumed that the sexual violence somehow was brought on themselves. For instance, in response to the recent gang-rape incident, a legislator in Rajasthan, a city in India, suggested banning uniform skirts for girls, citing it as the reason for sexual assaults.

POSSIBLE SOLUTIONS

Ever since the death of the 23-year old medical student, thousands of rights activists and women of India went to the streets of New Delhi to demand

changes in the law. Although India has been developing economically in the past 20 years with the appearance of first generation women workers, it is still named as the fourth most dangerous place for women to live. This fact shows that the economic advancement is not catching up with the social laws that protect the lives of women in the country.

The most vital action that must be taken is the enforcement of laws to protect women. India does not lack any laws. Many of the customs that are seen as derogatory towards women, are actually banned and are supposed to be punished when they are done. Regrettably, the actual problems emerge because the laws lack enforcement and power. Through stricter regulations in both rural and urban areas of India, enforcement of education about the crucial laws and encouraging public advertisements and statements from the government, these efforts would slowly create a social atmosphere in which laws are taken seriously and people are protected.

Along side with the domestic efforts to eradicate sexual assaults and harsh living conditions for women in India, continuous international efforts would motivate the advancement of the laws in long term. Currently, since the gang-rape in December, many Non governmental Organizations (NGO), such as Amnesty International, UN Women and Justice For Women, have been working towards helping victims of rape to file a report, fundraising for the education of women in India and raising public awareness of the rape situation in India. When these efforts continue, it is undeniable that India’s government and the people would take actions quickly to ease the anger of the international society.

UNFORTUNATE ENDING... NEW BEGINNING

Rapid changes is known to bring failed results; but it is still very unfortunate to hear that among the six gang members, the youngest and the “most brutal one,” quoted by the victim, would only be tried in a juvenile court and would have maximum sentence of three years in a reform facility. Although the death of the gang-rape victim is infelicitous, her was indispensable in starting the revolts, international actions and even a chance of changing the unbending and rigid law and customs of India. Conflicts between the conventional views and the emerging views will continue but eventually, this tragic incident would serve as the

main drive for bringing change to the lives of millions of women in the region. (1382 words)

CLASH OF CULTURE AND WOMEN RIGHTS IN THE MIDDLE EAST

J.F Kennedy once said, “The rights of every man are diminished when the rights of one man are threatened.” (Goodreads, 2012) Individuals have different opinions about the extent of human rights that people should have but everyone agrees that the basic rights including the rights to live, the rights get educated and the rights to get equal treatment are invaluable. Regardless of gender or race, they are necessary and vital for a society to thrive. Unfortunately, this is not always executed in many Middle Eastern countries. The world protested for the empowerment of women after the picture of Aesha Mohammadzai, an 18 year old girl whose nose and ears were cut off by the Taliban after running away from her abusive husband, was published on the Time Magazine on August 2010. (Gardner, 2012) Society seems to notice the status quo in the Middle East but the problem of respecting diverse culture and preventing cultural colonization which many argue, are forestalling the countries and even the United Nations (UN) from taking severe action. The unbelievable narrative of Aesha Mohammadzai is not an exception but a story that represents many of the lives of women in these areas. While diverse culture is necessary, the empowerment of women needs to be escalated. Therefore, this essay will mainly focus on Islamic culture and the current situation in the Middle East, the recent improvements and the possible equilibrium of culture and human rights that the experts provide.

The word “culture” can be interpreted differently by individuals but it is generally agreed that culture is beliefs, behaviors, objects, and other characteristics common to the members of a particular group or society. (Cliffnotes, 2012) Culture is used as an effective tool to bring people together, but in some cases, it brings clashes between bipolar values. One of the most apparent disputes is between Islam and the West. Generally, traditional Islamic culture puts importance in distinct role between men and women: men supporting and protecting his family in financial matters and women taking care of the family internally. (Fleischmann, 2011) Although this is an effective method in raising a family, it does not help women gain power and equal rights in the society. On the other hand, the Western culture values human rights

and democracy with no restrict boundaries in gender responsibility. As the world started accepting globalization, western culture gained enormous influence to other regions including Middle East and they naturally became “universal” values. The year 2011 was even marked as the year of protests because Tunisia, Egypt, Libya, China and Syria had enormous democratic revolts that changed the atmosphere of many of the non-western regions. Changes were made through the influence in western culture, but even in the societies that seem equal, struggle continued for women to attain basic rights. In the Middle East, the high hopes that people once had after the Arab Spring protests occurred, are changing into disappointments due to the continuous clash of culture. Instead of the developing into gender equality, women in Egypt, for instance, lost influence in the parliamentary results which actually dropped from 12 percent to 2 percent of women out of 508 members. (UN Women, 2012) There may be other factors involved to the disappointing results but it is certain that the limitations from extreme Islamic culture played a big role.

A renown political scientist, Samuel P Huntington, stated in his book *The Clash of Civilizations and the Remaking of World Order* that “religion is a central defining characteristic of civilizations” (1998, p. 47). The Islamic culture clearly exemplify this statement. Islamic law is the general culture in the Middle East region that follows the Sharia, which deals with diverse topics addressed by secular law including crime, politics, economics, marriage and rights. In other words, Islamic law and religion constituted the law and order of many of Middle Eastern countries for centuries and has immersed into the society as culture and custom by being the very idea that people who follow the Islam customs define themselves. The problem is that in this Islamic law and religion, women are degraded and are considered as legal minors or property of men which violates the United Nations Declaration of Human Rights. For instance, in Qur’an 4:34, the law clearly states that men are superior to women and that if women are disobedient to their husbands, men are commanded to beat their wives. In addition, in Qur’an 23:5, the law allows men to have sexual relations with up to four wives and slavegirls (WLUM 2012) but would stone a woman to death if she is caught committing adultery or practicing polygamy. These examples clearly demonstrate the degrading of women that Is-

lamic law and culture bring and the importance for some modification of culture.

Currently, there has been increased interest and improvements in empowering women in the Middle East areas by non governmental organizations. One of the non governmental organizations that played a noteworthy role is UN Women, an United Nations entity created for gender equality and the empowerment of women. This organization is currently playing a significant role in tackling an important agenda to empower women in severely discriminated areas that is a part of the Millennium Development Goals (MDG) by working with the government and providing education to women in the Middle East. According to CNN, in the recent years, nearly two third of the Middle Eastern countries had more women in the university than men. (Davies, 2012) Compared to the 1990s, when there was a huge gender gap in education, the recent statistic shows a giant step towards the MDG goal to eliminate gender disparity. Unfortunately, women getting more education does not immediately lead to the increased power of women. For instance, in Qatar, 93% of the women were literate and constituted 63% of the university population but only 12% in labor force were women and only 7% were legislators, senior officials and managers. (Davies, 2012) Such statistic shows that there is still an unseen boundary that women are limited to in the workforces and gaining influence in the society. Education is the starting point of the empowerment of the people, as it did for the African Americans during the 1960s in the Civil Rights Movement, but education cannot be the only solution.

In order to effectively link education and the empowerment of women, experts in the United Nations and the UN Women came up with three practical steps that could be applied to the Middle East. (UN Women, 2011) First, financial development needs to simultaneously happen. If capitalistic values entrench within the people, it is likely for the people to become more efficient in their work force by hiring capable women as well as men. Aiding Middle Eastern countries financially and working with them as business partners would influence the values and ideas one step at a time. Secondly, educating women and creating awareness to the societies through the means of social network and advertisements need be done. Although education level of women in some nations in the Middle East is significantly increas-

ing, there are still nations such as Jordan, with large literacy gap between men and women. By educating women and allowing them to aspire about their independent futures, the atmosphere in the Middle East would gradually shift to gender equality. At the same time, the continuation of creating awareness about the importance in empowering women through the means of Social Network Service and public advertisements, would bring inspiration to the people in the Middle East. Lastly, there needs to be continued support. When Arab Spring protest movements occurred in 2011, critics argued that the reason for their failures to bring tangible change is the sudden cut of support. Islam culture was deeply entrenched in the Middle East for centuries and for the dramatic change and differences to continue, continual check ups from the United Nations and support from neighboring nations are crucial. Through these processes which emphasize cooperation from both Middle Eastern countries and the rest of the society, achieving gender equality may not be a far reached goal.

In conclusion, the clash between the culture of Middle Eastern countries and the empowerment of women has been a hot issue for decades with not much improvement. Although many realize the significance of protecting women, the culture that is dispersed in the Middle East is disrupting immense improvements from happening. Diverse cultures are like vibrant colors in dull cement wall; they need to be protected and preserved for the next generation. However, positive changes in extreme culture that ignores the rights of women may actually bring advanced culture that many would appreciate. In the end, the question comes down to when the people would start to notice the irreversible scars of vulnerable women and start compromising between the protection of human rights and the advancement of diverse culture. There may not be a perfect solution to conciliate culture and human rights but changes are always happening: we have seen them from the women in America during the 1920s as they attained their rights to vote and from Africans in their rebellion against apartheid, a system that discriminated Africans by race. Attaining gender equality in Middle Eastern regions would not be made instantly without trial and error, but working towards the goal would be worth the time and effort.

REGULATION OF PROSTITUTION WITHIN THE NETHERLANDS

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REGULATION OF PROSTITUTION WITHIN THE NETHERLANDS

Prostitution, the so-called “oldest trade”, has been part of the Dutch society for centuries, In this time it has gone through a number of regulations and deregulations, from women owned and run, to the complexities of sex trafficking and everywhere in-between. In the year 2000, brothels and “red light” windows were made legal within the Netherlands, in an attempt to match current practices of tolerance with the rule of law (Visser, 2008). Since its implantation the legislation surrounding the legalization of prostitution has been called into question (O’conner & Healy, 2006). Increasing awareness of sex trafficking, and the limited improvement of health and safety standards for sex workers has resulted in a call for re-regulation (Carrigg, 2008; O’conner & Healy, 2006).

This paper will attempt to describe the situation within the Netherlands, outlining the current regulation concerning sex workers, identifying the issues with the regulation and assessing some of the costs and benefits of legislation currently under proposal by the Dutch government. The paper hopes to illustrate the importance of continual discussion and debate on the regulation of the sex market. It desires to inform the reader of some the important issues related to the regulation of the sex industry, specifically concerning the social rights of sex workers, and the human rights of trafficking victims.

CURRENT LEGISLATION

In the year 2000 legislation legalizing brothels was put into law (Dutch ministry of Foreign Affairs, 2012). Effectively this synchronized the law regarding prostitution with its common practice within the Netherlands. Legalizing sex work aimed at bringing the sex market under labour laws, thereby providing sex workers the same benefits as any other labour market individuals. Dutch ministry of foreign affairs, (2012) states that the legislation is aimed at ending abuse within the sex industry through stricture control of the market. Wijers (2008) outlined six focus areas that the legalization of prostitution aimed to

address. They are: Control and regulate the organization of consensual prostitution by adults; assist the fight against trafficking; protection of minors against sexual abuse; improve the social perception of prostitutes; fight criminal activities related to prostitution; and reduce prostitution by foreign nationals without the necessary residence and working permits. To achieve these goals the following laws and practices were put into place (Visser, 2008).

- *Up to 6 year penalty for:*
 - o Persons wishing to force or coerce a women into prostitution
 - o Traffickers taking women/children for the purpose of sexual exploitation
 - o Allowing a girl under 18 to prostitute herself (ie. Brothel owners)
 - o “Pimping”
- *Up to 8 year penalty when:*
 - o Crime involves to or more persons
 - o Minor is under the age of 16
 - o Crimes results in sever bodily harm.

Brothels became a franchise with licenses sold by the government. Strict health and safety codes were developed thereby requiring the licensee to provide a business plan that shows evidence of compliance with the codes. Municipalities are given the responsibility to uphold compliance to the legislation, allowing local governments to determine how regulation will be enforced (normally police) and the distribution of licenses. Local governments have within their right the ability to set an upper limit to the amount of sexual establishments within their municipality, many choosing to set it at the current amount at time of legalization (Sander Flight, 2006). A zero amount, also known as a zero policy, is not available as an option for local governments, however some municipalities enforce such stringent health codes and unreasonably high license costs that in actuality a zero policy is in effect. The nature of the licensing codes allows the government to practice strict control of the sex market, theoretically allowing them to limit the amount of illegal operations (Visser, 2008); increase health and safety within the sector (Wijers, 2008); and provide a “safe harbor” for

legal prostitution that will decrease demand on illegal prostitution (Lee & Persson, 2012).

ISSUES

Social

As the laws and policies surrounding prostitution changed in the year 2000 to reflect the tolerant ideals of the Dutch society, legislators and sex worker rights groups were hopeful that labour laws would provide the necessary framework to improve sex workers’ rights (De Rode Draad, 2004). While some objectives of the change in policy have been effective, namely, the needs to bring sex work “under control” through licensing, and the reduction in underage sex workers (Wijers, 2008), others have not. Working conditions are reported as improved but not to the extent that activist groups are satisfied with (De Rode Draad, 2004; Wijers, 2008), or have in some cases worsened, as identified by popular media statistics based on criminal reports (Visser, 2008). Additionally, the social perception of sex workers has scarcely improved within the last decade (Wijers, 2008), with banks reluctance to accept sex workers as clients a common citation on the matter (De Rode Draad, 2005; O’conner & Healy, 2006; Wijers, 2008; Visser, 2008).

Additionally, municipalities seem hesitant to approve new licenses to sex industry operators. In the past decade there has been a reduction of approximately 17% of sex industry establishments (Flight, Hulshof, van Soomeren, & Soorsma, 2006), with operators sighting unreasonably demanding licensing requirements as barriers into the market Wijers (2008). It is not unreasonable to suggest that the cumbersome nature of the licenses has created barriers into the industry which are stifling innovation, innovation that could lead to safer and healthier businesses while meeting the demands of the sex workers, their clients and today’s technology. While the issuing of licenses is of course necessary, a key component that seems to have been missing is consultation with industry workers themselves. Which may have lead to a more innovation friendly licensing agreement. This lack of communication with sex workers and brothel owners is a key point in a range of issues surrounding the current legislation, such as the implications of labour laws to both brothel owners and sex workers.

Sex workers for the most part, appear unaware of the benefits that the labour laws provide them (De Rode Draad, 2004). They see it only as another cost that needs to be paid, and so often prefer to remain an illegal worker and skip taxes, giving them the added benefit of remaining anonymous, a right that sex workers consider vital (Sex workers manifesto, 2005) This process gets further complicated through the relationship between the brothel owner/operator and the sex worker. In most cases sex workers prefer to be considered self-employed (Wijers, 2008), possibly due to belief that this allows them to choose their clients, or the idea that they are not “owned” by their brothel owner. However, this relationship benefits the brothel owner with limited actual benefits to the sex worker (De Rode Draad, 2004). The brothel owner has the ability to charge extortionate rates for their rooms, leaving the sex worker unable to refuse clients and left with the responsibility to work unreasonable long hours. Additionally, due to limited availability of brothels (Flight, Hulshof, van Soomeren, & Soorsma, 2006) we can assume that sex workers have limited ability to relocate and negotiate fairer terms for the rooms they “rent” as self-employed individuals. In these circumstances, sex workers would benefit more from being in an employee employer relationship; this would force brothel owners to abide by labour laws reducing the risk of abusive and opportunistic behaviour by the brothel owner.

Community workers from the De Rode Draad (“the read thread”, 2004) a group of activists and former sex workers who operate similarly to a union, advocate that not enough is being done by the government in educating sex workers in their rights and responsibilities and that this is the reason why there has been limited improvement in the health and safety of the sex industry.

Human Rights

The other factor that drives much of prostitution regulation is the need to preserve human rights, which are threatened through the acts of trafficking in persons (National Rapporteur on Trafficking in Human Beings, 2010; O’Conner & Healy, 2006). The Trafficking in Persons (TIP) report (2012) identifies the Netherlands as a source, transit and destination country for victims of trafficking for the sex and labour markets. Additionally statistics released by the National Rapporteur on Trafficking in

Human Beings (NRTHB, 2010), has shown an increase in reported trafficking over the past 10 years with the highest incidence being of Dutch women. As international trafficking is an estimated US\$32 billion industry worldwide (TIP, 2012) and horror stories from trafficking have caught public attention, policy makers have put a high degree of importance in addressing this issue.

Firstly, what is trafficking? “It involves an act of recruiting, transporting, transferring, harbouring or receiving a person through a use of force, coercion or other means, for the purpose of exploiting them.” – United Nations Office on Drugs and Crime (UNODC, 2012). Trafficking can be split between two main groups of victims: Victims of loverboys, individuals, typically young women under the age of 23 (though some as young as 11), who have been seduced by young men, and then brought into the sex trade through force or coercion (Bovenkerk, et al., 2006); and “others” who tend to be trafficked from outside the destination country, and are coerced or forced into the sex trade. The main difference between the two groups of victims is that the first group tend to be “in love” with their abusers. They have been in some way “brainwashed”, and believe that their ‘loverboy’ is truly looking after them. The high proportion of Dutch women identified as victims in the NRTHB (2010) can be attributed to the increase in awareness of this “loverboy” scandal. Many of the other victims of trafficking are “tricked” or blackmailed into prostitution. Often having family members held at ransom, or being so ashamed of the acts they have been forced into, that they do not dare confront their traffickers.

Due to the hidden nature of the sex industry, it is difficult to assess to what extent the sex market within the Netherlands is made up of trafficked or forced prostitutes, estimates ranging from 8% (Weijers, 2008), to over 40% (Vanwesenbeek, 1994, cited in O’connor & Healy, 2006). However, as there are approximately twenty to thirty thousand sex workers in the Netherlands (Kazemier, Bruil, van de Steeg, & Rensman, 2012); even the most conservative of estimates allows for over 1,500 trafficked individuals each year (8% by 20,000). As the NRTHB (2010) reported 909 victims in 2009, it is safe to assume that 1,500 individuals is the absolute lower limit.

Experts have suggested that migration theory, and by extension supply and demand, characteristic of

the sex market can be used to explain the use of force and trafficking in prostitution within the Netherlands (Lee & Persson, 2012; Lim, 2007; Outshorn, 2005). The theory argues that excess in demand factors due to needs of the populace, is not met by willing domestic individuals (Schaapman, 2007), thus creating an unmet need for supply, or a “pulling force” for migration of sex workers.

On the other hand, push factors, factors that stimulate migration from the “origin” country / region, such as low socio economic conditions of some Dutch youth (Van de Van de Walle, Picavet, Van Berlo, & Verhoeff, 2012) and individuals in economically poor countries such as Romania and Bulgaria (Outshorn, 2005) leads to a ripe scene for trafficking. Legislation concerning the sex industry needs to keep in mind both the rights of the workers and the ability to reduce the demand for trafficking if it wants to be successful in either domain.

Who is involved?

In considering new legislation it is important that policy makers consider all affected parties. This is especially true in this instance, where much of the complaints and issues with the current regulation within the Netherlands are argued to be due to a breakdown in communication between the government and sex workers, brothel owners, and public needs. The five affected parties can be seen as; the sex workers; the clients; 3rd party operators (brothel owners, ect.); the public; and the government. To be successful any future regulation should consider the needs and wants of all groups. In 2005 a committee of 120 sex workers from 26 countries created a manifesto that outlines a number of issues that sex workers see as of key importance. Foremost among those is the improvement of health and safety standards, the improvement of social perception regarding sex workers, their inclusion in all policies relating to their trade and the need to retain anonymity (SWM, 2005). Likewise clients have needs, such as cost reduction, and health standards; brothel owners, a need for less demanding licensing; the public a need for clean and safe streets. The Government on the other hands should assess its own costs and benefits from any legislation, as the Dutch sex trade grosses an estimated €500 million (Kazemier, et al., 2012) per annum; however it must also assess the implications of associated crime. By taking into account the needs of each party, policy

makers can better create specific objectives that will be achieved through new regulation.

Proposed Legislation

Due to the limited success of the current regulation new stricter regulation is under planning. Supporters of legalisation put the blame of failure on the government, and its inadequate implementation of the law. They particularly lament a lack of an integration program to bring sex workers into society, a program that should have supported workers with issues in education, discrimination and exiting of prostitution (Outshorn, 2012). On the other hand, policy makers suggest that the problem lies within the industry and the motivation of sex workers and brothel owners and that stricter regulation must be put into place to address the problem.

To that end, legislation has been drafted and is at the final stage of approval (Outshorn, 2012; Visser, 2008). This legislation aims to: enforce stricter regulation on brothel owners and prostitutes; and fight trafficking and forced prostitution. To do this the new legislation will uniform all licensee regulation across all municipalities, and require registration of all prostitutes that are not working for a licensed venue. This change in legislation will effectively expand licensing to new sectors of the market (e.g. escort agencies), which will have to have a permanent address and non mobile telephone line (Visser, 2008). It will also enhance visibility in the sector (through registration) that will allow for better monitoring, and early identification of trafficking and forced prostitution (Outshorn, 2010).

Additionally, the legal age to enter into the sex industry will be raised from 18 to 21. Lastly, in an attempt to reduce the demand in the illegal sex trade, clients will be made “responsible” for the use of trafficked sex workers, that is clients who use non-licensed sex workers will be made liable (Outshorn, 2010). Lee and Persson, (2012) argue that this is the only effective and efficient way to put an end to trafficking, as it creates a “safe harbor” for legal sex businesses that will drive out the need for trafficking. Using econometrics they suggest that putting heavy fines on individuals who use the illegal market will drive up costs within that market while lowering the cost within the legal market, thereby switching demand and driving women who might be tempted

to stay illegal to the legal sector, where they are protected by labour laws, and can be monitored more effectively.

However, Lee and Persson’s (2012) argument relies heavily on sex workers, clients, and brothel owners as “rational” decision makers. While this may still be the case, issues such as the registration policy that will soon go into effect, are expressly against what sex workers are looking for (SWM, 2005). As outlined earlier, fear of the social repercussions for being involved in the sex business shape many workers actions. It is likely that women valuing their right to privacy will forego the safer legal market, no matter the costs and dangers of the illegal market, to maintain their anonymity.

Additionally, Lim (2007) identifies factors other than client need on the demand side of the trafficking equation. He argues that the economic benefit provided by trafficked victims to both pimps and the “at home” sellers (ie, family members, community members who sell the individual to traffickers) will remain regardless of a change in client preferences. As it is likely that there will always be individuals who would prefer to go to the illegal market to full fill their (possibly somewhat morbid) desires. It is these sectors of the market that run the risk of being driven underground in the proposed legislation, where enforcement, and aid, is much harder to provide.

CONCLUSION

Over the past decade there has been limited improvement in the sex market since the legalisation of prostitution, although there has also been no increase in negative effects. Sex worker activists argue that more needs to be done in the implementation of existing legislation, policy makers are in the process of approving new regulations that would further control the market and curtail sex trafficking. Further there are some issues with breaches in privacy in these new regulations that are of particular concern to the sex workers due to the stigmatisation of the sex industry within society. If the Dutch government is serious about addressing the combined issues of social and human rights, more effort needs to be made to increase communication between sex workers brothel owners and the government.

As currently stated, the plan to register all sex

workers is not sufficient to ensure that the concerns of all parties are adequately addressed. That being said, as long as policy makers remember to communicate with all members of the industry and strive to educate individuals in the dealings of trafficking, forced prostitution, and the rights and obligations associated with labour laws, the proposed framework has the potential to minimize trafficking, allowing law enforcement to concentrate its efforts on the underground sector of the sex market.

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THE LAW ON INTELLECTUAL PROPERTY : Have our legislators gone too far?

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INTRODUCTION: FORMULATION OF THE ISSUE BY CASE BUILDING

A BRAND-NEW FORM OF SIGNIFICANCE. – Nowadays, it seems like our newspapers are dominated by a freshly regained interest in Intellectual Property Law (IPL) and the wide variety of its components: patent law, copyright law, trademark law, and so forth. Understandably so, cause who would want to miss the newest lawsuit between two humongous international companies where one party claims to have a patent that could possibly lead to a sales ban of the other party’s products? Not only have the newspapers gained a considerable interest in these cases, but also – albeit thanks to those very same popular media sources – the people who aren’t necessarily fully “into” the broad sector of IPL.

..OR A BRAND-NEW FORM OF BANTER? – While the interest ‘*an sich*’¹ to these issues may be applauded, the media have also shown a diversity of problems that relate to IPL – cause in a society where IPL is seen as a goal in its own, dissociated from the original idea of the distribution of knowledge, chances are that innovation will considerably decrease. As abstract and blunt that statement might seem to be at a first glance, a recent case example might help to pave the way towards the formulation of the issue.

CASE-BUILT REASONING (I): APPLE VS. ITS COMPETITORS. – Probably the best examples of a conflict gone too far are the seemingly never-ending lawsuits between Apple and its competitors. “*Tech titan*” HTC – Android partner in crime – seems to have already given up on the countless lawsuits between both companies and thus signed a 10-year license agreement with Apple. Concerning this, PETER CHOU – CEO of HTC – stated the flagrant but also the almost symbolic truth: now, “*HTC can focus on innovation instead of litigation*”². Sam-

¹ “As it exists in itself”, cfr. the German philosopher IMMANUEL KANT

² JOE POLLICINO, HTC and Apple settle all patent issues, enter 10-year licensing deal, <http://www.engadget.com/2012/11/10/apple-htc-patent-settlement-10-year-license> (last consulted: 23/12/2012)

sung, on the other hand, hasn’t buried the battle-axes yet – which has become blatantly obvious after the past dozen of lawsuits. Let’s take the example that is almost as well-known as it is notorious: the victory of Apple in the lawsuit against Samsung, awarding Apple \$1.049 billion in damages³. Although this trial involved more than a dozen patents, it is most likely best known for Apple’s newly achieved patent: a rectangle with rounded corners⁴. Although that patent is not as absurd as we might think it to be – every big company does things like these, cfr. Coca-Cola’s patent on its bottles – it has been called⁵ regrettable that this patent has been awarded in a time where “*the tech industry is especially sensitive to the problems broad patents can cause*”⁶. Luckily, the jury involved in this trial stated that no company can patent a geometric shape – and thus common sense prevailed.

CASE-BUILT REASONING (II): IPL VS. THE ACADEMIC WORLD. – However, and all the specific details of the trial left aside, professor ROBIN FELDMAN⁷ stated the following remark on the Apple vs. Samsung trial – that, *nota bene*, probably describes the philosophy behind the brain twister on which this essay is based the most:

“*The trial is evidence of a patent system that is out of control. No matter what happens in this trial, I think people will need to step back and ask whether we’ve gone too far in the intellectual property system*”⁸.

³ BILLY GALLAGHER, Apple Awarded \$1.049 Billion In Damages As Jury Finds Samsung Infringed On Design And Software Patents, <http://techcrunch.com/2012/08/24/apple-wins-patent-ruling-as-jury-finds-samsung-infringes/> (last consulted: 23/12/2012)

⁴ VINCENT CHANG, Apple wins patent on a rectangle with rounded corners, <http://asia.cnet.com/apple-wins-patent-on-a-rectangle-with-rounded-corners-62219397.htm> (last consulted: 23/12/2012)

⁵ By FLORIAN MUELLER, author of the popular patent blog “Foss Patents”

⁶ STEVE KOVACH, Why Apple’s ‘Rounded Corners’ iPad Patent Isn’t As Absurd As It Sounds, <http://www.businessinsider.com/why-apples-rounded-corners-ipad-patent-isnt-as-absurd-as-it-sounds-2012-11> (last consulted: 27/12/2012)

⁷ ROBIN FELDMAN is an intellectual property professor at the University of California Hastings Law School

⁸ PAUL ELIAS, Apple Jurors Grappled With Complex Patent Issues In Trial vs. Samsung, http://www.huffingtonpost.com/2012/08/26/apple-jury-patent-trial-samsung_n_1831855.html (last consulted: 2/02/2013)

CASE-BUILT REASONING (III): APPLE VS. SAMSUNG. VS. THE WORLD. – When it appeared that the trial ended up in favor of Apple, Samsung released the following press statement:

“Today’s verdict should not be viewed as a win for Apple, but as a loss for the American consumer. It will lead to fewer choices, less innovation, and potentially higher prices. It is unfortunate that patent law can be manipulated to give one company a monopoly over rectangles with rounded corners, or technology that is being improved every day by Samsung and other companies”⁹.

While it is obvious that Samsung does stay a company that seeks to confirm its own stakes and economic needs, along with a natural necessity of public support – and thus their press statement would’ve been completely different if they had been in Apple’s shoes – I find their statement containing a large piece of truth when it comes to the current status of IPL all around the world – not just when it comes to this case, not just when it comes to the United States. The all-round frustration concerning the current IPL system is typical to our contemporary society. Not just to the “losers” of an IPL related trial, but also to the rest of society: professors, lawyers, and people who are generally directly involved within the process of IPL – but also, and rather positively surprisingly, fellow law students of mine who are seemingly getting more and more interested in this area of our legislation and are starting to form their own opinion concerning the recent controversy.

ESSAY OBJECTIVE: CRITICAL WHERE NECESSARY, YET EVERMORE CONSTRUCTIVE. – Given this short yet very symbolic example, it has now become somewhat clear as to where this essay will be leading. Have our legislators gone too far in regulating our IPL? Should we have rather opted for a simplistic, yet effective route instead? In what follows, we’ll hold this issue against the broad light that is the original philosophy behind IPL, and reflect on the idea if legislators haven’t gone too far in regulating intellectual property. Seen as solely criticizing delicate issues – such as in this case – would be too easy, I will also suggest an adequate and semi-technical, yet unique approach of reconstruction of IPL through an actor and interest analysis. While doing this, the fact of our contemporary and irreversibly developed society will naturally be taken into ac-

⁹ BRIAN X. CHEN, Apple Beats Samsung: First Reactions, <http://bits.blogs.nytimes.com/2012/08/24/samsung-apple-reactions> (last consulted 2/02/2013)

count. To conclude, we will contemplate on this newly constructed IPL and review if no stakeholders are left out in the cold. Join us in an idealistic journey to the romantic philosophy of the founding fathers of IPL.

Back to the founding fathers of IPL

QUOTES FROM OUR ANCESTORS. – When the first wave of intellectual property related laws drifted ashore, the protection of intellectual property wasn’t merely based on individual stakes – quite on the contrary, even. The original goal of IPL is to be pretty easily derived, from – for example – the description of the Copyright Act of 1790:

“An Act for the encouragement of learning, by securing the copies of maps, Charts, and books, to the authors and proprietors of such copies, during the times therein mentioned.”¹⁰

Or maybe the Patent Act, dating from the same year as well?

“An Act to promote the progress of useful Arts.”¹¹

And while we’re at it, we might even quote another known “founding father” – Abraham Lincoln:

“The patent system [...] secured to the inventor, for a limited time, the exclusive use of his invention; and thereby added the fuel of interest to the fire of genius, in the discovery and production of new and useful things.”¹²

A UNITY OF INNOVATION. – Thus, the original goal didn’t solely exist out of safeguarding a permanent pecuniary advantage for the author. The goal was to encourage and stimulate creativity by allowing the author to have a monopoly on his product for a limited amount of time, to be able to successfully spread his idea. The ideology behind this was the creation of as much Public Domain¹³ as possible, seen as after this limited amount of time, the idea became a public good that was freely available and accessible to the entire community. The philosophy was thus to create an intellectually rich unity of innovate ideas, and hence not exclusively favoring the author in question.

¹⁰ X, Copyright Act of 1790, <http://www.copyright.gov/history/1790act.pdf> (last consulted: 28/12/2012)

¹¹ X, Patent Act of 1790, Ch. 7, 1 Stat. 109-112 (April 10, 1790) The First United States Patent Statute, http://ipmall.info/hosted_resources/lipa/patents/Patent_Act_of_1790.pdf (last consulted: 28/12/2012)

¹² ABRAHAM LINCOLN, Collected Works of Abraham Lincoln. Volume 3 (Second lecture on discoveries and inventions, February 11, 1859), page 356b, <http://bit.ly/TuWf1X> (last consulted: 28/12/2012)

¹³ When a certain creation is free from any intellectual property rights, it is said that creation belongs to the Public Domain. See JAMES BOYLE, The Public Domain: Enclosing the Commons of the Mind, New Haven & London, Yale University Press, 2008, page 38

THE CURIOUS CASE OF THE PATENT TROLLS. – The philosophy of these Acts would have also successfully tackled the so-called patent trolls, who have now become frustratingly annoying in almost every way possible. These patent trolls are in fact no more than companies¹⁴ who start off lawsuits against alleged infringers of their owned patents, while the company in question doesn’t have any intention to manufacture or market the secured invention¹⁵. The alleged infringers, on the other hand, did market the invention, explored it or even improved it – yet they are the ones getting a lawsuit over a patent that had been stocked in a dusty basement of a patent troll for a couple of years, with the intention of (ab)using the patent when some person or company started exploring it. Frustrating, to say the least. The Patent Act of 1790 would’ve easily solved that problem though, seen as this Act required “the inventor to file a specification [...] containing a description [...] not only distinguishing the invention [...] but also to enable one skilled in the art to use the invention”¹⁶. So not only did the inventor–patent requester have to give an accurate description of the idea, he also needed to actually use the invention – a scenario that has been proved far from reality in our contemporary society.

A GROUNDLESS BENEFIT FOR THE PATENT HOLDER. – This original philosophy and set of ideas – the ones I so bluntly happen to favor – seem to have got lost in our capitalistic community. IPL appears to be seen as a goal in its own – far away from the original, almost romantic yet seemingly idealistic vision of the distribution of knowledge. Nowadays, the patent holder becomes untouchable and receives an almost inequitable remuneration for his “creation”¹⁷, while other important aspects such as the collective interest of society, the development of mutual knowledge and the extension of intellectual enrichment seem to be left out of the big picture.

¹⁴ Mostly companies, although it is also very possible for a person to play this role. However, seen the attractive advantages of a company – such as the separated property (cfr. Limited Liability Companies (LLC)) – it is clear why individuals usually put their patents within the assets of a company

¹⁵ See BRENDA SANDBURG, Inventor’s Lawyer Makes a Pile from Patents, The Recorder, July 30, 2001

¹⁶ MARK R. GOLDSCHMIDT, The Written Description Requirement - An Ambiguous Yet Critical Requirement for Patent Applicants, http://www.bc.edu/bc_org/avp/law/st_org/ip/tf/commentary/content/2002020101.html (last consulted: 28/12/2012)

¹⁷ The apostrophes indicate that the patent holder is not always the creator (cfr. for example some cases of patent trolling)

The “solution”

PERSONAL NOTE. – Although I might very much favor this way of solving the query, I must stress that this is merely my own, ideologically tinted opinion. In addition to that, I would also have to remark that this solution – as it is discussed in this essay – surely isn’t complete. Taken into account the maximum limit of the essay, restrictions on this ideology are only natural. Thus, and although I could probably write a thesis about this solution that’d exceed 100 pages, I have hereby limited myself to the essential basis. However, this should be more than enough already to initiate some very interesting conversations at the round table discussions of the G20 Youth Forum. Seen the basic elaboration, any additional questions will also very gladly be answered. Additional note: this solution is mainly worked out for categories falling mostly under patent law, such as plant breeder’s rights, manufacturing designs, biological discoveries, processes, machines, and so forth.

AN EFFECTIVE FIX IS A FAIR FIX (I). – The solution naturally has to provide a solution to all parties, seen as irregularities and disproportions qua advantages will cause one party to accept the resolution, whilst the other one will find himself to be unfairly treated and thus deny the answer. In a pluralistic, multi-individual and multi-moral society, a solution has only been reached and proven to be effective if every party welcomes the result. In what follows, I’ll try to explain the reasons as to why I believe to have reached such an ataraxic¹⁸ solution.

AN EFFECTIVE FIX IS A REALISTIC FIX (II). – Completely abolishing IPL would – in my opinion – be a horrid mistake. As stated in the introduction, the fact of our contemporary and irreversibly developed society needs to be kept in the back of our heads when working out a solution. Our economic and capitalistic society would have to take a hard punch if IPL were to be scrapped from the (law) book.

A VARIABLE TIME RESTRICTION (FIRST PILLAR). – On the other hand, the current IPL has proven itself to become unworkable. To resolve this, I’d be all for the recognition of intellectual property rights, yet be it for a shorter period of time. However,

¹⁸ EPICURUS described an “ataraxic” state as the perfect state that every human being should try to obtain – a form of imperturbability, an evenness of temper. See TIM O’KEEFE, Epicureanism, Durham, Acumen, 2010, page 120

it does seem interesting to not put a fix period on the length of IPL related rights; much rather than that, a variable period should be admitted. This variable period should, among other things, be based upon the size of the investment, seen as it is critical that every investment recovers its original Research and Development (R&D) costs. If however, during this variable period, those costs haven't been retrieved yet, the intellectual property right has all reasons to be maintained for a longer period of time.

R&D: PROBLEMATIC WHEN NOT RETRIEVED. – This might give the illusion that I would, in fact, be an advocate for yet another extension of IPL. Albeit a comprehensible remark, this isn't correct. When a certain idea arises and this concept proves itself to offer an effective added value to our society, there will most definitely be a request for it on the market. However, if there is no request for that specific invention – which means the R&D costs are not being recovered – and society doesn't have free access to this idea, it won't really be looked upon as a huge loss. It could f.e. be hard for an – albeit great – idea to be discovered by the market and thus the product in question will find it hard to recover its R&D costs. Reflecting on that, it'd only be logic to allow the inventor a longer monopoly on the exploitation of his idea – at least till the R&D costs have been recovered. It is only fair for someone to recover the investments in an idea – not only when it comes to a personal level, but also for the sake of innovation: if people are inhibited from the time necessary to regain these costs, less people will find themselves to be investing in innovation. However, in order not to tumble into injustice, absolute limits are necessary: a patent on a certain idea shouldn't last for f.e. 90 years just because of the inability to recover the R&D costs. In addition to that, good and innovative ideas usually do see their R&D costs returned relatively fast. As a last note, transparency by companies and individuals is here of a never-to-be underestimated prominence. Book keeping and accounting by companies need to follow strict transparency rules when it comes to income of patented inventions, seen as the original first pillar is calculated on a real-time basis off the companies' accounting details.

NOT ONLY JUST R&D COMPENSATIONS (THE SECOND PILLAR). – Understandably, innovation would also cease to exist if inventive minds were only to be allowed to recover their R&D costs

and nothing more. Our irreversibly developed society simply wouldn't allow such injustice. For this reason, creators should be able to collect a decent amount of profit off of their invention before the intellectual property right expires and thus before the idea becomes a permanent element of the Public Domain.

EXPLANATION BY A SIMPLE EXAMPLE. – Seen as the previous could seem quite abstract, the next simple example might come useful. Company X has a patent on medication that cures a specific minor disease. Five years later, the company gains back its R&D costs out of the money it received off of the sold medication. For the sake of innovation, however, it is also prominent for Company X to actually gain some profits out of its sold medication. That's why it should get an additional amount of time in order to realize that, based on a certain percentage. These variable percentages would be defined by category; for example 30 % for computer software, 20 % for medication¹⁹. This percentage would then be calculated out of the original and specific time the company in question needed in order to regain the R&D costs (a.k.a. the first pillar). In this case, the specific time to regain R&D is 5 years. Thus, 20% out of 5 years would make 1 year. That one year would hence be the time for which the company would be able to freely gain profits and would correspondingly have a full monopoly for one more year. After these six years, the patent expires and becomes a part of the Public Domain.

A CORRECTION ON BOTH PILLARS: THE CONTINUOUS QUEST FOR INNOVATION BY PATENTING IMPROVEMENTS. – It is obvious that this change won't be the most pleasant change for company X and the innovator in question. While previously the innovator was glorified and worshipped to such an extent that iniquity was just around the corner, he now needs to step aside for the greater good. While it is true that the patent holder in question does not hold a patent for an almost unreasonable amount of time anymore, it does not necessarily mean his role has been played out – quite the very opposite, in fact. The innovator will continue to be stimulated to actively perform research and there-

¹⁹ Note that these percentages are completely exemplary – 30 % computer software could either be way too much, or way too little. In reality those percentages should be based on extensive research preceding the reformation of IPL. In fact, in certain sectors where very little innovation is noticeable, the percentages of the second pillar could even go up to, for example, 80 %

fore find and create new adjustments and improvements to the original patent, which he can then get new patents on.

PATENTING IMPROVEMENTS: AN EXAMPLE. – An exemplary case of the latter paragraph could exist in the fact that innovator Tom might get a certain patent on a specific hardware related system in the beginning of the year 2012. The patent in question will expire six years later – variable profit percentage included (thus: first pillar and second pillar combined). In 2012 itself, Tom sets up a company and starts commercially exploring and exploiting²⁰ his invention. This gains the attention of competing companies, who are also interested in his patent. Tom, however, does not want to license his patent to other companies, and thus prefers to keep his monopoly on the patent in question – something he is fully entitled to do²¹. The companies will thus have to wait till 2018, the year the patent expires.

In 2013 however, Tom discovers a nice improvement he could add to the patent in order to improve the performance. In 2014, 2015 and 2017, Tom invents some major tweaks to the system he patented, now making the system almost incredibly fast. In all of these three years, he submitted a new patent for the modification of the system and the new system including those improvements. By the time the original patent becomes available to the Public Domain (2018) and competing companies will thus be able to copy the hardware system for their own profit, Tom will already have patented four new adjustments to the system. Those competing companies will thus not be able to use those modifications just yet, since their expiration date would respectively be 2019, 2020, 2021 and 2023. On top of that, other companies would have to start from the original idea Tom invented, while Tom's hardware system is already way more evolved.

Customers would thus logically opt for Tom's system when buying the specific hardware in question, as it would be of higher quality than the competing company, who is still stuck with the patent of 2013 – which gives Tom an incredible head start. On the other hand, the competing company didn't have to invest the original R&D costs and freely gets a nice

²⁰ Exploiting here refers to the positive connotation of the word

²¹ Hereby it is also stressed that this new IPL would not touch the idea behind licensing; patent holders will still be able to license their patent for the full duration of the time they have a monopoly on the patent

patent on which it can start building and improving²². Tom knows he's got a head start on the system and its further improvements, but also knows he has to keep on innovating and patent those innovations if he wants to keep his market leading role.

STRICT AND HIGH-QUALITY MONITORING. – Due to the smaller timespan of the accreditation of an intellectual property right, a stronger and stricter monitoring of protection would not only be possible, yet also needed. This stricter follow-up would also be in the advantage of the actual IPR holders, who would receive a shorter yet way stricter right on the patent, resulting in a constructive monopoly as an ideal platform for further innovation.

A NEW WAVE OF PUBLIC UNDERSTANDING AND SUPPORT. – This monopoly – as explained in the upper paragraph – would be publicly supported as well, since nowadays, patent and other IPR holders are sometimes frowned upon due to their divine and sporadically exorbitant rights. In this case, the rising issue of patent trolling is an exemplary illustration of collective frustration. The return to the roots of IPL will additionally create an enormous mentality change in society; the individual will acknowledge and understand the fact that a company is only human as well – and thus wants to create profit out of self-interest, just as much as humans do²³ – but it will also notice the company's tools aren't of a supernatural kind anymore. After all, the property will belong to the Public Domain after a short yet righteous timespan, which will allow society to access these ideas in order to enlighten itself. IPL will thus be accepted by society in a fresh, positive and self-innovating way.

PATENTING APPLICATIONS, NOT POSSIBILITIES. – As one of the concluding points, I do wish to stress the fact that intellectual property rights should only be applied to future or currently happening realizations – this especially when it comes to f.e. software patents. Patent trolls wish to protect a

²² An example here consists out of the first PC made by Compaq: bluntly copying IBM's bios chip would've created judicial problems, and thus they applied the concept of reverse engineering to make their chips function like IBM's. However, the price of a PC made by Compaq was way lower than one made by IBM (seen the R&D costs IBM had to invest). See VAN LINDBERG, Intellectual property and open source – A practical guide to protecting code, <http://books.google.be/books?id=89-B1pTiPw8C&pg=PA240&lpg=PA240&dq=#v=onepage&q&f=false>, page 240 (last consulted: 2/01/2013)

²³ An interesting concept on this matter is the "self-interest rightly understood" or "enlightened self-interest" by sociologist ALEXIS DE TOCQUEVILLE

creation that might once be realized – while this is not necessarily the essence of intellectual property rights. It is plainly absurd for someone who invents a new technology to not be able to enjoy any intellectual property related protection, seen as someone else already had a patent on the “idea” for a few years, yet never mentioned how this patent could be converted into practice and while this original patent holder never bothered to actually do something with it and practically work it out. It is also obvious that patenting possibilities would mean a loop-hole in this newly suggested system of IPL: when possibilities are patented and not commercially explored and exploited, no R&D costs are returned. When R&D costs aren’t returned, the first pillar will never initiate itself, let alone end – which would mean an intellectual property right could last for dozens of years until a company finally breaches the alleged patent and has to pay the license. Seen as only at that point the first cycle would be initiated, these practices cannot simply be permitted.

CONCLUSION: A BRIEF PANORAMA ON THE RESULTS

ESTIMATING A CONSENSUS BY ACTOR ANALYSIS. – In what follows, we’ll take a short look at how some of the different and most important actors would consider this new IPL.

1. THE COLLECTIVITY OF AUTHORS BECOMES SATISFIED. – The author’s work is protected for a shorter time span, yet this does not harm the stimulus of the creativity of the author. As seen above, Tom was still able to stay ahead of his competitors by continuously improving the hardware system and patenting those improvements. However, the original work does fall into the category of the Public Domain after a certain (shorter) period of time, so other authors/companies can turn into other routes of which the original author maybe hasn’t even thought about – and thus the entire collectivity of authors becomes satisfied. Moreover, the inventor will gain additional public support and collective understanding.

2. THE INDIVIDUAL RECEIVES ADDITIONAL ADVANTAGES. – The individual in the society will get a better and faster opportunity to self-actualization and self-enlightenment. Individuals who have less access to carriers of knowledge cause of its

protection by IPL will thus not fall out of the boat towards intellectual enlightenment. Cause after all, and as philosopher IMMANUEL KANT stated, the “Enlightenment is man’s emergence from his self-imposed nonage”, where the nonage in this case would be the IPL society imposed on itself²⁴.

3. THE PUBLIC DOMAIN RECEIVES A TREASURE ON SOURCE MATERIAL. – A return to the original ideology behind IPL could mean a whole new world of source material being opened for the public – without necessarily going against the creativity of inventors and authors.

4. THE KNOWLEDGE ECONOMY KEEPS ON EXISTING AS WELL AS GROWING. – Seen as the “knowledge carriers” (a.k.a. the authors and inventors) will still feel attracted to process and create new kinds of information, they will still contribute to society through transfer of knowledge. The Knowledge Economy will still protect original creations, yet not necessarily in a way that completely corresponds with the general concept that is now present in our capitalistic society.

As seen above, it seems like every stakeholder could be satisfied with the basic outline of this solution – separated from the technical queries. A concluding, self-criticizing note could exist out of the fact that one might wonder if all this doesn’t seem utopian. In the end, our capitalistic society has made an irreversible progress and thus turning the tides – by going back in time to the roots of our IPL – seems almost impossible. While this might be so, one should always take into account that renovation doesn’t necessarily mean rectification. Sometimes, our legislators go too far in their regulating task, dragging along an entire society with them to a new place that is not indubitably a better place. And when that happens, a semi-utopian and ideological reflective thinking exercise is exactly what the world needs.

²⁴ Cfr. IMMANUEL KANT, What is Enlightenment?, <http://www.columbia.edu/acis/ets/CCREAD/etscc/kant.html> (last consulted 2/01/2013)

JUDICIAL INDEPENDENCE IN HONG KONG – A UK LAW STUDENT’S PERSPECTIVE

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INTRODUCTION

The Hong Kong Special Administrative Region (“HKSAR”) was established in the year 1997, when the handover took place and Hong Kong once again became part of China. The undertaking of the ‘one country two systems’, a concept invented by Deng Xiao Ping¹, has become the cornerstone of Hong Kong’s rule of law². Article 85 of the Basic Law is usually regarded as the source of judicial independence of Hong Kong:

‘The courts of the Hong Kong Special Administrative Region shall exercise judicial power independently, free from any interference. Members of the judiciary shall be immune from legal action in the performance of their judicial functions.’³

However, on the other hand, the Basic Law also grants power to the Standing Committee of the National People’s Congress (“NPCSC”) to provide interpretation of legislations in certain areas:

‘... (the courts) need to interpret the provisions of this Law concerning affairs which are the responsibility of the Central People’s Government, or concerning the relationship between the Central Authorities and the Region, and if such interpretation will affect the judgments on the cases, the courts of the Region shall, before making their final judgments which are not appealable, seek an interpretation of the relevant provisions from the Standing Committee of the National People’s Congress through the Court of Final Appeal of the Region.’⁴

It should be noted that the courts will be bound by the interpretation provided by the NPCSC and legally there are no limits when the NPCSC could execute such power, even though normally such power would only be executed upon request by either the government or the Court of Final Appeal (the highest court of Hong Kong). The ‘one country two systems’ system has stood for more than 15 years; however, the prob-

¹ For a detail discussion of the system see Byron S.J. Weng, “One Country, Two Systems” From a Taiwan Perspective, *Orbis* 46 [2002]

² Or, as some academics suggest, ‘the rule of law is the cornerstone of the ‘one country two systems’

³ Basic Law, Article 85

⁴ Basic Law, Article 158

lem of mainland women giving birth in Hong Kong and the issue of citizenship of their children has imposed an enormous challenge to the judicial independence of Hong Kong. It created conflict between the executive and the judiciary. This essay will attempt to explain the problem and discuss the source of Hong Kong’s judicial independence.

THE PROBLEM: A BRIEF BACKGROUND

In order to understand the problem, one case needs to be mentioned. In the case *Director of Immigration v Chong Fung Yuen*⁵, the respondent was born in Hong Kong in 1997 after his parents came to Hong Kong through two-way permits through two-way permits. The respondent’s parents were in Hong Kong lawfully. However, it should be noted that neither parent was settled in Hong Kong or had the right of abode at the time of his birth or subsequently. The respondent claimed that under the Basic Law Article 24(2)(1) he was a permanent resident with the right to abode. Article 24(2)(1) states:

‘The permanent residents of the Hong Kong Special Administrative Region shall be:

(1) Chinese citizens born in Hong Kong before or after the establishment of the Hong Kong Special Administrative Region; ...’

The appellants, the Director of Immigration argued, relying on paragraph 2(a) of Schedule 1 to the Immigration Ordinance which was to the effect that one of the parents of the respondent under article 24(2)(1) must have been settled or have the right of abode in Hong Kong at the time of the claimant’s birth or any later time and therefore the respondent is not a permanent resident of Hong Kong. The main issue before the courts was whether Schedule 1 of the Immigration Ordinance was consistent with article 24(2)(1) of the Basic Law. The lower courts ruled in favour of the respondent and on the ground that the courts were bound to apply common law in interpreting Basic Law. (Which later affirmed by the Court of Final Appeal⁶)

⁵ [2001] 2 HKLRD 533 English Judgment

⁶ See p.544 A-J

POTENT REVISIONS TO IMMIGRATION AND REFUGEE POLICIES IN CANADA

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Canada is internationally considered as an inviting, welcoming country to foreigners especially those seeking refuge in a safe place. Many Canadians would consider this a proud declaration of their country's hospitality and generosity. Whether this is appreciated or taken advantage of by those who move to make Canada their new home, is the current topic up for debate between Canadians and the Canadian government. Due to an increase in illegitimate refugees attempts to take advantage of Canada's generous laws regarding refugees, and the backlog of processing time for applicants through the Canadian immigration system, significant changes have been and are currently being implemented in Canada's immigration and refugee policies. These changes have the ability to have sweeping affects for both Canada and by implication the rest of the world. The government has been the target of a lot of hostility regarding the new bills they have put forth, that they insure are to offer equality for all of Canada's citizens. Regardless of whether these modifications will improve Canadian living for its current citizens or whether they will destroy Canada's reputation as a welcoming country, one thing remains obvious; to gain acceptance into Canada, a permanent residence and a Canadian citizenship for new arrivals has recently become significantly more difficult.

There are a couple of different ways that one can achieve a refugee status and a permanent residence in Canada. Ultimately it must be determined that their particular situation qualifies them as a refugee. The definition for a refugee, as delivered by the 1951 Convention relating to the Status of Refugees or more well-known as the Geneva Convention, dictates that "a refugee is a person who is outside his or her home country and who has a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion" (Canadian Council for Refugees). If a person is not already in Canada, perhaps living in a refugee camp somewhere in the world, their refugee status will be first determined by the UNHCR, the

United Nations High Commissioner for Refugees, and then by the Canadian government. After the paperwork is completed they are brought to Canada as a refugee. Those living in refugee camps around the world often follow this process; these people are called Convention Refugees. However, if one is not chosen to come to Canada as a refugee by the UNHCR then they may attempt to find another way to get themselves and their family to Canada and claim refugee status once they arrive. Both of these categories of refugees receive the support of the Canadian resettlement program to begin their lives in Canada. There is one other opportunity for a refugee to come to Canada, and that is through the support of a privately sponsored group. These groups can be any five individuals with evidence that they have the ability to support an incoming refugee so that the government will not need to provide for them. Quite often these groups are faith organizations, ethnic associations, and unions. For those who come to Canada claiming refugee status there are a series of steps that they must go through. First they must file a claim that is sent to the Immigration and Refugee Board (IRB), then they will be given a hearing which can take up to two years to occur. If they are granted refugee status at the hearing then they are in Canada to stay and may apply for permanent residence. However, if they are denied refugee status, they may then appeal the decision. During this time they may remain in Canada until it is completed—approximately three to four months. It is unlikely that the decision will be overturned. If it is not, they have one last opportunity to have a Pre-Removal Risk Assessment done, at which they can only bring forth new evidence occurring since their original hearing if any exists. This can take about 6 months. If their acceptance is again denied, the refugee claimant receives their deportation notice and must return to their home country.

There are some immediate issues with these procedures of the Canadian Immigration system. First of all, the process to claim refugee status takes an immense amount of time. People who have fled for

their lives and arrive in Canada often have minimal belongings and may not have a good grasp of English or French, Canada's two official languages, thus lacking the ability to communicate. But they must find shelter, safety, food, and water in a place where they have never been before. On top of these basic human needs they must learn where and how to file a claim, be able to provide all the proper documentation and get their story across most effectively. Once their claim is filed they must wait, as it's likely to take years for the government to process their claim and make a decision. During this time the claimants begin to make a life in Canada. They get jobs, children attend school, and they begin to form friendships in their new country. Canada becomes their new home and at any time their claim may be denied and they could be facing deportation. Secondly, there is the perpetual concern of those simply looking to abuse Canada's generosity by making illegitimate claims. These people significantly slow down processing. As Canada is seen as a country that is welcoming this may also be viewed as a country in which it is easier to gain a refugee status. Along with the benefits of the health care system one seldom has to look further before deciding that Canada is the place to attempt to claim refugee status especially if it is not a legitimate claim. Finally, there is the social concern of the public treatment of refugees. Moving to another country can be difficult enough without the stereotypical prejudice linked with having refugee status. All these are issues highlight the need for better solutions so that Canada may offer legitimate protection to the continually rising number of refugees in the world today.

In Canada, refugee acceptance rates and thus the total refugees taken in by Canada has significantly dropped over the last six years. As of November 2012 the acceptance rate was around 28 per cent, with 2,449 claims accepted out of 8,646 cases. In 2006 the rate was 47 per cent with 5,042 cases accepted out of a total of 10,620. Globally the numbers have also decreased although not as radically, with 34 per cent of claims accepted in 2012 and 46 per cent accepted in 2006 (Black). It is obvious, especially with the growing number of refugees in the world increasing, that something needs to be done to correct this.

In awareness of the flaws of Canada's immigration system, there have been quite a few significant changes; some of the newest having only come into effect this past December. Immigration minister Ja-

son Kenney has introduced a list of 'safe' countries. These are countries considered to be fully capable of protecting their own nationals. Countries not on this list, entitled the Designated Country of Origin List, are subject to be placed on the list if their claims have a rejection rate of at least 75 per cent at the Immigration and Refugee Board of Canada, or a withdrawn and abandoned rate of at least 60 per cent (CBC News). Those claiming refugee status coming from a country that has been placed on this list will be fast-tracked through the system with no right to appeal the decision. Their claims will be heard within 30 to 45 days and if rejected they will be deported within a year. As applicants from 'safe' countries they will be unable to work in Canada unless their claim has been in the system for 180 days without a decision. As part of the reasoning that brought forth this law Kenney states, "Our system took so long to get around to removing false claimants, unfounded claimants who did not actually need our protection and in some cases, were seeking to abuse Canada's generosity. We believe the new system... will substantially reduce the attractiveness of making unfounded claims and will therefore allow us to focus our resources more on the bona fide refugees who actually do need our protection" (Keung). Currently on the safe list are the following countries: Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, and the United States of America. Minister Kenney has reserved the right to place any country on the list that he deems to be democratic, with an independent judiciary (CBC News). This gives a significant amount of power to the government and specifically Kenney as to which countries belong on this list. Furthermore, a country that is determined to be 'safe' based on its government's ability to protect its people does not necessarily mean that it actually does.

With the intent to decrease the number of illegitimate refugees seeking residence in Canada, the 'safe' list also has the global implications to hold the countries on it to a stronger accountability for their citizens attempting to claim refugee status. This could be established by more effective government initiatives of protection or possibly by an uprising of riots due to conflict of opinion with the government's decisions. Either way, without Canada as an escape for illegitimate refugees

from countries deemed 'safe', any potential protective action must lie within the home country.

To discourage illegitimate refugees from abusing a generous Canadian welcome, specifically those desiring health care, the government has made significant cuts in health care provided for refugees. Previously, temporary health coverage has been available to refugees before they are able to qualify for provincial and territorial coverage. As of June of this past year refugees arriving in Canada have lost all supplemental health care benefits and those whose claims have been denied lose all access to health care unless their condition is a risk to public health and safety (Belluz). Health professionals throughout the country have risen up in protest to this budget cut. Doctors and nurses are expected not to perform operations and offer care to people who are in dire need, as they will no longer have coverage. This new legislation forces Canadian health professionals to either make an unethical decision to not treat patients falling into this category or to do what they can for them on their own time. A potential bonus and obvious selling point of this decision is the amount of money it will save. The Canadian government is continually stating that these cuts will save \$100 million over 5 years, as well as discourage illegitimate refugees from mistreating Canada's free health care.

Another change to the laws of immigration in Canada deals with smugglers bringing in refugees. In June of 2011 the Preventing Human Smugglers from Abusing Canada's Immigration System Act began its journey through government. Better known as Bill C-4, the purpose is to punish smugglers however; in reality it punishes the refugees who have fled to Canada. As this bill makes its way through parliament it has already been quite controversial creating news in the media and strong reactions throughout the country especially within the Canadian Council for Refugees located in Quebec. They have stated that "Under Bill C-4, refugees will be victimized three times: first by their persecutors, secondly by the smugglers and finally by Canada" (Canadian Council).

Bill C-4 will cause the mandatory detainment of refugees, including children, for one year. Also, it will prevent these refugees from obtaining a permanent residence in Canada for five years, even after being accepted as refugees. While waiting for five years they will be unable to travel outside the country or

bring any other family members to Canada (Canadian Council). Furthermore, when families are placed in a detention centre they are not necessarily kept together. Fathers are separated in the building and given specific visiting hours to see their wife and children (Mallick). Minister Jason Kenney was quick to point out that, "They are not jails. In the case of the Toronto detention centre, for example, the main one, it's a former three-star hotel with a fence around it." Heather Mallick, in an opinion article in the Toronto Star, says "he had no comment on what can be openly seen and photographed: children's outdoor slides surrounded by actual razor-wire fences, guards, surveillance cameras and rooms with barred windows" (Mallick). Essentially Canada is locking up newcomers into our country, many whom life has dealt a difficult hand and just when they finally believe that they may have a chance at a better life in Canada and they are placed in a prison-like atmosphere. Refugees are placed into two groups, punishing those based on their method of entry into Canada, without considering that perhaps lives have been saved because they chose to trust someone to smuggle them into the country. The UNHCR Refugee Convention article 31 prohibits States from imposing penalty on refugees for illegal entry. Not to mention the numerous violations of Human Rights disregarded in imprisoning and separating families, especially young children.

Bill C-4 does not allow any opportunity to have denied claims appealed before returning refugees to their country. With the absolute potential of human error, it is necessary to have a second look at a claim, just to be sure that nothing was missed the first time. There are, potentially, human lives at stake in the denial of a claim; Canada needs to take the time and the money to make absolutely sure that this process is not sending people back to a violent or threatening situation. It is also stated in the Refugee Convention that "No Contracting State shall expel or return a refugee in any manner whatsoever to the frontiers of territories where his life or freedom would be threatened" (Office of the UNHCR). To insure that this is not something that Canada is responsible for, it is important that every refugee claimant has the chance for a fair analysis of his or her case.

Not only has it become more difficult to be accepted into Canada as an immigrant or a refugee but the process and requirements to achieving a Canadian

citizenship have also become more strenuous. Applicants are now required to show documented proof of proficiency in either of Canada's two official languages, English or French, to become a Canadian citizen. This is not so easy to obtain as one might first think, especially when fleeing your country in fear of your life. Gathering all the documents that you may need is not always possible. It is also possible that a refugee speaks fluent English but it is something they learned informally and thus lack documentation (Sanders). Obtaining citizenship will be an especially daunting for women as they have often not participated in their home country's work force and therefore have had less opportunity to learn the language.

It is not only Canadians that have a problem with the new laws surrounding immigration and refugees. The United Nations High Commissioner for Refugees is not pleased. As a country of the United Nations, Canada is responsible for offering what it can to assist those countries that need help. Included in this is the absolute necessity to provide a safe place for those who desperately seek it. In 2011 there was 42.5 million refugees worldwide, a high since the year 2000 (Levitz). The UN High Commissioner for Refugees, Antonio Guterres, said in a statement, "2011 saw suffering on an epic scale. For so many lives to have been thrown into turmoil over so short a space of time means enormous personal cost for all who were affected." He continued, "We can be grateful only that the international system for protecting such people held firm for the most part and that the borders stayed open. These are testing times" (Levitz). The UNHCR representative in Canada, Furio De Angelis, notes that, "Canada is a country that is very important to us with respect to the solutions of refugee problems," he also expressed his concerns about the changes in recent laws in Canada. With the world's current state, in considering the "shaky global economy" and the ongoing conflicts in countries like Afghanistan, Somalia and Sudan, with no sign of a near resolution, the world's ability and desire to protect refugees seems to be dwindling. Mr. De Angelis said, "We know that there will be a challenge in resources with respect to meeting humanitarian needs and we have indications from donor countries that that will be the case for obviously reason, given the financial and economic downturn in so many traditional donor countries" (Levitz). With refugee numbers rising and the economy in countries like Canada falling, those who drastically need protection are the ones who will suffer.

In 1939 the MS St. Louis arrived in Halifax, a ship carrying 907 Jewish refugees fleeing for their lives. They were denied entry into Canada, a decision that is sorrowfully regretted by Canadians now. The aftermath of the Second World War was the birth of the Geneva Convention as the world was tormented by the guilt of not coming to the aid of the millions of people that so desperately sought refuge. With so much war causing people to flee their countries in the present day, it is such devastating decisions such as turning away the MS St. Louis that need to be remembered.

Canada has embarked on making significant changes in its immigration and refugee policies within the last year. While historically viewed as a welcoming place for refugees throughout the world, the Canadian government is has implemented different rules and regulations in a series of more stringent guidelines. The government behind these new policies is insisting the necessity of these new regulations is to stop false or fraudulent refugee claims and thus remedy some of the backlog of the system. The pendulum has swung too far; the changes put in place are not those looking to best serve Canadians or the potential immigrants and refugees that arrive in Canada. Canadian citizens, born and raised, need to feel as though the government has their best interests in mind however, this can be accomplished without targeting those whose needs are much more urgent. People's lives are at stake. One cannot place a price on that, much less treat them any worse than any other Canadian in order to save money. They may not be Canadian citizens but that does not mean that Canada can dismiss them as not the country's responsibility. The very notion of what it means to be a refugee or immigrant has been placed into question and fundamental realignment. It is this line of thinking that is detrimental to not only Canada's, but the rest of the world's ability and willingness to help those people out there who desire exactly what so many people take for granted; a safe place to live.

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THE RESPONSIBILITY TO PROTECT AND INTERNATIONAL MILITARY INTERVENTION

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Since the release of the Report of the International Commission on Intervention and State Sovereignty (2001), and the adoption by the United Nations’ of the Responsibility to Protect (R2P) principles (2005), the United Nations’ mandated intervention into the Libyan conflict represent the high point of this new international norm. The failure of the United Nations to respond similarly to the ongoing internal conflict in Syria represents the low point for this new norm, and raises questions about its value and utility in managing, deterring and responding to internal conflicts. This analysis examines the political conditions underlying both these cases to identify the realistic limits of this new norm relative to future internal conflicts. In so doing, it demonstrates that both cases are not good measures for evaluating the ‘true’ utility and value of R2P in international politics.

From the onset of the Libyan internal struggle, observers labeled the response of the international community as the test case for the Responsibility to Protect (R2P)¹. The success of the intervention legitimized by the United Nations (UN) and led by the North Atlantic Treaty Organization (NATO) was expected to send a signal to all states that the international community would no longer stand aside in response to the commission of war crimes, and crimes against humanity². In so doing, the threat of international intervention should have deterred states from undertaking such actions. Unfortunately, this did not occur with the next candidate for R2P intervention – Syria. Instead, civil war broke out and has continued for roughly two years, with the international community unable to act beyond limited diplomatic initiatives³.

¹ For an overview, see for example Jayshree Bajoria. “Libya and the Responsibility to Protect”. Council on Foreign Relations. March 24, 2011. <http://www.cfr.org/libya/libya-responsibility-protect/p24480>

² R2P also includes genocide and ethnic cleansing, but there is no evidence that either applied to Libya and Syria

³ On Syria and R2P, see for example Patrick Quinton-Brown. “Saving R2P from Syria”. Canadian International Council. August 14, 2012. <http://opencanada.org/features/the-think-tank/comments/saving-r2p-from-syria/>

Problematic is whether either case truly meets the conditions laid out for military intervention based upon R2P, beyond the obvious recognition that any and every civil war will contain attacks against civilians, and significant civilian casualties. These, by definition, may constitute war crimes and/or crimes against humanity. However, the reality of civil wars does mean that each one constitutes a case for R2P intervention, and labeling every civil war as an R2P intervention candidate will only undermine its importance and utility in cases where systematic evidence exists. This analysis identifies three key issues surrounding R2P: the assumptions underlying R2P relative to the reality of civil war; the relationship between the international moral imperative and the national one, and the problem of intervention doing greater harm. These are then applied to Libya and Syria to demonstrate that the neither should be conceptualized as R2P.

R2P

The Report of the International Commission on Intervention and State Sovereignty established the principle that the international community had the responsibility to intervene in circumstances where a state was unable, or unwilling to protect its citizens from genocide, ethnic cleansing, war crimes, and crimes against humanity⁴. Subsequently, the principle was adopted at the UN World Summit in 2005⁵. Resolution 60/1 identified three pillars of R2P: the primary responsibility of the state to protect its citizens from these crimes; the responsibility of the international community to assist states in meeting their primary responsibility, and the responsibility of the international community to intervene when a state fails to do so.

While the language of the Report and subsequent UN documents is framed around the idea of a gov-

⁴ International Commission on Intervention and State Sovereignty. The Responsibility to Protect. Ottawa: International Development Research Centre, Dept. of Foreign Affairs, Canada. 2001

⁵ Office of the Special Advisor on the Prevention of Genocide. The Responsibility to Protect. United Nations

ernment failing to meet its fundamental responsibility to protect its citizens, in reality the principle is largely directed towards situations in which a government is actually responsible for committing such crimes. The central goal, in keeping with the long established international principle of military intervention as a last resort, is to deter governments from committing such crimes by threatening the use of force. In it is this sense that R2P sets a legal limit on the applicability of Paragraph 7, Article Two of the UN Charter, which prohibits UN intervention into the internal affairs of a sovereign state, except under Chapter VII enforcement provisions as determined by the Security Council (UNSC)⁶. In so doing, R2P formally entrenches genocide, ethnic cleansing, war crimes, and crimes against humanity as threats to international peace and security, even though the UNSC has never been formally bound to an explicit set of threat criteria, with the exception of a state committing aggression against another state. Even then, aggression, relative to the legal right of a state to act in self-defence, which also includes the right of pre-emption, is open to definition and largely determined by the decisions of the UNSC in general, and the Permanent-Five (P-5) in particular which hold veto power.

Of course, these R2P crimes were already well established in international law, stemming from the laws of war, the Geneva Convention, the Nuremberg Trials, and the UN Universal Declaration of Human Rights. Even so, the international community had failed to prevent such crimes in Cambodia, Somalia, Bosnia, and Rwanda, amongst others. Thus, R2P is as much designed as a deterrence measure, as a legal right of intervention. In qualifying the principle of non-interference into the internal affairs of a sovereign state, the UN is communicating a threat to deter states from committing or allowing such crimes to occur, backed up by the military capabilities of the international community through a Chapter VII mandate. The problem remains, however, whether the international community possesses not only the political will to intervene. If this will is perceived as absent or questionable, then the deterrent threat lacks real credibility, and is bound to fail. The responsibility for failure, in turn, can only be laid at the feet of the UNSC and the P-5 veto. Failure is then usually explained as the triumph of national interests, and the primacy of non-interference over international humanitarian law in UNSC/P-5 decision-making.

While calculations of national interest and non-interference cannot be entirely ignored, the credibility problem of the R2P deterrent is much more complicated. It presumes that not only are such crimes easy to detect or observe, but also that responsibility for the crimes can be readily identified. The International Commission in particular grappled with the detection problem, and basically concluded that one would know such crimes when one sees them.

Such crimes today, real and perceived, usually take place in a situation of internal strife, and/or civil war. The very nature of these situations ensures that such crimes will be present, and thus any and every violent internal conflict is an R2P candidate. The formal lines between government security and military forces, revolutionaries, freedom fighters, or rebels, and the civilian population are blurred. Moreover, the two or more sides in a civil war also tend to be differentiated in exclusive groups on ethnic, tribal, and/or religious grounds, with a civilian population attached to each. Civilian populations, regardless of their actual behavior, come to be seen as intrinsically part of the government or the opposition as the state becomes polarized into at least two groups, reinforced by the lack of clear means – military uniforms for example – to differentiate soldiers (legitimate targets) from civilians (illegitimate targets). Even uniformed government forces come to be supported by non-uniformed militias. The stakes appear for fighters and civilians alike to be survival, increasing the brutality of the struggle, and the likelihood that R2P crimes will be committed by both sides.

As every violent internal conflict is by definition R2P eligible, then any time a government seeks to defend itself from a violent opposition, it becomes a target for intervention as it comes before the UNSC. R2P motivated intervention is supposed to be politically neutral, as it is designed to protect civilians – the weak and the innocent – from both sides. However, no intervention can be politically neutral, even if it is the theoretical intent. As intervention is to be triggered by failure, either through government inaction to protect its citizens, or its own actions in intentionally or not attacking its citizens, the target of intervention becomes the government and its forces. R2P implicitly labels the government as responsible for the violence as a function of some form of repression of its own making. It is also usually perceived as the militarily stronger and better equipped. Thus, inter-

vention to protect the weak becomes intervention to protect the opposition, and the opposition thus has an incentive to generate conditions for intervention. The threat to deter violence is simultaneously an incentive for violence.

This is not to suggest that such governments are innocent, and the status quo acceptable under any conditions. Rather, it is to recognize that intervention means taking sides, and taking sides has political implications for the international community and its member states. To label those states opposed to R2P intervention as following their narrow self-interests, while those supporting are acting on a higher moral ground, ignores the reality that all are following their self-interests. To act truly as a neutral requires intervention that recognizes all parties to the conflict are likely guilty, through intentional or unintentional actions, with the objective of defeating and disarming all sides, and installing some form of interim trusteeship. This, however, raises major international political problems.

First, it would require a ‘sea-change’ in attitudes within the international community, which implicitly sees trusteeship as a form of colonialism and imperialism. Second, it raises questions about how such a trusteeship would be organized and managed relative to the relationships amongst sovereign states, regional organizations and the UN. Third, and most relevant to this analysis, it raises the issue of costs in the calculation between the national and international moral imperative. It is these costs, which significantly affect the decisions of members of the UNSC, and the P-5 when responding to every violent internal conflict.

R2P seeks to seize the moral high ground over narrow national self-interest. The international trumps the national. But, narrow self-interest also contains its own moral imperative. National governments are morally responsible to their own citizens, and military intervention is not morally cost free for any state. It entails the employment of national treasure, resources and lives, which is never an easy moral calculation. Certainly, blatant systematic cases of genocide, war crimes or crimes against humanity are likely to bring to together the moral international and national imperatives, and thus an intervention that should and will lead to the overthrow of the offending government. However, most contemporary

internal conflicts are not as clear in terms of intent, guilt, and where the line is to be drawn between the legitimate right of a government to act in self-defence, regardless of its form of governance, and the commission of R2P crimes. In such circumstances, all governments will be cautious in their willingness to commit military forces, especially if the end game may entail taking on all parties to maintain neutrality, and then seeking to build a new government⁷.

In this regard, there is implicit belief that the military superiority of the international community, especially if led by the West and the United States, is sufficient to bring the conflict, and thus the crimes to a quick end. Indeed, the R2P deterrent threat is premised on this superiority. However, military superiority does not necessarily translate into an assured, quick victory in the case of violent, internal civil war, as evident in Iraq and Afghanistan. All states contemplating intervention must consider the possibility of becoming trapped in a costly conflict, in which they potentially become enemies of all sides. Moreover, states also have to consider whether intervention will do more harm than not. Embroiled in a complicated civil war, the military demands to end the conflict may lead to military actions, albeit unintended, which also place civilians at increased risk. Moreover, such intervention relative to other local or regional actors, which have an immediate stake in the outcome of the civil war, can also lead to wider escalation of the conflict.

In the end, the international moral imperative underpinning R2P cannot be ignored. However, its intent is primarily directed towards circumstances in which it is clear that genocide, ethnic cleansing, war crimes, and crimes against humanity are uncontested. It was these circumstances in the past, which drove the international community to adopt R2P. Unfortunately, recent internal conflicts in which R2P has been central to the debate about intervention are politically contestable, and Libya and Syria stand out as the most recent examples.

LIBYA AND SYRIA

Both the Libyan and Syrian civil wars share common characteristics. Their regimes, by Western democratic standards, are dictatorial, unrepresenta-

⁶ United Nations. Charter of the United Nations. <http://www.un.org/en/documents/charter/>

⁷ This arguably is the clearest lesson of the American-led intervention into Iraq in 2003, regardless of the debate on its legality.

tive and repressive. Both civil wars are sparked by the Arab Spring, which began in Tunisia and spread across the Middle East. Both contained ethnic/tribal fault lines that divide the government and its population into warring factions. The opposition, freedom fighters or rebels, in turn, are divided into different groups, and share only the common objective of overthrowing the existing government. There exists no shared vision of the future form of governance, notwithstanding the rhetoric of democracy, and an open question of how the winners will treat the losers – political elites, the military and civilians. The governments possess military superiority by virtue of training and equipment. The opposition forces are poorly equipped, and rely in terms of their ground forces on defectors from the existing government's armed forces, and covert military support in the form of weapons, advisors, and fighters from outside actors. Finally, both are labeled, at least in the Western media, as R2P cases.

The key distinction is the response of the international community. In Libya, the community responded with military intervention limited to the employment of airpower as legitimized through UNSC Resolution 1973 authorizing the establishment of a no-fly zone and the taking of "all necessary measures to protect civilians and civilian populated areas under threat of attack in the Libyan Arab Jamahiriya, including Benghazi, while excluding a foreign occupation force of any form on any part of Libyan territory"⁸. In Syria, the international community through the UNSC has been unable to act, because of the likelihood of veto by Russia and/or China: two of the five states which abstained on Resolution 1973.

The dominant discourse, and not exclusive to the West, in explaining the different responses has been twofold. Russia and China, in particular, were somehow fooled into supporting the Libyan intervention and did not suspect the actions and outcome that occurred. In response, both were determined to prevent a re-occurrence of intervention into the internal affairs of a sovereign state, largely for domestic reasons⁹. Moreover, Russian motives included its

close political relationship with the Assad government in Syria. In contrast, the Gaddafi government had moved towards the West prior to the internal conflict, and had broken its ties with Russia after the collapse of the Soviet Union. In effect, Russian and Chinese national self-interest triumphed.

To suggest that Russia or China were fooled is misleading to say the least. There are no shortages of national interest reasons, which can explain their decision to abstain on Resolution 1973. In addition, national interests can also be employed to explain the reasons behind the intervention led by NATO, including of course, oil. At the same time, the different responses can be explained by the different geopolitical contexts. In Libya, for example, its two key neighbours.

Tunisia and Egypt, had just overthrown dictatorial regimes, and were thus sympathetic to the opposition in Libya. Neither would oppose the overthrow of Gaddafi, thus eliminating the possibility of wider escalation. For Syria, consideration had to be given to the possibility that intervention would spark a much wider war, because of the complicated political relationships and issues within the region. In other words, the possibility that intervention in Libya would lead to greater harm was low, whereas in Syria it was high.

In this sense, the Russian veto possesses an element of international and national moral responsibility that comes from the uncertain outcome of military intervention. A similar situation applies in the case of Libya. The drafters of Resolution 1973 put specific limits on intervention and foreclosed the use of ground forces. While the ostensible objective was to protect civilians from the harm caused by the indiscriminate use of Libyan airpower and armoured forces in a civil war fought in villages, towns and cities, the military reality was somewhat different. In order to protect 'opposition' civilians from retribution if Gaddafi's forces won, Western military superiority was at a minimum to create a rough military balance between government and opposition forces. Such an outcome would meet the implicit objective of impartiality, and ideally generate the conditions for a negotiated settlement. Whether naïve or not, there were no military targets open to the NATO-led coalition to protect anti-opposition civilians, and thus degrade opposition military forces. Thus, the intervention was decisive in the victory of the opposition. As for

opposition retribution upon victory, the international community simply 'turned a blind eye'. The community also left the future form of governance to the opposition forces to work out.

There were, of course, political and moral reasons behind the airpower limitation in Resolution 1973. Any open door to possible ground intervention would have likely produced a P-5 veto. Such an open door would have also raised fears amongst states of being dragged into a military quagmire, especially after the experiences in Iraq and Afghanistan. In effect, the international community via the UNSC did as much as politically and morally possible, even if their actions took political sides, in an attempt to limit the commission of R2P crimes.

Such limitations also informed the failure of the international community to intervene in Syria. While Russia and China have taken the brunt of the blame, Western decision-makers were as likely to be deeply concerned about the political, moral and military implications of intervention, even if limited only to airpower. Syrian air defences pose a much greater military problem than Libya's, and destroying its air defences would likely have produced civilian casualties despite precision bombing capabilities. The fear was also the possibility of losses, and potential pressures emerging to escalate. Moreover, such intervention clearly meant taking sides, as it did in Libya, in a complicated civil war. In effect, intervention means R2P protection applies to only one side of the conflict.

Finally, both Libya and Syria raise the question of whether they should be considered R2P situations. As noted above, the Libyan intervention and proposed Syrian one means the international community taking sides, and ostensibly privileging one group of civilians over another. To intervene as a neutral, as R2P demands, would require a massive commitment of military forces with all of the implications such a commitment would demand. More importantly, the complicated nature of both civil wars in which military forces are inter-mixed with civilians guarantees that all sides will commit R2P crimes. Singling out the governments as the offenders, simply because they are the government and possess superior military capabilities, ignores the reality of civil war. Opposition forces have little choice in such conflicts but to inter-mingle with civilians. Responsibility for R2P crimes thus falls upon all sides.

CONCLUSION

The moral, humanitarian imperative to prevent the commission of crimes against innocent civilians as codified with the adoption of R2P is one of the most important developments of the last decade. Unfortunately, the complicated nature of contemporary civil wars, as witnessed not only in Libya and Syria, but also in Iraq, Afghanistan, and several African states, bears witness to the inherent difficulty in implementation. It is too easy to simply label the situations in which the international community under the auspices of the UNSC is unable to act as the triumph of narrow, selfish national interest over the greater humanitarian good. Instead, each civil war relative to the response of the international community must be assessed in terms of the implications of military intervention. All decision-makers, internationally and nationally, have to weigh the benefits and costs in political and moral terms. The real lesson of Libya and Syria is not one of R2P success and failure. Rather, it should lead to a re-evaluation of R2P to clarify the situations in which its principles are applicable.

Naturally, space does not allow a full analysis of the R2P principles and the Libyan and Syrian cases. Nonetheless, such an analysis is necessary in order to avoid degrading the fundamental importance of R2P. Nor should one ignore the success of the Libyan case, and the failure in Syria. But, the danger in labeling either, or both as R2P is turning the valuable principle of military intervention to protect civilians on all sides to the conflict into a political football.

⁸ United Nations Security Council. Security Council Approves 'No-Fly Zone Over Libya, Authorizes 'All Necessary Measures' to Protect Civilians, by Vote of 10 in Favour with 5 Abstentions. New York: Department of Public Information. <http://www.un.org/News/Press/docs/2011/sc10200.doc.htm>

⁹ For Russia, the domestic issue is generally portrayed as Chechnya. For China, it is Tibet, amongst others stemming back to its historical experience of western intervention in the 19th Century.

PARTICIPANTS IN PEACE: Ukrainian and Canadian youth explore human rights and democracy

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The greater curvature of the universe and of the planet Earth must govern the curvature of our own being. (Berry, 1988)

In 1997 two finance ministers of G7 countries, Canadian Paul Martin and Larry Summers of the United States spoke about the need for a new international institution (beyond the G7) to “govern a new, intensely interconnected world” (Kirton, 2012, p. 2). The new institution would add emerging American and Asian powers to the long dominant European-Atlantic countries already established; and so the G20 was formed. Martin spoke of the need for good, close working relationships; if one country failed, all would fail.

In our global village, the definition of human security is changing from the maintenance of secure national borders to ensuring the safety and development, freedom and dignity of all (OCHA United Nations Office for the Coordination of Humanitarian Affairs) – work that begins with relationship building and critical thought for women and men from grassroots to highest diplomacy.

One of the challenges of the twenty-first century is the engagement of world youth in the active pursuit of peaceful coexistence for all world citizens. This means dealing with legacies of structural and interpersonal violence not of their making. The task is particularly difficult in regions where youth involvement has been neither sought nor nurtured. Citizens are further challenged when they live in danger, their own personal needs not met, and/or in areas where violent discord and oppression cloud their regional histories. With no blueprints, what respectful avenues are available to support ongoing cross-national, cross-regional peacebuilding?

This paper describes a fledgling participatory action research (PAR) project which uses research as a tool for collaborative exploration and action where-in youth in diverse areas of the new democracy of

Ukraine and the more established Canada share their understandings and visions of human rights, democracy, and world citizenship. The study emerges from a belief that productive change occurs only when there is citizen agency or empowerment of which one of the main tenets is civic engagement.

This project is one small piece – a piece building upon years of Ukrainian/Canadian collaboration, initially on a Canadian International Development Agency (CIDA) funded project, Reforming Social Services: Canada-Ukraine (McKenzie & Hayduk, 2008). In following years partners sought more cooperative opportunities. In 2010, a PAR study with Soviet-era raised women (mothers and grandmothers) from two diverse areas of Ukraine used narrative to explore how people from diverse cultures and histories work towards a peaceful common future in the struggling Ukraine. Participants envisioned a future with economic stability and inclusion of all peoples and cultures, a thriving democracy. While the women acknowledged the importance of their own continued efforts, they focused on the necessary engagement of youth to work alongside them for their own future and the future of Ukraine (Flaherty, 2012).

Similarly, Aboriginal grandmother activists recently interviewed in Canada voiced concern for the wellbeing of not only Aboriginal youth, but all youth understanding that many feel alienated from their communities as well as the mainstream processes that ultimately decide policies affecting their lives – policies they could impact if they were engaged in the machinations of civil society. (See Flaherty & Rocke forthcoming).

CHALLENGES TO THE PARTICIPATION FOR DEMOCRACY

Ukraine and Canada are democracies at different stages of development; both futures rely upon an engaged, informed citizenry. Ukraine, not yet a member of the G-20, struggles toward the vitality dreamed of with 1991 declared independence as ethno-political

conflict remains on the horizon (Marples, 2007; Kyiv Post, 2010). The aftermath of the Soviet system has highlighted ethnic and cultural divisions that tend to disguise other destabilizing factors such as political and socio-economic interests (Sasse, 2007). Meanwhile since the early 1970s, Canadian citizens of all ages have reduced participation in formal democratic processes (Wesley & Summerlee, 2011). Beginning with Ukraine, a brief explanation continues below.

Ukraine has a history textured by diversity in culture, language, lived experience, and collective memory (Kappeler, 2009). In addition to divisive regional occupation experiences visible in architecture, language, and religion practiced in east and west Ukraine (Bartov, 2007; Marples, 2007; Reid, 2003/1997/1985), there are differences in the ways people think about independence and democracy (Zviglyanich, 1998). Becoming a fully participating citizen of a democracy requires preparation (Craddock, 2005). This was not the case when in 1991 Ukraine, not having the foundation necessary for civil engagement, had independence suddenly thrust upon it (Politkovskaya, 2007). Government resistance to reform almost halted the Ukrainian economy, leaving it vulnerable to internal and external shocks. Despite the extraordinary, effective citizen action of the 2004 Orange Revolution supporting the democratic election of Viktor Yushenko, achievements in the post-revolution era fell far short of expectations. During his term in office, much of the shadow economy came to the surface, and although some progressive legislative measures were established, the economy contracted nearly 15% in 2009 (CIA World Factbook, 2012). Ukrainian culture and language were elevated to their national status, but health care, pensions, and other reforms did not follow. Since then, Yushenko's 2004 opponent, Viktor Yanukovich, won the 2010 presidential election, and internal graft, corruption, and bickering continues to mire the country further in debt, further from desired (by some) EU membership, and further from the stability of a much needed infrastructure. Human rights violations are in question as Yanukovich jailed his presidential opponent, Yulia Tymoshenko for allegedly abusing her privileges as prime minister. At the time of writing, Ukraine is reportedly in its worst economic position since Independence, and data from 2009 indicate that 32% of Ukrainian citizens live below the poverty line (CIA World Factbook, 2012). While Ukraine scores high on electoral pluralism (9.58 out of 10), and there are no real structural barriers to ac-

tive democracy, citizen trust in the political system is almost non-existent (Democracy Index, 2008).

External efforts supporting Ukraine toward greater civic engagement and towards the European Union include monitoring Ukraine's reforms related to democracy, human rights, rule of law, corruption challenges, media freedom, and civil society development (European Partnership For Democracy, 2011) and civic education projects for school-age children and youth (Craddock, 2005; Civic Engagement Workshop). While Ukrainian involvement in these efforts represents commitment to developing civil society, most initiatives do not emanate from Ukraine itself.

The Law on Support for Social Formation in Ukraine describes youth as people between the ages of 15 and 35, comprising 30.1% of the population, of whom 70% reside in urban areas. Between 30 and 40% of youth able to work are unemployed, contrasting with Ukraine's 2010 general unemployment rate of 6-8%. The same Law for Social Formation and Development sets priorities for youth policy, in areas such as housing, employment, and social care. The Ministry of Family, Youth, and Sports handles youth-related policies and influences the Ukrainian Youth Forum, the non-transparent politically funded umbrella organization controlling funding to any youth-related organizations. Thus, government policies are seldom directly influenced by youth who choose instead to work with international donor funded organizations (Borenko, 2010). Reinforcing youth disillusionment, only 20% of college graduates in Ukraine work in a profession for which they were trained. In the October 2012 federal election, rather than work within existing parties, at least five young professionals chose to put their names forward for election as independent candidates (Kabachiy, 2012) evidencing commitment by some youth, and also playing into vote-splitting strategy ultimately supporting the present regime (Oleksiyenko & Lielich, 2012). At time of writing the percentage of youth voting in the general election is unknown, but there is evidence that some Ukrainian citizens, youth included, sold their votes stating they had no hope of government changes (Stelmakh & Bigg, 2012).

Youth in Canada are not immune to apathy towards civic involvement or from inappropriate and divisive actions when they are involved (Lambert,

2012). Canada has been a federal democracy since 1867, and while women and First Nations people among others have not always had the legal right to participate, by 1960 most restrictions were lifted (Canadian Human Rights Commission). Still, the number of citizens voting in Canada has continued to decline since the mid-1970s (Wesley & Summerlee, 2011), and in the Canadian Federal Election of 2011, only 38.8% of those 18-24 and 45.1% of eligible 25-34 year olds voted (Elections Canada, 2012). This is the lowest participation rate by age group and has been explained by youth's lack of political knowledge, mistrust in government, and belief that individuals can do nothing to influence government policy (Menard, 2010, p. 13). These trends are most pronounced for particular groups of youth: Aboriginal, ethnocultural, rural, youth with disabilities, and unemployed youth not in school. People who voted did so if they saw it as a civic duty or as a means to express views or opinions (Elections Canada, 2012). With all ages and stages included, in Canada voter turnout appears influenced by how close people feel the issues are to them (Elections Canada, 2012).

WORKING TOGETHER FOR INSIGHT AND CHANGE

How can citizens begin to approach the work necessary for true human security across nations, if they are not involved in the political processes in their countries? What is needed to spur interest, involvement, and action? How can older academics explore these questions with youth in non-hierarchical ways? This section shares some of the thought behind a project tentatively called Youth Action for Secure Humanity (YASH).

A pracademic or practitioner/academic understands that social inquiry must do more than ask questions from a distance but rather seek to make a positive impact in the subject area (Flaherty, 2012, p. 102). As such, participatory action research (PAR) unites participants and researchers to investigate a common question or concern often related to dependence, oppression, and/or other inequalities in need of evaluation; it can be used to address community issues, looking at ways of making social change (McIntyre, 2008). Indeed the processes of learning and discovering can themselves be empowering to both individuals and community (Bishop 1994/2000; Freire, 1970).

Civic involvement is texturally interwoven with empowerment which itself is partially comprised of and reflected in political awareness, political participation, and the activation of political rights and responsibilities (Schwerin, 1995). Political awareness or critical consciousness is part of transformational or liberation education (Freire, 1970), which assists critical thought about relationship to political structures and authorities – and to social justice (Boulding, 2000). The process of individual empowerment should also reflexively facilitate community empowerment (Bishop, 1994/2000) which develops through collective, collaborative involvement in participatory endeavours that increase community capacity and efficacy (Barsky, 2009). Political participation, in the broadest sense, is another element of empowerment through which individual and community develop awareness of not only what should be (human rights) but also how crucial their participation is in facilitating change. Lack of participation is not neutral; it is action toward maintaining the status quo.

The project described here is being undertaken by a group of Ukrainian and Canadian academics in consultation with Ukrainian youth – students and non-students; it is a small part of an ongoing conversation and collaboration. The activities build upon earlier described relationships along with a shared commitment to support the development of our global community through fostering a strong civil society in both Ukraine and Canada. Additionally, the project will involve the co-creation of knowledge to be shared in both Canada and Ukraine, in academia and the public domain. It is hoped that this project will provide a bridge to continued collaborative research with at least three regions in Ukraine, and possibly further.

We are using a participatory process to explore with Canadian and Ukrainian young adults of different abilities and genders, their understanding of human rights and their level of involvement in civil society. In this process we will facilitate skill building for young researchers, stimulate thought and communication between academics and non-academics from diverse areas of Ukraine and Canada, helping build relationships and community, and we will use appreciative inquiry to facilitate a cross-sector group process to generate thought and discourse about engagement in civil society including the impediments to true civil society and steps to move forward.

A large number of the core participant group from western Ukraine (Lviv area) and Canada met in Lviv in late 2012 to begin participant exploration and commitment. The next steps will take place in six stages which will culminate in a three-day forum in Ukraine during which participants will consider the underpinnings of democracy and steps that may be taken to work as a participatory research group exploring and advancing the understanding of the intersection of basic human rights, engagement in civil society, and the connection to citizen empowerment. Stage 1 will invite academics from both east and west Ukraine to the University of Manitoba in Canada to solidify details for teaching students about participatory research on democracy and human rights, and to build the relationship between university programs in Luhansk and Lviv, Ukraine and the University of Manitoba's Faculty of Social Work and Peace and Conflict Studies program. Stage 2 will involve Ukrainian and Canadian students studying research methods and writing research papers on democracy, human rights, focusing on the home country using data acquired through a PAR process. Stage 3, a Forum in Lviv, mentioned above, will bring together students and academics from the participating universities, with otherwise not involved youth, including people of differing abilities and gender representation also involved in the discussions. Young adult media reporters will also participate in this Forum. Stage 4 will be the publication of a selection of student papers in Ukraine along with co-authored papers on the process written by the Ukrainian and Canadian academics. Additionally, young media representatives will be invited to write about the process in mainstream publications in Ukraine and Canada. Stage 5 will have Canadian students and academics conduct a one-day workshop for students of Social Work and Peace and Conflict Studies at the University of Manitoba. Stage 6 will be more focused consideration of further work together.

IMPLICATIONS AND CONSIDERATIONS

Hope, accompanied by action are key to change (Lederach, 1997). The project partners hope that in collaboratively stimulating critical thought about civic involvement and its relation to human security, academic and non-academic communities will also bridge what is often seen as an hierarchical divide, with academia producing knowledge for the consumption or edification of others. This project is a

participatory effort that aims to unite young and old, men and women, academic and non-academic in co-creating knowledge. The process itself is meant to be action toward a better world. Our PAR research will include graduate students in Canada and Ukraine who will write research papers on youth, human rights and democracy in Ukraine and in Canada. Many of these papers will be shared in our forum in Lviv and in academic and mainstream publications. Additionally, the process of joint research including the co-sponsored forum will fertilize our relationships, with collaborative writing, across sectors and countries spurring further joint work, widening our various aspects of community. We hope that there will be a ripple effect as participants of all kinds share their experiences in the different aspects of their own lives.

In the words of peace activist, Elise Boulding, "... peaceableness is an action concept, involving a constant shaping and reshaping of understandings, situations, and behaviours in a constantly changing life-world to sustain well-being for all" (Boulding, 2000, p. 1). As such, our project participants seek to work together to understand each others differing needs and to discover together ways to make our world more humane and peaceable. We understand that we are operating with differing levels of financial and economic ability and stability that is sometimes seen as a difference between Global North and South. We know that we must navigate the tensions inherent in working with different histories and power bases and between imposition of viewpoint and respectful knowledge co-creation as we explore our understandings of what creates a functioning civil society in our forever interconnected world.

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DRONE WARFARE: A necessity for national security, or government sponsored (justified) anonymous execution?

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INTRODUCTION

There has been a decided movement away from traditional methods of warfare and traditionally defined battlefields to the area of targeted killings by either law enforcement or military operations. Non-international armed conflicts are a reality and there seems to be a shift from the traditional battlefields into civilian population centres. In token of this development, consider that non-state armed actors move around in civilian clothing instead of identifiable uniforms, as required by international law, which causes confusion between legitimate targets and protected persons, thereby increasing the risk of misdirected and arbitrary attacks.

Furthermore, the weaponry has also changed from the traditional sniper rifle to unmanned robotic killing machines.

The problem is that the use of drones for surveillance and targeted killings in foreign territory entails various violations of international law. These repeated violations are like a cancer weakening the status of international law in the eyes of the global community. The treatise to be presented in this regard will contain a survey of the body of law that relates to the issue of the said territorial violations, with particular reference to the violated founding principles of international law.

An analysis will be done with due cognisance of the legal implications of these killings under aviation law, and of the notion of direct participation in hostilities. The socio-economic impact of this phenomenon on the targeted state will also be considered. Due consideration will be given to transparency and legal reform as the best means of promoting peace and stability, rather than resorting to the targeting model.

DRONE WARFARE

The United States Department of Defense defines an unmanned aerial vehicle (drone) as a “powered aerial vehicle that does not carry a human operator, ...can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or non-lethal payload.”¹ The current Special Rapporteur on extrajudicial killing, Christof Heyns, said that lethal drone-strike operations effectively amount to a war against humanity at large and that drones are weapons without borders².

During 2009 the US purchased more unmanned than manned aircraft as the CIA Director deemed these deadly machines to be “the only game in town”³. President Obama's defence budget for fiscal year 2011 was a record-breaking \$ 708 billion with drone warfare as its primary focus⁴. US defence and budget reports clearly indicate that as the leading country in drone warfare plans to triple its inventory of high-altitude armed and unarmed drones by 2020⁵. Israel, Britain, China and Russia, amongst other states, are reported to be investing in this technology. At present this cancer is only at stage one, but, there is a serious threat that if not treated it will become terminal.

Drones are mainly used for either law enforcement or military surveillance purposes (the monitoring of targets) or to kill targets by using reaper or predator drones carrying purpose made firepower.

¹ M O'Connell, “Unlawful Killing with Combat Drones: A Case study of Pakistan, 2004 – 2009”, 2010, Notre Dame Law School Legal Studies Research Paper No. 09-43, 2

² “United States of America: ‘Targeted Killing’ policies violate the right to life”, Amnesty International Publications, 2012

³ I G R Shaw and M Akhter, “The Unbearable Humanness of Drone Warfare in FATA, Pakistan”, 2012, 44, *Antipode*, 1490, 1492

⁴ A Gregory, *What Price War: Afghanistan, Iraq, and the Costs of Conflict*, 2011, 7

⁵ I G R Shaw and M Akhter, “The Unbearable Humanness of Drone Warfare in FATA, Pakistan”, 2012, 44, *Antipode*, 1490, 1492

THE LEGAL IMPLICATIONS OF DRONE USAGE WITH QUICK REFERENCE TO AVIATION LAW

The entry of foreign air space by a manned or unmanned aircraft is an infraction of international law. The Chicago Convention regulates the aircraft industry. Countries that are leaders in drone technology, e.g. the US, are signatories to this convention.

The relevant sections regarding drone warfare as contained in the Chicago Convention are:

Article 3 (c): “No state aircraft of a Contracting State shall fly over the territory of another State or land thereon without authorization by special agreement or otherwise, and in accordance with the terms thereof.”

and

Article 8: “No aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a Contracting State without special authorization by that State and in accordance with the terms of such authorisation. Each Contracting State undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft.”

Thus the use of drones to enter foreign air space without permission from the state concerned is illegal during peace time⁶. Gogerty and Hagger are also of the opinion that in light of the prevalence of drone crashes and attendant technological challenges, further testing is needed to ensure the safe operation of drones before they are allowed to enter commercial air space. Phelps confirmed that every state has complete and exclusive sovereignty of the air space above its territory⁷. Schmidt makes the valid point that entering the territory of a foreign country without consent during peacetime is illegal whether a manned or unmanned aircraft is used for this purpose⁸. In the writer’s opinion aviation law and the laws relating to sovereignty clearly do not allow the entry of drones into foreign territory without clearance to that effect by the relevant territorial authority⁹.

⁶ Gogarty and Hagger “The Laws of Man over Vehicles Unmanned: The Legal Response to Robotic Revolution on Sea, Land and Air” (2008) 19 *Journal of Law, Information and Science* 73

⁷ T Phelps “Aerial Intrusions by Civil and Military Aircraft in Time of Peace” (1985) 107 *Military Law Review* 225

⁸ M N Schmitt “Unmanned Combat Aircraft Systems and International Humanitarian law: Simplifying the OFT Benighted Debate” (2012) 30 *Boston University International Law Journal* 595

⁹ M N Schmitt “Unmanned Combat Aircraft Systems and International Humanitarian law: Simplifying the OFT Benighted Debate” (2012) 30 *Boston University International Law Journal* 595

Notable to this regard are the relevant sections of the UN Charter:

Article 2(4) of the UN Charter states:

The Organization and its Members, in pursuit of the Purposes stated in Article 1, shall act in accordance with the following Principles: All Members shall refrain in their international relations from the threat or use of force against the territorial integrity of political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations.

The exception to the above is stated in Article 51 of the UN Charter, namely that a country may only use lethal force in a foreign territory during peacetime as an act of self-defence, that is, to ward off an imminent threat. O’ Connell takes the view that preemptive self-defence cannot be justified under international law, to which end she cites the *Caroline* and *Corfu Channel* cases. In the *Caroline Case*¹⁰ the court held that the right to self-defence is activated by a necessity that is immediate and imperative, leaving no choice of means and no moment for deliberation. Paust confirms that where the law-enforcement model applies a state may only enter foreign air space and use lethal force with the permission of the highest level of official consent solicited from the country when applying for entry¹¹. Such consent is rarely sought or given due to the secrecy of missions undertaken for purposes of military aggression. Writers such as Williams and Bandridge contend that such missions may be defensive under humanitarian law, but O’ Connell steadfastly contends that armed conflict between sovereign nations is indissolubly bound up with the violation and/or preservation of territorial integrity. Shah fears that the USA and states following that country’s policy might create custom by regularly violating certain rules of international law¹².

The writer contends that preemptive self-defence is inadequate and unlawful as a proposed justification to use drones to enter foreign air space for the purpose of targeted killings.

¹⁰ J J Paust, “Self Defence Targeting of Non-State Actors and Permissibility of US Use of Drones in Pakistan” (2010) 19 *Journal of Transnational Law and Policy* 23

¹¹ P Alston, Study on Targeted Killings, 2010, A/HRC/14/24/add.6

¹² N Melzer, Targeted Killing in International Law, 2012, 5

TARGETED KILLINGS

The concept of “targeted killings” is not defined under international law. Melzer defines targeted killings as follows: “The term ‘targeted killing’ denotes the use of lethal force attributable to a subject of international law with the intent, premeditation and deliberation to kill individually selected persons who are not in the physical custody of those targeting them”¹³.

The field of international law that regulates targeted killings subsumes the law governing interstate force, International Humanitarian Law (IHL) and Human Rights Law (HL)¹⁴. Analysis of the legality of targeted killings should be interpreted on a case by case basis and should generally start by examining whether IHL or HL applies. The coexistence of, and interaction between IHL and HL can be problematic as the development of these two fields leads to the fragmentation of international law¹⁵. Koskenniemi notes that fragmentation relates to the splitting up of the law into highly specialised boxes that claim relative autonomy from each other¹⁶. Fragmentation can occur between principles of general law as well as between general law and more specialised law¹⁷. The problem arising in this context is that applying conflicting norms to the same subject matter may result in different outcomes¹⁸.

Thus for example, humanitarian and human rights law may dictate different outcomes in deciding a particular case of targeted killing. This problem attending fragmentation is often exploited in attempts to justify drone attacks. The scope of this article does not allow discussion of the requirements set by humanitarian and human rights law, respectively, to render targeted killing lawful, but the requirements are stringent in both instances. Nevertheless it would be best to have one protocol or set of rules to

¹³ N Melzer, Targeted Killing in International Law, 2012, 45

¹⁴ A Orakhelashvili, “The Interaction between Human Rights and Humanitarian Law: Fragmentation, Conflict, Parallelism, or Convergence?”, 2008, 19:1, *The European Journal of International Law*, 161, 162

¹⁵ M Koskenniemi, “Fragmentation of International law: Difficulties Arising from the Diversification and Expansion of International Law, Report of the Study Group of the International Law Commission”, A/CN.4/L.682, 13 Apr.2006, 13- 14

¹⁶ A Orakhelashvili, “The Interaction between Human Rights and Humanitarian Law: Fragmentation, Conflict, Parallelism, or Convergence?”, 2008, 19:1, *The European Journal of International Law*, 161, 162

¹⁷ A Orakhelashvili, “The Interaction between Human Rights and Humanitarian Law: Fragmentation, Conflict, Parallelism, or Convergence?”, 2008, 19:1, *The European Journal of International Law*, 161, 162

¹⁸ A Orakhelashvili, “The Interaction between Human Rights and Humanitarian Law: Fragmentation, Conflict, Parallelism, or Convergence?”, 2008, 19:1, *The European Journal of International Law*, 161, 162

regulate all targeted killings across the board in order to advance uniformity in administering the law and seeking to curb the easy way in which these killings are currently taking place due to confusion arising from the above-mentioned legislative problem and a concomitant lack of transparency and accountability.

INFRINGEMENTS OF HUMAN RIGHTS

As noted above, the legality and infringement of human rights by drone attacks should be judged on a case by case basis. The human rights that can be infringed by drone attacks can be divided into three groups: Direct violations due to targeted killings; violations of socio-economic rights due to damage caused by drone strikes; and finally, direct violations caused by using drones for cross-border surveillance. The first group includes: the right to life¹⁹, the right to a fair trial²⁰, the right to freedom of association²¹, and protection of the family as a unit²². A child, by which is meant a person under the age of 18, should be entitled to protection as described in various human rights conventions, particularly the Convention of the Rights of a Child and the International Covenant on Civil and Political Rights. It is clear from various reports that children are often victims of collateral damage caused by drone attacks. The second group includes violation of the right to enjoyment of the highest attainable health standards²³ (destruction of hospitals and concomitant infrastructure); to education²⁴ (e.g. destruction of educational infrastructure and citizens’ fear of assembly given the risk of drone attack); and to be free from hunger²⁵ (NGOs may be unable to reach those in need in unsafe areas that are subjected to unexpected attacks, and/or destruction of roads may delay delivery of food aid). Finally, surveillance drones clearly infringe the fundamental right to privacy²⁶. Both the former and current Special Rapporteurs on extrajudicial executions and targeted killings, Phillip Alston and Christof Heyns, have expressed profound concern and the conviction that drone attacks contravene international law and

¹⁹ International Convention on Civil and Political Rights article 6: Universal Declaration of Human Rights article 3

²⁰ International Convention on Civil and Political Rights article 26

²¹ International Convention on Civil and Political Rights article 22

²² International Convention on Civil and Political Rights article 23

²³ International Covenant on Economic, Social and Cultural Rights article 12

²⁴ International Covenant on Economic, Social and Cultural Rights article 13

²⁵ International Covenant on Economic, Social and Cultural Rights article 12

²⁶ International Covenant on Civil and Political Rights article 15

violate the right to life²⁷. The writer shares the concern expressed by Heyns to the effect that the more the international community allows deviations from existing law, the more difficult it will be to restore the integrity of the international rule of law²⁸. It should be clear on reflection that drones pose a major threat to the prestige of international law in that they violate the most fundamental human rights, especially including the right to life²⁹. This highlights the need for transparency and accountability that will enable reliable monitoring of violations such as those listed above and thereby establish a basis from which to curb the spread of this cancer.

THE ISSUE OF COLLATERAL DAMAGE AND THE ICRC NOTION OF DIRECT PARTICIPATION

According to a 2012 Amnesty International report the number of people reportedly killed (not the seriously injured) through drone strikes in Somalia, Yemen and Pakistan varies between 2854 and 4175³⁰.

The numbers of civilian casualties vary dramatically in press statements and reports. Some indicate that drones are anything but precise in their strike effect and that collateral damage has included an unfortunate number of civilian casualties³¹. A shocking example is a strike which occurred in Pakistan on October 24, 2012 in which no combatants were hit but Mamana Khan, a lady aged 67, and 5 other civilians were killed and 6 of her grandchildren were injured³². Inaccurate strikes such as this are unacceptably frequent.

Some press reports indicate that the CIA has adopted a method of counting civilian casualties that counts all military aged males in a strike zone as combatants³³. This violates the rules of international hu-

manitarian law which clearly provide that persons of doubtful status should be regarded as civilians³⁴.

The ICRC Interpretative Guidance on the Notion of Direct Participation in Hostilities provides guidelines considered authoritative in deciding whether combatants engaged in armed conflict are to be considered lawful military targets and vulnerable to attack at any time, notwithstanding their current activities³⁵. In contrast civilians are considered exempt from direct targeting unless they participate directly in hostilities, the object of such consideration being, of course, to prevent unnecessary civilian deaths. Lack of disclosure makes it hard to establish whether persons were targeted according to the said guidelines hence it is very difficult to enforce rules of engagement. It is like a physician who cannot treat his patient for lack of information about the patient's condition.

The above guidelines may be instrumental in curbing civilian casualties if applied correctly, but eminent commentators contend that there are significant interstices (an imbalance between military necessity and humanness) in the conceptualisation of the guidance³⁶. Further development and testing are therefore required; yet in the writer's view the guidelines are a step in the right direction that will help to save civilian lives if they are interpreted and applied correctly by all concerned.

WHAT IS THE KNOWN SOCIO-ECONOMIC IMPACT OF DRONE ATTACKS ON THE TARGETED STATE?

In view of the high and projected major escalation in expenditure on unmanned aircraft in the US it seems that the destructive threat of this kind of warfare is spreading apace, thus indicating an urgent need to discuss some of the devastating, and long-lasting, effects of this remote-controlled warfare on the targeted state.

life", Amnesty International Publications, 2012

34 Protocol I to the Geneva Conventions article 50(1)

35 ICRC Interpretative Guidance on the Notion of Direct Participation in Hostilities

36 MN Shmitt, "The Interpretive Guidance on the Notion of Direct Participation in Hostilities: A Critical Analysis" 2010, 1 Harvard National Security Journal 5, R Goodman and D Jinks, "The ICRC Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law: An Introduction to the Forum" 2007, 5, International Law and Politics, 637; M Sassoli and M O Olson "The relationship between international humanitarian and human rights law where it matters: admissible killing and internment of fighters in non-international armed conflicts" (2008) 90 International Review of the Red Cross 599; B Van Schaack "The Killing of Osama Bin Laden & Anwar Al-Aulaqi: Unchartered Legal Territory" (2012) Social Science Research Publication

The cost of war should be counted not only in loss of life but also in terms of the economic impact of drone attacks on the targeted state.

It stands to reason that drone attacks must undermine the economic growth of already vulnerable targeted states, hence it is incumbent on citizens of the world to seek a solution to this problem so that vulnerable countries can develop their economies. Research has shown that terrorist activities occur far less in economically stable countries than in unstable countries³⁷. Repeatedly targeting poor countries such as Somalia, Yemen and Pakistan therefore stokes a climate for terrorism in that terrorist groups find a ready source for recruitment among frustrated citizens who are easily persuaded to join the terrorist cause³⁸. This is not the avowed purpose of anti-terrorist campaigns³⁹. This argument is supported by an eminent scholar, Mary Ellen O'Connell, who writes: "Moreover, killing leaders has typically had only a short-term impact on repressing terrorist violence, while every civilian killed "represents an alienated family, a new desire for revenge, and more recruits for a militant movement that has grown exponentially even as drone strikes have increased."⁴⁰ It has the effect of pulling out one weed and ten more come out. It seems incontrovertible, therefore, that drone attacks are counterproductive.

In a study conducted by Sidel and Levy into the adverse consequences of US drone strikes on public health in targeted states since 2001, it was found that in Afghanistan and Pakistan much of the health-care infrastructure had been damaged or destroyed and that life expectancy had been reduced from the age of 66 to 48⁴¹. Living conditions generally have declined to unacceptably low levels, thus creating favourable conditions for terrorism as indicated. Damage to economic infrastructure includes environmental damage, for example in that timber stocks are depleted by displaced persons in need of firewood⁴².

37 A Gregory, What Price War: Afghanistan, Iraq, and the Costs of Conflict, 2011, 16

38 A Gregory, What Price War: Afghanistan, Iraq, and the Costs of Conflict, 2011, 16

39 A Gregory, What Price War: Afghanistan, Iraq, and the Costs of Conflict, 2011, 16

40 M O'Connell, "Unlawful Killing with Combat Drones: A Case study of Pakistan, 2004 - 2009", 2010, Notre Dame Law School Legal Studies Research Paper No. 09-43, 4, 6-7

41 B S Levy and V W Sidel, "Adverse health consequences of US Government responses to the 2001 terrorist attacks", 2011, 378, Lancet, page 944, 944-949

42 B S Levy and V W Sidel, "Adverse health consequences of US Government responses to the 2001 terrorist attacks", 2011, 378, Lancet, page 944, 944-949; Life expectancy in developed countries exceeds 80 these

A further economic consequence is that trade and investment flows are inhibited by negative foreign sentiment, which is exacerbated by economically harmful losses of physical and human capital and the psychological impact of being under constant threat of drone attack, which seriously disrupts work and family life and effectively further depresses the economy⁴³. Thus there is the direct physical impact, as well as the indirect impact, of the influence on localised and national as well as international sentiment (e.g. reluctance to invest)⁴⁴. The destruction of transport infrastructure naturally inhibits general economic activity and the delivery of goods and services for basic human consumption⁴⁵. Tourism is also naturally brought to a virtually complete standstill and effectively eliminated as a source of revenue (e.g. Greece, Italy, Austria, Spain, Egypt and Israel)⁴⁶. The inevitable result of these severely inhibiting factors is that the GDP will decline, repayment of loans will become prohibitive and the resultant general climate of impoverishment, as noted, will generate conditions that lend an aura of acceptability to the prospect of joining terrorist organisations, thus completing the eternal cycle of violence breeding violence.

THE COST OF WAR AND ECONOMIC IMPACT ON THE STATE OF USING DRONE WARFARE TO FIGHT TERRORISM - A BRIEF ACCOUNT OF THE QUANDARY FOR THE US

The tactical advantage of using drones as the weapon of choice to execute targeted killings is clear: Drones are relatively cheap to manufacture compared to manned aircraft, and they do not risk the lives of pilots⁴⁷. Furthermore drone warfare appears to be in a class of its own in that existing legislation makes inadequate provision for its regulation, particularly since it is protected by a wilful lack of transpar-

days, which means a relatively low living standard before the indicated decline, thus as per the writer's opinion, retarding factors before drone attacks should therefore probably be considered to understand (at least economically) where the situation came from in the first place (e.g. how countries became a breeding ground for terrorism)

43 F Schneider, T Bruck and D Mayernicks, "The Economics of Terrorism and Counter-Terrorism: A survey (part II)", 2010, 1050, Discussion Papers: German Institute for Economic Research, 4

44 F Schneider, T Bruck and D Mayernicks, "The Economics of Terrorism and Counter-Terrorism: A survey (part II)", 2010, 1050, Discussion Papers: German Institute for Economic Research, 38, 50

45 F Schneider, T Bruck and D Mayernicks, "The Economics of Terrorism and Counter-Terrorism: A survey (part II)", 2010, 1050, Discussion Papers: German Institute for Economic Research, 42

46 F Schneider, T Bruck and D Mayernicks, "The Economics of Terrorism and Counter-Terrorism: A survey (part II)", 2010, 1050, Discussion Papers: German Institute for Economic Research,, 77

47 M O'Connell, "Unlawful Killing with Combat Drones: A Case study of Pakistan", 2004 - 2009, 2010, Notre Dame Law School Legal Studies Research Paper No. 09-43, 5

27 P Alston, Study on Targeted Killings, 2010, A/HRC/14/24/add.6; C Heyns, "Extrajudicial executions and targeted killings: International Law Journal symposium on 'State Ethics'", February 2012, Harvard Law School

28 C Heyns, "Extrajudicial executions and targeted killings: International Law Journal symposium on 'State Ethics'", February 2012, Harvard Law School

29 AMR 51/047/2012

30 AMR 51/0476/2012

31 M O'Connell, "Unlawful Killing with Combat Drones: A Case study of Pakistan, 2004 - 2009, 2010", Notre Dame Law School Legal Studies Research Paper No. 09-43, 1

32 "United States of America: 'Targeted Killing' policies violate the right to life", Amnesty International Publications, 2012; <http://www.thenews.com.pk/Todays-News-7-139621-Tribesmen-protest-drone-strike-in-north-waziristan>

33 "United States of America: 'Targeted Killing' policies violate the right to life", Amnesty International Publications, 2012

"United States of America: 'Targeted Killing' policies violate the right to

ency and obfuscatory legal defences that are difficult to penetrate or circumvent.

However, as noted, they excite a spirit of resentment and revenge against the aggressor (US), with the result that hostilities are kept alive and even exacerbated at immense cost to the US⁴⁸.

Sidel and Levy estimate that the wars in Afghanistan and Iraq, including drone warfare, have cost the US around US \$ 789 billion and \$438 billion respectively, which means that substantial human and financial resources that should have been available to the US and its allies for peaceful purposes were diverted for military purposes. For example soldiers deployed to fight the war on terror should have been to deal with natural disasters such as hurricane Katrina where manpower shortages were experienced. Inadequate health-care funding in the US is blamed on excessive military spending, this despite the promise of the Obama administration to reduce the defence budget, instead of which it rose to unprecedented levels in 2011⁴⁹. It is clear therefore, that the sustained warfare at issue here is harmful to the targeted as well as the targeting state and is really unaffordable to both at any stage, let alone in the long run.

By resorting to unconventional tactics that ride roughshod over legalities the US keeps on exposing itself to similar retaliatory tactics as well as possible future legal claims for compensation for the damage caused by US launched drone attacks⁵⁰.

TIPPING THE SCALE: RECOMMENDED REMEDIAL MEASURES

Urgent remedial measures are clearly required to curb the universally harmful practice at issue here.

Countries that maintain a military establishment are increasingly investing in drone technology; therefore strict adherence to international law is called for, and clear protocols need to be established to regulate the use of these weapon systems, to which end divergent views of the laws to consult in drafting such protocols need to be reconciled with a view to uni-

48 K Anderson, "Targeted Killing in US Counterterrorism Strategy and Law", 2009, SSRN, University of Washington College of Law Working Papers, 6

49 A Gregory, What Price War: Afghanistan, Iraq, and the Costs of Conflict, 2011, 7-8

50 M O' Connell, "Unlawful Killing with Combat Drones: A Case study of Pakistan", 2004 - 2009, 2010, Notre Dame Law School Legal Studies Research Paper No. 09-43, 18

formity in practice, and ultimately to prevent loss of civilian life.

Drone operators must be well versed in the legal implications of drone warfare whether within their home territory or across international borders, so that they will be aware of the gravity and consequences of their actions⁵¹.

Appropriate measures need to be taken to ensure that responsible parties can and will be held duly accountable for their actions in the conduct of drone warfare. Phillip Alston, the former UN Special Rapporteur on extrajudicial, summary and arbitrary executions, rightly observes: "Transparency is required by both International Humanitarian Law and Human Rights Law. A lack of disclosure gives States a virtual and impermissible license to kill."⁵²

Christof Heyns is of the opinion that the international framework is clear but its enforcement depends to a large extent on voluntary compliance, especially by the major world powers. It is therefore crucial that strong military states take the lead by following the law and thereby as it were shepherding lesser powers into the fold of adherence by asserting their superior moral authority. In international law reputation is one of the core reasons why states comply, hence non-compliant lesser powers are likely to come round for fear of losing face if major powers comply⁵³.

The writer suggests that many of these issues could be eliminated by moving from warfare to diplomacy.

CONCLUSION

Overall it is clear that the scourge of drone warfare not only weakens international law but also the economies of both the targeting and the targeted state, as well as basic infrastructure and services in the targeted state. It is further evident from various case studies that "aggression against terrorism is answered with further aggression."⁵⁴ As O' Connell

51 M O' Connell, "Unlawful Killing with Combat Drones: A Case study of Pakistan", 2004 - 2009, 2010, Notre Dame Law School Legal Studies Research Paper No. 09-43, 7

52 P Alston, Study on Targeted Killings, 2010, A/HRC/14/24/add.6

53 A T Guzman, How International Law Works: A Rational Choice Theory, 2012

54 F Schneider, T Bruck and D Mayernicks, "The Economics of Terrorism and Counter-Terrorism: A survey (part II)", 2010, 1050, Discussion

describes the result of targeted killings in Pakistan: "one head is cut off and several more take its place."⁵⁵ It is therefore vital that an urgent dose of aggressive chemotherapy in the form of regulation and transparency be applied.

When raising the question again: Drone warfare: A necessity for national security or government sponsored (justified) anonymous execution? It seems clear from the points raised that it actually weakens national security by spiking extremist reactions in targeted states and the lack of legal accountability and secrecy in which these drone attacks are generally conducted by states such as the USA that it is indeed government sponsored (UNjustified) anonymous execution.

It is sad that the conduct of certain states regarding drone warfare and the disrespect for the international law regulating it i.e. lack of respect for human rights as well of lack of accountability are a forcible reminder of George Orwell's famous observation about the human condition in "Animal Farm": "ome animals are more equal than others"

It is our duty as young academics and practitioners to tip the scale back in balance, to find a cure for this cancer and to insure that under international law that all animals are indeed equal.

In conclusion a quotation is taken from the work of O' Connell as she offers the best summation of the situation: "International law, by contrast, supports the position of counter terrorism experts that law enforcement methods are the proper means to employ in suppressing terrorism. Confronting the violent lawlessness that is terrorism with strict adherence to the rule of law makes common sense and moral sense"⁵⁶.

Papers: German Institute for Economic Research, 9

55 M O' Connell, Unlawful Killing with Combat Drones: A Case study of Pakistan, 2004 - 2009, 2010, Notre Dame Law School Legal Studies Research Paper No. 09-43, 11

56 M O' Connell, "Unlawful Killing with Combat Drones: A Case study of Pakistan, 2004 - 2009", 2010, Notre Dame Law School Legal Studies Research Paper No. 09-43, 26

HUMAN RIGHTS AND SHARI'AH TWO COMPATIBLE CONCEPTS?

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INTRODUCTION

When the General Assembly of the United Nations ratified the UN Declaration of Human Rights in 1948 the idea was to make the world a better place, governed by new principles of universal dignity, equality and freedom for every human being. The newly established International law system was meant to be applicable to every country in the world, which was supposed to avoid a crime like the Holocaust from ever happening again. The document granted progressive ideas such as freedom of religion, equality and the right of self-determination to all individuals. Since then, a long journey of decolonization changed the world's political map several times. Whenever a new state came into existence and aspired to join the United Nations, it was obliged to ratify this new unique document. Over 60 years later, the world has come to acknowledge that the idealistic objectives that the declaration was founded on could not be achieved, and that the debate that revolves around its very nature is controversial in many parts of the world up until today. Some of the countries and regions that meet specifically the principal idea of the document's universality with much skepticism are strongly influenced by Islam.

To explore where the skepticism is coming from, this essay is intended to explain the reasons for the ideological conflict, as well as to introduce some of the approaches that scholars take to positively bring about change in the future. To conquer the complexity of this issue we first need to understand the historical and ideological background of each of Human Rights law and Shari'ah (Islamic law). This will be followed by an analysis of the compatibility of the two doctrines. To understand how the struggle to implement human rights in Muslim dominated countries influences the lives of many people throughout the Middle East on a daily basis, we will take a look at the example of modern day Iran. Finally, possible steps to successfully bring about change are going to be explored on the basis of theories of famous scholars in the field. They propose many different approaches in order to improve the situation of people through-

out the world by finally granting them the same set of universal rights that the UN Declaration of Human Rights intended to give to all of humanity.

ORIGINS OF HUMAN RIGHTS LAW

World War II caused the political leaders of this world to rethink the international system that we were living under at that time. When people finally started to wrap their heads around what had happened in Germany and its conquered territory while everyone was busy defending their own land, people could not believe the proportions of the Holocaust. Hitler's genocide was the ultimate crime that has ever been committed by humans against other human beings. That something like this could take place in the middle of Europe with many nations just standing on the side and watching or even taking part in it, was more than just alarming to the international community. It was obvious that they needed to make a common effort to prevent a crime like this from ever happening again.

Therefore, the newly established United Nations did not waste much time and started to work on a document that was meant to set a foundation to protect individuals all over the world. The intention was to create something that had never been there before: a unique and revolutionary bill of rights that would be applicable to human beings in the various cultures in every country of the world. The drafting committee was aware of how colossal a task was laying ahead of them when they first met in 1946. However, under the leadership of Eleanor Roosevelt, the diverse group of drafters took only two years to develop as universal a piece of normative legislation to protect human rights as they found was possible. Throughout the working process it was always clear that the declaration was supposed to focus on the individual human being. Right from the beginning some non-Western scholars argued that this is troublesome due to individuality in this sense being a specifically Western concept.

Therefore, the document was destined to cause debates about how universal its essence truly is. This discussion is vividly evident until today and there are experts all over the world who argue that the declaration fulfills its purpose of being universal, as well as antagonists who feel like the document is rooted in the Western tradition and therefore, unacceptable to various different cultures.

Human rights law today is not what it used to be over sixty years ago when the Western dominated UN, under the leadership of the United States, first initiated the drafting of the universal declaration. Since then, much has happened: new countries gained their independence after having been colonized for years; nations fought wars in order to fulfill their right of self-determination, more unthinkable crimes against humanity were committed by power hungry leaders and their followers, and indigenous people have been fighting for their rights as groups and as individuals all over the world. Therefore, the human rights legislation has expanded and shifted focus while evolving again and again throughout the last half century.

There are still many issues unsolved and it is interesting to see that it has not specifically been the West who takes the leadership in improving the existing legislation lately. Other countries from all over the world have stepped up and further inspired the idea of promoting a universal system to grant every human being basic rights and dignity. The concept of Human Rights is an open conversation that is lead on an interstate, as well as a philosophically intellectual level. The UN Declaration of Human Rights established an important universal basis, which must be accepted by the world in order to make it possible to evolve. So that cultural influences can further improve legislation and thereby, bring the goal of granting every person on this planet his or her dignity closer to being achieved.

So let us first consider to what extent Human Rights law really has its roots in the Western legal tradition. Bielefeldt, a German scholar in the field argues that "Human rights certainly did not develop in a cultural vacuum. [...] [T]here are good reasons to assume that the genesis of the idea of human rights can [...] be linked to religious, philosophical, and cultural sources of the Occidental tradition.¹" As

¹ Bielefeldt, 92

possible sources for the human rights declaration he names the Bible (especially concerning the theme of equality and dignity), stoic writings, the natural law tradition, the Protestant Reformation (concerning individual free conscience) and British common law.

After discussing whether these Western traditions are actually the legitimate sources of what we know as human rights today, he comes to the conclusion that although influenced in some way, the modern concept developed from a way broader background of ideas. Therefore, he claims that "the 'Western origin' of human rights means the simple fact that the idea of universal rights of freedom and equality, so far as we know, was first proclaimed in Western Europe and North America" and that "[o]ne should bear in mind that the historic breakthrough of human rights took place at a time when the traditional European society was in a deep crisis (meaning the Reformation)."² All in all, he proposes that even if Western thought played a significant role in writing the declaration, it does not make it less universal.

How come that there are many intellectuals from diverse non-Western backgrounds that disagree with the statement that the Human Rights Declaration is universally applicable and not Western biased? The main struggle that these antagonists have with the human rights concept is that they feel like it is alien to their culture. What makes it worse than just feeling like something they cannot identify with was imposed on them is that these concepts are

Western in origin. The countries that were colonized by European powers at some point in history never forgot the suffering and humiliation they were put through by their colonizers. What makes the situation of human rights so unacceptable to many people is that it was exactly the powers that told them for a long time that they were naturally inferior to the Europeans, who came up with this set of human rights that preaches equality and freedom.

More significantly, the declaration was written in 1948, a time when the decolonization process of the world just started to really get on its way. Considering some events that followed, such as the Algerian struggle for independence and the way the international community reacted in some crucial moments in history, it is no surprise that many non-Western

² Ibid., 101

people feel a deep sense of suspicion when it comes to the Declaration of Human Rights or any other concept that they perceive as Western and therefore, an imperial threat in nature. So how can these rejections be answered and how can the opponents of the idea of universal human rights be persuaded that the concept is worth to move beyond any negative feelings it initially causes?

Some scholars argue that the idea that human rights are Western in their nature, have to be abandoned in order to grant the Declaration of Human Rights the essential universality that it needs to successfully bring about change. One of these scholars is Abdullahi A. An-Na'im, one of the most cited experts who deal with the topic of human rights compatibility with Islamic law. An-Na'im explains his thoughts on a supposedly Western background of human rights this way: "To suggest that human rights are 'Western' is a contradiction in terms, because that means they cannot be universal, which is their essential quality as the equal rights of all human beings."³ How An-na'im's approach fits into the discussion of Shari'ah law and human rights is something that cannot be answered yet. After having explored the background of human rights we now need to create a general understanding of Islamic law to be able to reflect upon the compatibility of both ideas.

EXPLORING ISLAMIC LAW

Islamic law is made up of two scriptures: Qur'an and Sunnah ("the living example of the Prophet's own life in accordance with the Qur'an⁴). Both of them were developed in the early period of Islam in the Middle East. While Qur'an was actually mostly written during the Prophet Muhammad's lifetime, Sunnah was created by Islamic jurists in the second and third century of Islam⁵. Moreover, Qur'an is known to be recorded in two stages: first in Mecca and then in Medina. The two parts of the writing differ tremendously in their nature and therefore, it is essential for our cause to understand that the political situation at the time naturally influenced the writing of the scriptures in a significant way. The cultural standards of the Arab people around the seventh century are reflected in both of the writings, which indicates that it might be hard to adjust the text as norms and expectations change.

Shari'ah is more than just a legal body in our limited Western sense. It goes beyond public laws and practically regulates every part of a Muslim's life. As An-Na'im puts it: Shari'ah "does not indicate the sort of content, institutions and actors that one would associate with 'law' in the modern sense of the term. The scope of subject matter of Shari'ah is much broader than 'legal' subject matter, ranging from ritual religious practices, ethical principles, and social relations to positive legal rules."⁶ The positive legal body of Shari'ah was written down by legal experts in the second and third century of Islam and is certainly representative of the main two sources of Islam. However, one has to take into consideration that other Islamic sources, such as consensus and analogy, were used as well and that "the understanding of the transmitters as well as the acceptance by the collectors were in this way influenced by their own experience and circumstances."⁷

Non-Muslims need to be especially aware of one concept when looking at Islamic law. That is the focus of the legal body, which is not the individual but more so the collective Muslim society. Tibi explains that "Islam is a distinct cultural system in which the collective, not the individual, lies at the centre of the respective world view. [...] In Islamic doctrine, the individual is considered a limb of a collectivity, which is the umma/community of believers. [...] Muslims, as believers, have duties /fara'id vis-à-vis the community/umma, but no individual rights in the sense of entitlements."⁸ In this lies the main difference of Islamic law and Western law that needs to be remembered moving forward with the investigation.

By now, many Islamic scholars have interpreted the Shari'ah in different ways according to the respective culture and time period they lived in. Even today we can see a great variety in realizations of the legislation from very modern reformist ways to total conservative fundamental views. This makes it clear that, even though Islamic law is rooted in the fundamental writings by early Islamic legal experts, there is much room for adjustment to modernity and moderation without letting go of the main principles of the Shari'ah.

HUMAN RIGHTS AND SHARI'AH: TWO COMPATIBLE CONCEPTS?

International human rights law and Islamic Law were created thirteen centuries apart from one another. Each of them came out of two totally different cultures that did not have much of an interest in the other at the time when the legislation was written. Neither, was the European culture of any importance to Mohammed when he first introduced Islamic concepts, nor did the international community particularly care much about the Middle East at the time immediately after World War II. Considering this, it is not surprising that the two legal concepts do not have much in common with one another. While one focuses on individuals and is mostly concerned with dignity and human rights, the other one emphasizes collective well-being and the importance of duties within a community. While human rights legislation claims universality, Shari'ah is first and foremost concerned with its Muslim population, and to a necessary extent with the non-Muslims that live within the system.

Even though the two legal concepts seem so different in their essence, all of the countries that were admitted to be members of the United Nations throughout the last sixty years, agreed to adopt the UN Declaration of Human Rights. In how far these states actually realize human rights for their citizens is unfortunately another story. The reality is that organizations such as Amnesty International constantly report on human rights abuses throughout the Middle East and other countries with a strong Islamic influence. These reports usually capture the sad stories of mainly women, or individuals and groups from religious minorities under Islamic law.

Exactly these two groups (women and religious minorities) are the reason why human rights legislation collides so heavily with Islamic law in some places of the Islamic world. It is clearly stated in the Universal Declaration of Human Rights that discrimination on the ground of gender or religion is outlawed under international law standards. An-Naim explains that "[a]ll the relevant international human rights documents and national constitutions consistently and explicitly provide for this fundamental principle."⁹ Moreover he reminds:

"Article 55 (c) of the United Nations Charter, a treaty binding all the Muslim countries of the world, commits the United Nations to promote 'universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language or religion,'¹⁰"

This however, is a natural dispute with the Islamic law at its essence. In the Qur'an Mohammad establishes a threefold distinction of people on the basis of religion: Muslims, dhimmis (people of the book; believers in one of the heavenly revealed scriptures, which are mostly Christians and Jews) and Unbelievers. While Muslims are the only full citizens under Shari'ah, dhimmis are seen as protected people and thus, have some general rights and duties and a limited kind of citizenship. Unbelievers however, do not have any rights and "are to be killed on sight unless they are granted temporary *āmān*, safe conduct, by Muslims."¹¹ This is clearly incompatible with modern human rights which grant the right to life and liberty to everyone, totally independent of their religion.

Also, the status of women under conservative Islamic law is problematic in accordance with international standards. While women in traditional Islamic societies enjoy a very limited set of rights (mainly property rights), modern human rights legislation does not allow for any discrimination on the basis of gender and therefore, asks from the UN member states to grant women the same rights as men. Many states, especially in Islamic-influenced countries, fail to do so until today and thus, fall far behind the rest of the world on this issue.

Due to the above explained fundamental conflicts between the two law doctrines, Muslim scholars and politicians have worked hard to come up with a concept to help the Islamic states to overcome the dilemma of having committed to the human rights standards, while trying to stick to traditional Shari'ah. The main approach that has been taken on the Islamic side is an "Islamic alternative" to human rights law. Nazila Ghanea explores three of these Islamic Human Rights documents that have been created in corporation of different states, namely The Universal Islamic Declaration of Human Rights (1981), the Cairo Declaration on Human Rights in Islam (1990) and the Arab Charter on Human Rights (1994).

3 An-Na'im 2004, 10

4 An-Na'im 1987, 15

5 Ibid., 15

6 An-Na'im and Odeh, 163

7 An-Na'im 1987, 16

8 Tibi, 289

9 An-na'im 1987, 6

10 Ibid., 6

11 Ibid., 12

While all of these documents are certainly intended to offer a serious alternative to the original UN document with its imperialistic connotations, the reality is that their content is far behind general human rights standards of today. After analyzing each of the three separately, Ghanea comes to the conclusion that all of the Islamic alternatives “chart a deterioration of international human rights standards regarding freedom of religion or belief”, because the documents “do not mention or do not adequately cater to the human rights of non-Muslims.”¹²

When looking at the relationship of the Islamic and international system the differences seem overwhelming and therefore, it appears as if the two of them are incompatible with one another. Nonetheless, there are scholars who explore possible solutions to the issue. One of these authors is the German scholar Heiner Bielefeldt who proposes that there are four possible approaches to solve the dispute. First of all, some people chose to simply ignore that there is a problem between human rights and Islamic law. Defenders of Islamic alternatives to the UN human rights body usually take this stand by claiming that the Shari’ah “due to its divine origin, provides an absolute foundation for protecting the rights and duties of every human being.”¹³ And that international human rights legislation can therefore, simply be ignored. The second perspective that Bielefeldt offers is that Islamic law must be reformed in its framework. He points out that “within most shariah schools, a tradition of humanitarian pragmatism has developed that facilitates a mediation between the validity claims based on religious revelation and the practical necessities of daily life.”¹⁴ If a more moderate and less fundamental stance was to be applied to the content of Islamic law, it would make progress easier and more effective. Thirdly, the German scholar suggests a critical reconceptualization of the problem. He claims that the norms that are understood as Islamic law should be perceived as something that developed out of history and less as a direct revelation from God. By understanding it this way, it would be possible to criticize it and adjust the political landscape according to modern human rights standards without having to argue with the essential Islamic texts.

Finally, Bielefeldt introduces the idea that the right way of making Islamic societies more compatible with human rights would be to secularize the political systems and simply leave the religious laws out of the equation. He argues that “political secularism can be understood as an expression of respect for the transcendence of the one God whose inscrutable will must never be instrumentalized for the purpose of power politics.”¹⁵ The latter solution of secularization is also shared by the earlier mentioned scholar Ghanea. He however, makes it clear that this is not necessarily the greatest answer to the problem. More so, he pledges for an intellectual revolution that should bring about change in attitude and a will to update the legal Islamic standards to a modern level. Ghanea explains that “exposing the diversity of practice within different parts of the Muslim world and in different periods of history offers a potent way of challenging ingrained assumptions.”¹⁶

Another, noteworthy scholar is Bassam Tibi who suggests that the essential concept of universality must be used in order to develop a kind of global culture that helps overcome the gaps of misunderstanding between civilizations. He however also mentions that “unless Muslims change their world view and the cultural patterns and attitudes related to it, the conflict between Islamic human rights schemes and international human rights standards will continue to prevail as a source of conflict between civilizations.”¹⁷ Therefore, he sees no alternative to a fundamental reform of Islamic cultural attitudes as a whole, in order to be able to truly adopt the universal values that the Declaration of Human Rights insists upon.

Finally, there are some scholars who claim that the two systems can be related to one another through their essential messages. One of these scholars is An-Na’im, who strongly advocates for reforms of both systems in order to make it possible to realize human rights standards in all parts of the world. His main argument is that “the implementation of the international human rights standards will improve if they can be shown to be the natural and legitimate evolution of the cultural tradition of the particular community.”¹⁸ An-Na’im argues that two steps are necessary in order to effectively make use of historical facts. Firstly, it needs to be proven that the modern universal

human rights in their essence can be found in traditional Islamic writings to give them legitimacy. Concerning this he states that “[i]t may take some innovative reinterpretation of traditional norms to bring them into complete accord with the present formulation of the international standards, but the essence of these standards is already present.”¹⁹ Secondly, there must be a reaching out from the international community to involve Islamic scholars amongst others, in the constantly evolution of human rights standards. Therefore, An-Na’im advocates for an active role of scholars from non- Western backgrounds to push forward for new legislation concerning human rights themselves. He claims that the strength of the UN legislation is the “dynamic and evolutionary nature of human rights”²⁰. What follows is that “[t]he involvement of the various cultural traditions is, therefore, vital for developing existing rights, adding new ones, and informing their interpretation and application as well as improving compliance with international human rights standards.”²¹ An-Na’im states that we need to take advantage of this nature, in order to have a multipolar attempt to better the situation of today in two steps: firstly, by pushing for the implementation of human rights law in the UN member states’ legal systems, and secondly by further reforming the existing international legislation to make it more universal through input from different cultural backgrounds.

All in all, there are many different ways to answer the cultural relativistic claim that the reason for the many human rights abuses in some Islamic societies is that Islamic Shari’ah is simply incompatible with Western human rights. Whatever the right way might be, it appears important to make it a bi-polar process to bring about change. It is necessary to somehow improve the attitude and acceptance towards universal human rights in the Islamic states, while promoting their input on the evolving international legislation (as long as in accordance with the fundamental rights stated in the Universal Declaration of Human Rights of 1948). The Declaration however is, and has to remain the base for every further expansion of human rights and it should never be accepted to lower its standards in order to please a particular cultural group.

IRAN: A DARK PLACE FOR HUMAN RIGHTS

Let us now look at an example of a state that strongly struggles to implement human rights due to its religious legislation. A country that has one of the most discriminatory constitutions in all of the Middle East as of today is the Islamic Republic of Iran. The official legal system is based on Shari’ah law, which causes constant harassment of religious minorities, as well as the oppression of women in almost all sectors of public life. Even though, Iran is a member of the United Nations and has thus, agreed to promote human rights for its citizens, the sad reality is that there are rights abuses happening on a daily basis. Groups that especially suffer from the religious legislation among others are Bahá’í and Jews, both religious minorities in the country. Ghanea explains that “thousands of Bahá’ís in Iran have been executed over the past century and half accused of all kinds of religious and political ‘crimes’.”²²

As explained earlier, this logically follows from Shari’ah’s three fold classification of human beings. What An-Na’im describes for Sudan is not far from being reality in Iran at times as well:

“For the non-Muslim Sudanese, about one-third of the population, the immediate options are to become Muslims, dhimmis if they happen to be People of the Book, or become harbis to be killed on sight unless they are allowed temporary *āmān*.”²³

These standards are absolutely incompatible with the human rights that the country’s government has agreed to promote. Therefore, it seems like it is urgently necessary to bring about change in the Islamic world in order to reach an agreement on how to make Human Rights law more compatible with the Islamic law, so that millions of humans finally get to enjoy the same kind of dignity as other people throughout the world.

CONCLUSION

The question of whether human rights and Shari’ah are two compatible concepts is a very complex matter. It seems like the immediate answer after considering the two systems in their nature would be no, due to their inherent differences. However, many Islamic as well as Western scholars take a stance in promoting a positive engagement of the matter.

12 Ghanea, 720
13 Bielefeldt, 104
14 Ibid., 106

15 Bielefeldt, 114
16 Ghanea, 727
17 Tibi, 296
18 An-Na’im 1987, 3

19 Ibid., 3
20 Ibid., 4
21 Ibid., 4

22 Ghanea, 706
23 An-Na’im 1987, 12

They introduce different ways to overcome the apparent incompatibility, so that an agreement can be reached that is satisfying to the Islamic world, while promoting universal human rights for all people that live in the Islamic world, regardless of their religion or gender. Even though, the possibility of this change becoming reality in the close future seems unrealistic, it is important to understand that there is a chance for it if both sides are willing to commit to a constant common effort.

As proclaimed by An-Na'im the process needs to be everything else but a one sided effort on the Islamic world to change the system they are living under. There is more so a need to constantly work on both, the Islamic as well as the international human rights system. The fact that human rights are founded on a Western tradition has to be accepted and understood as a possible weakness of the legal body. This understanding can then lead to reforms through the influences of other cultural backgrounds to fulfill the original claim of human rights being a universal concept, independent from cultural obstacles and applicable in every part of the world. Furthermore, the engagement of different cultures would help to dismantle the fear of non-Western countries that human rights are another alien concept that is imposed on them by the imperialistic West.

All in all, it is important to acknowledge that the system is not working the way it is today. Therefore, Islamic and international scholars need to start to work together more effectively, in order to come up with a solution so that human beings gain the dignity that the international community has fought for since the end of World War II. Considering the developments of the Arab Spring and the people's struggle to make their voices heard with the help of technological innovations, it seems like this globalized world that we live in today is the optimal showcase to finally make change happen.

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COMMUNITY AND THE DEMANDS OF JUSTICE

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"Moral science is better occupied when treating of friendship than justice." Thomas Aquinas

"The moral arc of the universe bends at the elbow of justice." Martin Luther King, Jr.

INTRODUCTION

Contemporary political and moral debates regarding the conceptualization of justice have rightfully been defined by the 1971 publication of John Rawls' *A Theory of Justice*. While Rawls' work inspired a reinvigoration of liberal justice, it also provoked an array of critiques grounded in communitarian demands for a less individualistic interpretation of both the context in which principles of justice must be determined and what the content of just principles should include. Drawing on Rawls' Theory, this paper will first explore the communitarian critiques of justice as argued by Michael Sandel and Charles Taylor, before examining the liberal rebuttal of Allen Buchanan. In doing so, this paper concludes that communitarianism has successfully forced a reconceptualization of liberal justice in which a distinct and necessary moral claim of community is defined. However, ultimately the communitarian critics fail to undermine the liberal tradition of justice because of their inability to demonstrate that the liberal theory of justice privileges the individual to the exclusion of community and that in exalting justice as "the first virtue of social institutions," liberalism devalues and undermines a higher virtue of community.

RAWLS' JUSTICE AS FAIRNESS

Rawls' theory presents as the main idea justice as fairness, defining justice as the "first virtue of social institutions," in which "each person possesses an inviolability founded on justice that even the welfare of society as a whole cannot override."¹ Rawls founds his theory on principles of justice, "principles that free and rational persons concerned to further their own interests would accept in an initial position of equality as defining the fundamental terms of their association."² Derived from what Rawls terms the "original position," and chosen from behind a "veil of ignorance," the principles that *A Theory of Justice* proposes are

supposed to be just because they are chosen from an initial situation that is fair. Thus, we arrive at the definition of social justice as the outcome of agreements reached among individuals under fair conditions.

Rawls' principles of justice are two: first, that "each person is to have an equal right to the most extensive basic liberty compatible with a similar liberty for others;"³ and second, that "social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to positions and offices open to all."⁴ It is this second principle that has largely defined Rawls' theory, giving popular rise to his "difference principle": "a strongly egalitarian conception in the sense that unless there is a distribution that makes both persons better off..., an equal distribution is to be preferred."⁵

Rawls links the guiding democratic principles of liberty, equality and fraternity with his two principles of justice, such that "liberty corresponds to the first principle, equality to the idea of equality in the first principle together with equality of fair opportunity, and fraternity to the difference principle."⁶ In doing so, *A Theory of Justice* has attempted to satisfy the numerous and divergent demands of justice that have historically fought for primacy: what is "right" has been defined by the individual liberties that justice as fairness protects, while what is "good" has been accorded a space to be debated and determined amongst rational individuals who must cooperate to mutual advantage.

THE COMMUNITARIAN CRITIQUE

It is Rawls' lack of significant attention to the question of community, either as a moral agent of justice worthy of consideration or as a constitutive force over individual agents morally endowed with

¹ Rawls, John. *Theory of Justice*, p. 3
² *Ibid.*, p. 11

³ *Ibid.*, p. 60
⁴ *Ibid.*, p. 60
⁵ *Ibid.*, p. 76
⁶ *Ibid.*, p. 106

claims to justice, that provokes consternation from communitarians. Will Kymlicka argues that Rawls did not explicitly reject the value of community; he simply did not pay any significant attention to it, a trend that persists in liberal thought which traditionally does not include “any independent principle of community, such as shared nationality, language, identity, culture, religion, history, or way of life.”⁷ Thus, Kymlicka argues, communitarians charge modern liberals with “adopting an abstract and individualistic approach, and propose a more contextual and community-sensitive approach.”⁸

Perhaps the most influential critique of Rawls that employs a “community-sensitive approach” has been Sandel’s *Liberalism and the Limits of Justice*. In this work, Sandel constructs a number of arguments aimed at undermining the Rawlsian conception of justice and, by association, the liberal tradition upon which it is based. Primarily, Sandel argues that Rawls’ conception of the person is flawed, that it ignores the “possibility of a person’s being constitutively attached to her ends,”⁹ which is a misrepresentation of the natural human moral experience. It is this assertion that reveals the communitarian nature of his critique given the importance it accords by extension to an institution (society) beyond the self, which can neither be wholly fulfilled by an individual nor fully divorced from him.

While Rawls acknowledges the importance of “equal citizenship” and “social cooperation,” his theory fails to promote true community. According to Sandel, Rawls has constructed an “unencumbered self,” involving a definition of personhood that denies an individual “the possibility of membership in any community bound by moral ties antecedent to choice... Such a [constitutive] community... would engage the identity as well as the interests of the participants, and so implicate its members in a citizenship more thoroughgoing than the unencumbered self can know.”¹⁰ Rawls argues, as stated above, that the difference principle responds to the moral implication of fraternity. Sandel counters that, given Rawls’ conceptualization of the person as antecedently free of moral claims, the difference principle cannot be justified if placed alongside the Rawlsian

individual. The difference principle, as a principle of sharing, “must presuppose some moral tie among those whose assets it would deploy and whose efforts it would enlist in a common endeavor.”¹¹ But, Sandel argues, given that Rawls has rejected such a prior claim, the cooperative society that Rawls envisions has not defined the moral basis on which this sharing principle can be justified. Thus, we need a moral explanation for the basis on which the liberal individual is obligated to contribute to the social good if indeed Rawls’ primacy of rights is to be accepted.

Sandel’s attack of Rawls on the basis of “asocial individualism,” and the search for a moral claim of the community over the individual, positions the arguments of Charles Taylor as important contributions to the communitarian critique. While he does not explicitly attack Rawls, Taylor challenges the notion that justice should advance the primacy of rights as its fundamental aim. Such a pursuit, he argues, is the outcome of atomism in which theories asserting the primacy of rights ascribe a certain set of rights to individuals and deny that same status to a principle of belonging or obligation.¹² If, however, we reject an atomist definition of the individual, then we must also reject the primacy of rights. We would have to find a place for human nature, which embodies a social condition, in our conceptualization of justice. Taylor’s obligation to belong presents a crucial communitarian counter-argument to Rawls’ theory. If, as Taylor suggests, we are free only by virtue of the historical civilization that brought us up to be, a society that continues to nourish this freedom, then “this creates a significant obligation to belong for whoever would affirm the value of this freedom.”¹³ Furthermore, if we do in fact assert the value of such a freedom, then we have an “obligation to make [it] available to others,”¹⁴ which implies an ongoing and consistent duty to maintain the society as a whole, preserving it both for the constitutive role it plays on our own identity as well as for future individuals who also have the right to be free, defined in this manner.

THE LIBERAL RESPONSE

Answering the communitarian critique, advocates of the liberal conception of justice argue that Rawls may have neglected community in his theories and principles of justice, but that does not necessarily

lead to the conclusion that liberalism leaves no space for community. Indeed, Allen Buchanan and Amy Gutmann argue that the communitarian critique has failed to undermine liberal justice because not only may communitarianism be compatible with liberalism, but the liberal primacy of individual rights may in fact lead to a better protection and promotion of community as an ideal social good.

Buchanan challenges the notion that merely establishing community as a fundamental good is sufficient justification for dismantling the liberal conception of justice. Not only must communitarians establish the “objective value” of community, they must demonstrate how this value is significant to the conception of the proper role of government, which, regardless, need not necessarily include “a comprehensive catalog of objective human goods.”¹⁵ Buchanan then suggests that liberal individual rights provide valuable protections for the flourishing of community.¹⁶ Buchanan predicates the remainder of his argument on the belief that the debate between communitarians and political liberals is not a conflict of the value of community; rather, it is a disagreement rooted in “strategies as to how best to serve the value of community.”¹⁷

Thus, we arrive at the foremost question of this debate: “why should one assume, as the liberal apparently does, that the proper way to protect communities is by enforcing individual rights?”¹⁸

Buchanan offers four responses. First, individual rights “facilitate rational, nonviolent change in existing communities as well as the rational, nonviolent formation of new communities.”¹⁹ Second, he argues that because individual members of a particular community are each ascribed individual rights, the violation of any one member’s rights allows for “prompt appeals for the protection of [the] community’s interests”²⁰ as a whole. Third, individual rights do not require the kind of hierarchy that is encouraged by group rights which structure power in the group among those who control the exercise of the right and the interests of other members. Finally, Buchanan argues that individual rights are inherently “anti-paternalistic” in a way that group rights are not.²¹

While this tackles the primary aspect of the communitarian critique of justice (that of the compatibility of community with an individualistic liberal notion of justice), there is another element to the critique that Buchanan attacks. According to Sandel, justice is not the highest virtue a society can achieve. It is merely a remedial measure with a value that is “proportional to the presence of that defect whose job it is to remedy.”²² This defect is, according to the communitarians, the absence of true community which leads to the lack of a shared conception of the common good. Pluralism (understood here as multiple, competing conceptions of the good) is the primary obstacle to true community as it results in the need for remedial justice. Buchanan contends that individual rights, especially those that preserve participation in the political realm, combat the negative effects of pluralism just as efficiently (if not more so) than any communitarian idea of justice. Individual rights can contain and channel such disagreements, succeeding at even preserving community in the face of pluralism. More importantly, he argues, the lack of a common conception of the good may be present in societies which are nonetheless unanimously in agreement about what the common good is, but could disagree about the methods needed to achieve it. Hence, “justice may still be extremely important, indeed indispensable, even in societies which enjoy a remarkable measure of agreement on the common good.”²³

Buchanan thus concludes that communitarians have made a compelling case for the inclusion of the value of community in our conception of justice, particularly the need to recognize the limits on the value of autonomy and of “exclusively individualistic conceptions of well-being.” However, he argues that they have failed to disprove the liberal political thesis, and thus Buchanan firmly contends that the idea of individual rights is imperative to the preservation of justice even when giving due consideration to the ideal of community. It is this idea that a balance may be struck between the individual’s and the community’s respective moral claims to liberal justice that form the consistent basis of the liberal response to communitarian critiques, as demonstrated further in articles by Amy Gutmann²⁴ and Will Kymlicka, among others.

7 Kymlicka, Will. *Contemporary Political Philosophy: An Introduction*, p. 208

8 *Ibid.*, p. 209

9 Mulhall, Stephen & Adam Swift. *Liberals and Communitarians*, p. 41

10 *Ibid.*, p. 87

11 *Ibid.*, p. 89

12 Taylor, Charles. “Atomism,” p. 188

13 *Ibid.*, p. 206

14 *Ibid.*, p. 206

15 *Ibid.*, p. 857

16 *Ibid.*, p. 858

17 *Ibid.*, p. 860

18 *Ibid.*, p. 862

19 *Ibid.*, p. 862

20 *Ibid.*, p. 863

21 *Ibid.*, p. 863

22 *Ibid.*, p. 876

23 *Ibid.*, p. 877

24 See Amy Gutmann’s “Communitarian Critics of Liberalism” in *Philosophy & Public Affairs*, vol. 14, no. 3. 1985. Pages 308-322

THE MERITS OF THE DEBATE

The fundamental question of the communitarian-liberal debate is what we should understand, believe and protect about the relationship between, and relative importance of, community and justice. If indeed it is fair to suggest that the goal of justice is to balance social good in the form of community with atomist liberal rights, then Rawls has missed something crucial that the subsequent communitarian-libertarian debate has grappled with. Sandel's argument is that Rawls has neglected the role of community in favour of a "thin theory of the good," which is insufficient for explaining the context and content of justice. Indeed, Sandel questions: how can we explain the obligation of the difference principle without presuming some moral claim of others over us as individuals? This principle presumes an obligation of sharing which must be explained - an explanation that Sandel fails to convincingly advance. It is Taylor's explanation of an obligation to belong, and thus his construction of the political community, that succeeds where Sandel fails and provides a reasonable, even imperative, moral claim of community to justice. But it is Jonathan Wolff's assessment of Rawls' thin theory of the good which solidifies this understanding of the obligation to community, and its moral claim to justice.

The lack of a conception of the good, particularly a shared conception of the good, in Rawls' original position behind a veil of ignorance leads to the problematic question: without a conception of the good, how can any decision be made as to how and what society ought to be on any level, not to mention justice? Rawls' answer is to presuppose a certain type of motivation: "the parties in the original position, he stipulates, are assumed to possess a 'thin theory of the good'" in which the parties know that they want a set of "primary goods" (e.g., liberties, opportunities, wealth, income)²⁵. Rawls adds to this thin theory of the good that the hypothetical individuals of the original position are aware that they prefer more of these primary goods to fewer, that the agents are rational, they are not envious and that they are "mutually disinterested" in the plight or fortune of anyone else²⁶.

According to Wolff, it is this thin theory of the good that has rendered Rawls vulnerable to substantial criticism from communitarians. Rawls posits the

set of primary goods as those things that rational people want because whatever else an individual may want, these "all-purpose" goods will nonetheless be helpful. Thus, he arranges the set of primary goods he stipulates as neutral, applicable to all possible thicker conceptions of the good. The criticism then is that these are not, in fact, neutral. "These goods are particularly suitable for life in modern capitalist economies, built on profit, wages, and exchange."²⁷ What if there are other non-commercial, communal forms of existence which do not privilege wealth, income or even liberty or opportunity to so great an extent as the preservation of identity or community? The criticism of Rawls then stems from an original position "biased in favour of a commercial, individualist, organization of society, ignoring the importance that non-commercial, communal goods could have in people's lives."²⁸ Thus, we can conclude that the communitarian critique has succeeded in challenging any individualistic conception of justice that can be drawn from Rawls on the basis of his thin theory of the good as an insufficient contextualization of the content of the principles of justice. Indeed, there must be space made for thicker theories of the "good" because the human experience, both theoretically and empirically, is bounded by elements beyond any individual self.

However, the liberal response to the communitarian critique highlights the crucial failings of the communitarians to completely dismantle and defeat Rawls' theory of justice. Not only do the liberals, led primarily by the critiques of Buchanan, demonstrate that there does in fact exist a distinct and relevant space for community as a moral consideration of justice, but they also succeed in undermining Rawls' critics by successfully arguing that communitarians do not present a convincing explanation for privileging community above the individual. Liberals therefore argue that in order for the communitarians to present a significant challenge to Rawls and liberalism, communitarianism will have to develop a morally just explanation for the privileging of community over the individual. Otherwise, they are right to argue that in failing to do this, the communitarian critics have largely left the liberal conception of justice intact and merely opened up a space within the liberal tradition for the insertion of community as a moral value of some relative worth.

The importance of this debate overall, including the communitarian and liberal contributions respectively, is such that justice can now be conceived of more wholly, as pertaining to the many parts of human society and the related sum that is the society itself. The debate and its subsequent enhancement of the theoretical understandings of justice, conveyed in both liberal and communitarian terms, are ever more pertinent to contemporary discussions about the demands of justice in a globalizing world. The nature of human society is changing such that the definition of who composes Taylor's "political community" has become increasingly fluid, provoking questions regarding to whom does one owe just interaction and what are the obligations of a particular individual or society to other individuals or societies. The relevance of this post-communitarian-critique debate in our contemporary world is a reassessment of "global justice," including, at the very least, its "sharing" elements as understood by Rawls. If indeed the communitarians, as argued above, have succeeded in carving out a distinct and relevant space for community in our understanding of justice, then of irrefutable importance going forward will be not only the definition of that space, but also its ramifications for contemporary realities. In a world of shifting borders, enlarged communities and decreasing equalities, the implications of the communitarian critique and liberal response force a conceptual and practical challenge to the predominating global justice institutions of our day.

CONCLUSION

In exploring the communitarian-liberal debate spurred by the release of Rawls' Theory of Justice, this paper demonstrates the complexity of considering the moral claims of various agents when determining the context and content of justice. Traditionally, the liberal conception has neglected or undervalued the notion of community, a fact to which the communitarians have responded with succeeding in providing a moral claim for community to justice. However, in doing so, the communitarian critique has done little to seriously undermine the liberal conception of justice as it largely failed to prove how liberalism permanently and necessarily excludes "community." Nor do communitarians succeed in arguing the claim that justice is merely a remedial virtue which would be unnecessary if true community was achieved. Such a claim ignores the role of justice in governing everyday

relationships between individuals within a community. Accordingly, liberal critics of communitarianism have interpreted Rawls so as to construct a thicker conception of the good than Rawls himself defined, and a more complete picture of the relationship between justice and community. This new understanding of the demands of justice now dictate that we define community, and in doing so, construct structures that account for it and the associated obligations we have to ensure just institutions beyond the narrow scope of the individual, applied at a global level.

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²⁵ Wolff, Jonathan. *An Introduction to Political Philosophy*, p. 156

²⁶ *Ibid.*, p. 156

²⁷ *Ibid.*, p. 170

²⁸ *Ibid.*, p. 170

TAKING UNIVERSITY STUDENT INSTRUCTION (SI) TO SCHOOLS (GRADE 10 – 12) – UNIVERSITY STUDENTS SOCIAL RESPONSIBILITY – UNIVERSITY STAFF ADOPT A SCHOOL – GOVERNMENT DEPT AND COMPANIES

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SOCIAL DIMENSION

EXECUTIVE SUMMARY

The Faculty of Agriculture, Science and Technology (FAST) is part of the North-West University and is situated in Mafikeng (South Africa). The Mafikeng Campus is situated in a rural area and the majority of their students are from surrounded areas. Unfortunately, there seems to be a declined in new student enrollment numbers across the university and particular in FAST, since learners cannot reached the minimum required entry levels for university. The situation will also be compounded exponentially with the opening of two new universities in Mpumalanga and Northern Cape in 2014.

This document proposed the initiative to take student instructors to schools in our surrounding schools, by improving their Mathematics, Science and English results to the entry levels of our university. Student Instruction has been used with great success in Fast and other departments in certain modules at our university. The schools that will be targeted first are Letsatsing, Mmabatho, Sejankabo, Barolong and Lapologang Senior Secondary Schools and the other surrounding schools will be integrated with time.

STUDENT INSTRUCTION IN SCHOOLS (GRADE 10 – 12)

INTRODUCTION

In South Africa funding for universities is directly tied to student enrollment. Universities only received funding based on the number of students currently in attendance. In other words each university is given a specific amount for each student enrolled at the university; therefore, when enrollment drops, so does funding. With declining student populations and en-

rollment some universities are experiencing a reducing in funding and are forced as a result to eliminate program offerings. Consequently, new management and marketing principles need to be adopted by administrators in higher education to ensure the continuity and survival of their institution and or faculties.

Many universities are beginning to understand the necessity of marketing and are experimenting with different ways to promote their programs, degrees and schools. Also, that business marketing strategies in academia now recognized external economic and societal conditions that contributed to declining student enrollment and program growth.

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Hence, enable FAST in particular and the university as a whole to achieve the student numbers that are required to gain a competitive advantage in the marketplace, taking into account the implementation costs, and the resulting performance and financial benefits for FAST.

LITERATURE REVIEW

Universities and particular faculties have found themselves in an unfamiliar and uncomfortable position that requires them to adopt business marketing efforts in order to attract students. That is as a result of the different universities that are competing for the same limited number of students.

According to Richmond (1996: 1) we are all in a way shaped or form in the customer services business regardless of our field. As long as we cater to the wants, needs, desires and even the unexpressed wishes of others, and so we ought to apply the same management and marketing principles to education¹.

Universities, despite the fact that they are in the academic field are a customer service organization that caters to both external-customers, their students, and internal-customers such as faculties, staff, counselors, administrators and trustees.

Hesel (2004: B9) outlines the following key points as effective techniques to market a university or faculty: focus on the product; focus on strategic goals that are long term in scope; make critical decisions on sound empirical basis; integrate everything you do and commit for the long run².

Black et al (2004), on the other hand, said there is no single strategy that would provide an ample pool of prospective students and suggested the following: hosting recruitment events, visiting high schools, developing recruitment publications, direct mail, advertising in movie theaters, radio, TV and issuing press releases to the media³.

Graduate teaching assistants (often referred to as GTAs or simply Tas or SIs (student instructors)) are graduate students employed on a temporary contract by a department at a college or university in teaching-related responsibilities. Sis usually serve as true assistants to a class; they typically have taken the course with which they are assisting, often with the same professor, and have performed well in it. This case is less common for GTAs, since many would have been undergraduates at other institutions. Unlike professors and GTAs, SIs generally do not have a fixed salary but instead are paid by

¹ W. K. Richmond, The Education Industry (1969) London: Methuen and Co Ltd

² R. A. Hesel, Chronicle of Higher Education (2004) 50 Issue 39, ppB9

³ Black et.al., Chronicle of Higher Education (2004) 50 Issue 39, ppB12

the hour, earn credit hours, or volunteer their time.

Educators have realized the need for a marketing plan, however the marketing efforts would have to be adopted by them personally, since most universities have not developed a formal marketing plan for the entire university, its departments and specific programs. To address the marketing deficiency in educators, Craven and Duhamel (2000: 58) recommend the following basic principles⁴: identify your target audience – clearly pinpoint who your courses, programs, certificate or degrees are design for; define your mission – reflect on the purpose of your courses and program to assist in developing a mission statement that clarifies the goal of your program; assess the needs of your community – using economical and social research establish whether there is a demand for your courses or program by both employers and prospective students and what requirements or criteria is associated with the demand; identify your competition – study your competitors strategy and approach and use their weaknesses to your advantage; establish your credibility – establish a reputation of being one of the best in the field and by being able to deliver on promises; develop a marketing plan – create a comprehensive plan with action tasks, personnel in charge and a budget to assist you in reaching your target market; provide options – offer alternatives to prospects that are interested in the programs but in a non-traditional format; evaluate your programs and deliver quality programs.

STUDENT INSTRUCTION PLAN FOR THE FACULTY OF AGRICULTURE, SCIENCE & TECHNOLOGY (FAST)

Situated Analysis

FAST, however has started to encounter declining student enrollment problems during the 2012 period. New initiatives have to be explored to aggressively market FAST to increase student enrollment in the next year.

Stakeholders

English Department
Academic Development Centre (ADC)
Office of the Rector
Office of the MEC of Education
Office of the Premier (ICT)

⁴ R. F. Craven and M. B. Marketing Realities in Continuous Professional Education (2000) 86 pp 55

Department of Education (North-West)
Department of Science and Technology (DST)
Department of Agriculture
Mines in North-West Province
ESKOM

Target market

FAST and the English Department will perform student instruction in the following schools:

- Letsatsing
- Mmabatho
- Sejankabo
- Barolong and
- Lapologang

SWOT Analysis

The SWOT high-light key characteristics of the FAST recruitment program in terms of its strengths (to use it for promotional purposes) and weaknesses (address to minimize as possible), opportunities (turning it into a permanent strength) and threats (tackle them in a proactive manner).

Strengths	Weakness
1. Affordability	2. Geographic isolation, community size and semi-arid climate
3. Open admissions	4. Transport accessibility is a problem
5. Science expo's	6. Insufficient staffing levels in some schools
• Science centre	7. Low alumni involvement or commitment to the university
• Laboratory sessions during school breaks	• Campus Life area has had a great deal of turnover in recent years. More stability is needed to achieve our retention goals.
• Winter schools	• academic reputation is cited as not as strong as other universities to which our prospective traditional students apply
• Science open days	8. Timely submission of financial aid materials
• Small class size	9. To little student residences
• Quality training in faculty	10. Support and marketing personnel
	11. Make use of student instructors

Opportunities	Threats
1. Recruit closer to home (local schools)	2. National competitors –universities and colleges
3. Put funding into a shuttle-system	4. Mathematical Literacy in our local schools to improve Grade 12 pass-rate
• Internet Marketing	5. Not enough student housing for students from outside our borders
• Facebook/Twitter/Mixit	6. Lack of funding for new facilities and equipment
• Close to Botswana, Namibia and Zimbabwe	

Competition Analysis

Competition are mostly from other colleges and universities in the North-West province and other provinces in South-Africa. The SA government is busy promoting FET-colleges and most of these colleges are giving bursaries to their students, where as university students must rely on study loans.

Strategy

We've already identify our target market – we know who they are, where they live and which schools they attend. Therefore, our efforts will focus on: grades of learners (grades 10 -12), number of learners, numbers per group, number of contact sessions per week, hours per week and number of educators (lecturers + SIs).

Student Instruction Budget

The following estimated budget is based on direct cost to FAST programs.

For every school we need: one educator in Mathematics, Science (Physics and Chemistry) and English (at R100.00 per hour); for every 20-30 learners – one student instructor (at R50.00 per hour) and 3 sessions per week. Underneath is a budget for the 5 schools, 20 lecturers (1 per subject per school) and 40 SIs (2 per subject per school). There will be 4 contact sessions during the week (1 for each subject) after school (14h00 – 16h00).

Activity	Direct Cost to FAST	Source of Funding
Grade 10 Mathematics		Stakeholders to fund at least one school
Lecturer	1 (100 x 2) = R200	
Student Instructor	2 (50 x 2) = R200	
Chemistry		
Lecturer	1 (100 x 2) = R200	
Student Instructor	2 (50 x 2) = R200	
Physics		
Lecturer	1 (100 x 2) = R200	
Student Instructor	2 (50 x 2) = R200	
English		
Lecturer	1 (100 x 2) = R200	
Student Instructor	2 (50 x 2) = R200	
Total per week	R6 400	
Total per 1 school (month)	R25 600	
Total for 9 months	R 230 400	
Total per 5 schools	R1 152 000	
Grade 11		
Total per month	R6 400	
Total per 1 school	R57 600	
Total per 5 schools	R 32 000	
Total for 9 months	R288 000	
Grade 12		
Total per month	R6 400	
Total per 1 school	R57 600	
Total per 5 schools	R 32 000	
Total for 9 months	R288 000	

Total Estimated Budget for FAST for 1 school per year = R172 800 + transport costs (R27 200) = R200 000

Marketing Activity Summary: Timetable and Allocation of Responsibility

The implementation of the entire SI plan will be coordinated by Ms. Lerato Molebatsi, Science Center Manager, and her assistants. The different departments in FAST and the Department of English will also be utilized to assist with the lecturing and facilitating of students. The following table provides a time for the implementation of the different activities along with the department or personnel responsible for each activity.

Activity	Scheduled Period
Combine Gr.10 + Gr. 11	Feb
Gr. 12 Stand Alone	March
Diagnose + Remedy	April
Rush to complete syllabus. Choice of careers	May
Combine Gr. 11 + Gr.12	July
Consolidating + Revising	August
Gr. 10 Stand Alone	Sept
Intensive teaching to prepare for Gr. 11	October
	November

English:

Reading aloud, Listening skills, Identifying pertinent issues: examples are not always facts, Comparing and contrast.

CONCLUSION

Perhaps one of the most important axioms that can be identified is this -- there is no status quo for a faculty. Despite the best efforts of many faculty leaders, it is simply not possible to remain exactly as you are forever. There is a fundamental choice all faculty leaders must make: they can either proactively advance their institution forward by design and through planning or sit idly by and allow natural momentum to let their institution slip backwards. Having development strategy in place for FAST will not only put FAST at a competitive advantage it will ensure that the implementation costs of the strategy are achieved at a minimal cost and will also results in greater financial benefits in future.

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MAXIMIZING STUDYING ABROAD: A Self-Study into the Effects of Internal Locus of Control & Target Language Proficiency on Learning & Adaptation

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Abstract: There are many social and cultural factors that make differences to one's language learning outcomes in a foreign context; however, it is vital to probe into the effects of a learner's affective factors since one's psychology system turns the scale of his/her actions and behaviors. The present study aims at verifying influences of internal locus of control (LOC) on independent language learning. This research uses the researcher as an instrument in analyzing collected field notes and weekly journals, seizing the essence of cross-cultural learning experiences to prospect enhancing ways for language learning, culture learning, and eventually psychosocial adaptation in the target country. Results show that internal LOC elicits a recurring learning process in independent language learning, from which the researcher has attained obvious breakthroughs, implying a necessity for future sojourners to develop internal LOC before departure in hoping to maximize their learning abroad.

HOW DID MY SOJOURN GET STARTED?

As the world becomes interconnected, there is a growing number of students who study abroad. As sociocultural factors have been found to play important roles in students' learning languages, many research probed into whether students can learn language better in countries where that language is used primarily (Aidinlou & Kejal, 2012; Berg, Connor-Linton, & Paige, 2009; Wallace, 2011; Tsai, 2011). In recent years, some researchers have thought highly of sojourn studying as it seems to be propitious to learning the cultural constitutes of target language (TL) that classroom-based settings cannot offer. As a matter of fact, previous study reported that students enrolled in study abroad programs have averagely progressed more in language learning than those who learn in classroom (Berg, Connor-Linton, & Paige, 2009). In other words, if learners immerse themselves in native speech community, they are as-

sumed to learn better since they gain intercultural reinforcements and have many more opportunities to use that language for pragmatic development (Freed, 1998; Segalowitz & Freed, 2004).

However, in spite of the benefits that sojourn seems to offer, students who spend even a full academic semester abroad do not always make more significant achievement in developing skills of the language (Freed, 1995). The sources of differential outcomes of language achievement remain mysterious due to a lack of references to social or psychological factors (Kinginger, 2008). It is important to consider sociocultural factors such as age, sex, socioeconomic status, educational level, and social experiences and engagements. However, this study cuts to the chase from learners' inner factors, for it is inevitable under situations where students are consistently receiving cultural inputs.

Generally, the language classes students have in sojourn may give them only survival language; therefore, it is essential for them to learn independently once they complete the courses. In the case, how learners view their responsibility in learning independently predicts how they will learn. Learners' locus of control (LOC) is a crucial factor that induces and maintains learners' interest and involvement in learning (Fakeye, 2011; Özen Kutanis, Mesci, & Övdür, 2011) Hence, studying learner's LOC offers opportunity to delve into some of the differences between those progress-makers and the less progressed.

LOC, conceptualized as an individual's personal qualities, is one's belief system that shows how he/she sees the world (Rotter, 1966). It refers to an individual's perception about the underlying main causes of events in life. LOC includes two dimensions: internal and external, which represent one's tendency to relate success and difficulties of life events either to

internal factors such as effort and ability or to external factors such as chance and fate (Rotter, 1966). In other words, it is a belief about whether the outcomes of events in lives are contingent on what one does or other things that are outside of personal control.

Previous studies proved that learners with internal LOC tend to have better academic performance, and they are more willing to tackle tasks and challenges (Cohen & Lefkowitz, 1977; Ghazvini & Khajehpour, 2011; Kesici, Sahin, & Akturk, 2009), among which some found internal LOC have positive relationship to higher language achievement (Ali Salmani, 2012; Yazdanpanah, Sahragard & Rahimi, 2010). Thus, investigating learner's LOC in learning helps to come at how one's beliefs, attitudes and motivation drive him/her to learn and how learner's affective factors tell on the learning strategies used.

In instructional setting, this study intends to find out how LOC bears upon learning to offer suggestions for teachers and future sojourners to get prepared for learning abroad, by which hopefully sojourners can attain higher control over their language learning success while abroad. In scientific setting, to elaborate the cause and effect relationship between one's LOC and behavior, this study will look into the clout of LOC through a qualitative approach that elicits original phenomena of its impacts.

Locus of control (LOC)

Rotter (1966) defined LOC as a contingency between one's action and actual outcome of a life event through social learning mechanism. LOC includes two dimensions: internal and external, which represent one's tendency to relate success and difficulties of their life events either to internal factors or to external factors (Rotter, 1966). It refers to the degree to which an individual believes that he/she has control or influence over the course of life events. It is provided to measure one's degree of the perceived responsibility for the outcome of significant life events.

Starting from 1970s, studies of LOC supported Rotter's theory that individual may report with higher internal LOC if he/she believes outcomes of experiences are related to self and own abilities (Hesketh, 1984; Wang, 2005; Martin & Knight, 1985) while individual with higher external LOC tends to associate outcomes with external factors such as luck, fate or other powerful

beings (Wang, 2005; Katherine, 2007).

Externally-oriented individual tends to believe that his/her actions are results of external factors beyond control. An external might not take on responsibilities for his/her actions and behaviors but blame on the external environment and factors. He/she tends to avoid difficult tasks or distressing situations and generally has low self-esteem and suffers more from negative feelings such as loneliness, aggressiveness, despair and pessimism (Kesici et al., 2009; O. Serin, N. B. Serin, & Şahin, 2009).

On the contrary, an internally-oriented individual is more active as he/she believe that his/her actions lead to life events and outcomes of his/her actions reflect his/her abilities. An internal regards him/herself as independent learners, assumes responsibilities for his/her behavior, sets goals and tackles risky, innovative and difficult tasks which require higher personal control (Kesici, Sahin, & Akturk, 2009; Ghazvini & Khajehpour, 2011). Other studies found that internal LOC is related to intelligent behavior and better academic and task performance of students (Cohen & Lefkowitz, 1977; Ghazvini & Khajehpour, 2011). Internal LOC also has a positive association with stress coping (Hawk, 1989), health caring (Katherine, 2007) and vocational maturity (Lokan, Boss, & Patsula, 1982; Taylor & Popma, 1990). Moreover, it is found that an internal would actively participate in social activities and political issues (Kesici et al., 2009; Rosen & Salling, 1971).

Rotter's (1966) LOC has been developed into a more comprehensive when it comes to its leverage in learning. Many studies have found that an internal is more active, motivated and persistent throughout learning process, more concentrative to the meaning of learning, makes more uses of learning experiences, exerts more efforts and takes responsibilities of failures (Wang, 2005; Kesici et al., 2009; Severino, Aiello, Cascio, Ficarra, & Messina, 2011; Ghazvini & Khajehpour, 2011; Joo, Joung, & Sim, 2011; Anderson, Hattie & Hamilton, 2005).

More recent studies probed into factors that are influential in learner's LOC such as gender, socio-economic status, accommodation place, academic setting (O. Serin, N. B. Serin, & Şahin, 2009; N. B. Serin, O. Serin, & Şahin, 2010; Ghazvini & Khajehpour, 2011), debating how and under what condition

an individual perceives him/herself as internal or external. Some other studies discussed its relationship with self-esteem, self-efficacy, stress coping, learning strategies, hopelessness (Saadat, Ghasemzadeh, Karami, & Soleimani, 2012; Kesici et al., 2009; Leandro & Castillo, 2010; Mutlu, Balbag, & Cemrek, 2010; Severino et al., 2011), looking into its sways on one's coping strategies application in stressful conditions, learning achievement and mental health.

However, Rotter (1975) clarified that internal and external LOC represent two ends of a continuum but not an either-or typology; instead, they move all the time in searching for an ideal suit in one's belief system. LOC is a generalized expectancy which predicts individual's behavior across different situations. Still, it is possible that the internals or externals perform actions and behaviors of the other side in some specific situations. That is to say, LOC should be discussed on the basis of one's conceiving personality as the interaction of the person and the environment.

Self-study

Wilcox, Watson and Paterson (2004) indicated that self-study research is an "explicit methodology" which facilitates the learning and verifying of one's own work and theories in use (p. 273).

Mishler (1990) and LaBoskey (2004) identified some central features of self-study research: 1) it is self-initiated, self-focused, interactive, employing and improvement-aimed 2) it is embeds with multiple primarily qualitative methods and demands deliberation in professional community and a further judgment of credibility. Self-study is to authentically look within one's own setting of practice, explore complexities of one's learning and reduce the gap between one's conscious and unconscious intensions that have been previously taken for granted as unproblematic (Russell, 2010).

It requires a reflective turn to reinterpret the potentially ignored or misled knowledge and make tacit knowledge explicit. It empowers oneself to attain an "ever-deeper understanding of self and practice", which helps to articulate and generate knowledge and demonstrate its usefulness to professional community (Wilcox et al., 2004, p. 307). It motivates researchers to discover how their learning from self-study can make contributions to the fields. At the end

of the day, self-study research enables researchers 1) to unfold the process and their intensions to go about goal selecting, preparation making and effects analyzing, 2) enact and achieve one's expectations especially when knowledge is deeply rooted in practice itself and 3) dialyze the complexity of the setting practice itself to have multiple kinds of knowledge integrate with multiple goals (Russell, 2010).

Self-study practitioners do not simply reflect on the practices; rather, they must separate the context of practice from themselves for a deeper understanding of the context, practice and their interaction (Manke, 2004). What's more, self-study often comes with doubts related to its credibility and validity. Practitioners concern that self-study will turn out to be solipsistic and subjective self-reflection, which triggers little interest and value to others (Manke, 2004). Though self-study research is self-oriented, it requires a transparent research process and colleagues for an ongoing analysis of the researchers' questions, data and perspectives to avoid fragmentation and solipsism (LaBoskey, 2004; Russell, 2010, Wilcox et al., 2004; Lunenberg & Samaras, 2011; Manke, 2004). This prevents bias of the practitioners and a reinforcement of their existing perceptions. Self-study should follow with honest, constructive and non-technical advice and multiple opportunities to share the work, which allows a further validity check and refining (Lunenberg & Samaras, 2011).

WHAT WERE EXPECTED TO FIND IN SOJOURN STUDY?

This study is a self-study research which uses a qualitative means of collecting data from participant's cross-cultural experience, applying Rotter's (1966) internal-external LOC developed for almost 40 years by following researchers. Unlike research which used quantitative methodology, this study aims at an in-depth understanding of how LOC facilitates one's independent language learning in a foreign context. Critical incidents methodology is used to identify crucial events and issues that provide clues to understand the relation between one's LOC and learning.

Although many previous studies proved that LOC has predominant leverage in one's learning performance, few studies paid attention to its effects on independent language learning in a foreign context. Though it is proved that learner's TL proficiency af-

fects his/her application of coping strategies in situations, there are few which demonstrates the relationship and the outcomes of choosing one over another. Furthermore, though a large number of previous researches demonstrated the link between LOC and learning through quantitative research approach, few case studies are found to provide an in-depth understanding of LOC's role in learning. This study aims at 1) studying how one's internal LOC facilitates independent language learning in a foreign context and 2) discussing on how one's TL ability turn the scale of his/her coping strategy performing. This research intends to answer these 2 questions:

1. As an independent language learner, how does my internal LOC facilitate my language learning?
2. What is the relationship between my target TL proficiency and application of coping strategies in situations that need intensive communication?

HOW WAS THE SOJOURN STUDIED?

This sojourn lasted for 6 months including 1-month (February) intensive course of Spanish learning, 4-month (February 20th to June) semester and 1-month summer vacation. I shared an apartment with a Taiwanese girl, a Canadian female student and a Belgian pre-service English and French teacher; however, I moved out in March and stayed with Spanish and Moroccan friends. I had attended and completed the intensive course level A2. Originally, I was assigned to attend A1 but I chose to transfer to A2. After 70 hours course, I passed the final exam. I didn't have any other Spanish courses later but I continued learning by spending time with the locals. I studied in Department of Philology of English, French and Germany. I had two courses in English. One was English Teaching Methodology and another was Business English in Department of Business Administration and Management. Both courses were taught in English and completed in the beginning of June.

Instrument

Journals. Weekly journals are used to document the cross-cultural learning and language learning process throughout 6-month sojourn. Since my journals are developed from field notes that I have written, I make the issues addressed with more details by adding descriptions of contexts. At least 2 journals are required per week. They are used to record daily events, monitor the use of strategies, retrospect be-

haviors, and provide an insight understanding of how I learn and live in the foreign country.

Field Notes. Writing field notes, I can give special attention to the process of my interaction with the locals and the culture itself. Emerson, Fretz and Shaw (1995) indicated that field notes are used to filter participants' experiences and concerns through ethnographer's perspective. By keeping field notes, I can gather accumulating records of my observations of the self-construal prototypical and reflections of experiences in the host culture. Since everyday life is different in ways and different issues can be raised in one day or same issues can be talked about separated, I gather notes for one week and divide them into a general and inclusive topic to develop for detailed journals.

Data Collection & Analysis

I took field notes and wrote short comments to facilitate my journal writing for further recall of events and analyses. Then, I put these notes and comments into categories to write a journal of one topic. I was suggested to document the date when I wrote journals and submit the journals to the advisor monthly. There is no assigned quantity to submit; however, an agreement reached between adviser and me is that a minimum of two journals should be submitted weekly, except for the first and last week of sojourn. I also exchanged journals with my advisor for her comments and I write my own feedback. In all, there are 85 journals submitted in 28 weeks (from arrival on January 29th to departure on July 30th).

To select and analyze the data, I started by categorizing the 85 journals into 5 groups: Initial contact, secondary contact/traveling experience, task performance, difficulty recognition, and reflection. Then, by applying negative critical incident theory which draws forth a greater variety of feelings than positive ones, I listed out 13 journals according to themes like emotional disorder, problem-solving/coping strategy, and Spanish learning/using. Lastly, I chose 9 journals and added in 2 journal responses to further re-read and reinterpret the messages inside. The final data share same context of incidents in terms of interactive targets and language used.

WHAT DID MY SOJOURN EXPERIENCE TELL?

Guidance of Internal LOC in Independent Language Learning

By deconstructing learning process, internal LOC has been found to have a continuous impact on my volitional decisions for language learning. Language learning in a foreign context followed a complicated process which often started from Difficulty Recognition, in which I evaluated my language proficiency when I encountered a hard time in communicating with others in Spanish. Once I recognized the obstacles of conducting successful communication as my lack of ability, my internal LOC guided me to view them as problems that were under my controllability. Thereby, I performed Positive Task Orientation in learning. I felt confident to tackle new challenges to improve Spanish. I viewed myself as a responsible and independent learner who could exert effort. At this moment, I was determined in improving Spanish and became more eager to language learning achievement. My Positive Task Orientation and Need of Accomplishment turned out to be reinforcements for the entire recurring learning process. Simply put, internal LOC drives me to recognize difficulties, set goals, become determined in learning, learn with whole heart, achieve goals, gain sense of achievement, have more confidence in learning, and all over come around again.

Difficulty Recognition. I had experienced cognitive conflicts about my duty and need to be able to use Spanish in the first stage of sojourn. Therefore, I attached importance to language learning since the experiences of conflicts reminded me of my lack of ability. I doubted that host nationals were not so considerate; however, I took on the responsibility and blamed myself for not being prepared to use the language. With my internal LOC, I regarded the difficulties and failures of communication as results of my drawbacks instead of someone else's duty. In other words, when I realized what the obstacles of my adaptation were, I considered them my work under my control.

Example A: I had an orientation in international office and the administrators used only Spanish to explain information to us. They thought it was our responsibility to have learned Spanish before arrival. However, I thought the main purpose of the orientation was to help us to get used to life here. We had

different cognition of the goal of the orientation for foreign students and different expectations to each other.

"Moreover, it is ridiculous because we have the meeting all in Spanish!! The organizer says that the orientation is assigned for those from Northern America. But we, the Asians from Korea and Taiwan, can join because the information is basically the same. However, she says that it is our responsibility to have learned Spanish and to start to listen to Spanish, so the meeting will be all in Spanish. I can understand, but I wonder... should not the aim of the orientation is to help anyone who just arrives in Malaga? We need to get our life started AS SOON AS POSSIBLE! An introduction in Spanish is OF NO USE AT ALL. (Journal 02/01/2012)"

Positive Task Orientation. I saw language barrier as obstacle that emerged due to my lack of ability. I was willing to perform tasks and challenges to learn and improve Spanish and had confidence in succeeding. I believed I could take over control and make sure situations handled as I wanted. This sense of personal control reflected upon the very fact that an internally-oriented individual sees him/herself as independent and responsible being that decides results of significant life events.

Example B: At first, I was assigned to class A1 after examination; however, I found it too easy and I decided to transfer to A2. I needed to talk to a coordinator for the transfer. Throughout consultation, I was allowed to talk only in Spanish, by which he did not agree with my transfer due to my poor proficiency. He thought I was not qualified for level A2. Though he was not willing to let me transfer at first, I took risk that I could not transfer back and needed to survive on my own in A2 as I believed I could fill up the gap if I worked hard enough.

"The problem is I can't understand what he says. Moreover, he does not think I am qualified for A2 due to my limited Spanish. However, I still want to transfer because I pay money to learn here. I don't want to spend an entire month learning something that I have known, although I still cannot understand what the coordinator says! Therefore, I take the risk that I can't change back. [...] Anyway, I will learn Spanish as hard as I can since this is all I want. I would rather spend money on the courses than travel. I decide to preview and review my Spanish textbook once I get it (Journal 02/06/2012)"

Need of Accomplishment. The willingness to take on challenges often came with determination to achieve learning by overcoming difficulties in process of adaptation. Internally-oriented individuals are reported to have higher needs of achievement. Therefore, from my case, I found my achievement motivation fostered my learning. The need and wanting to success drove me to become active, motivated, determined and have persistent attitude in improving.

Example C: I was determined to learn Spanish well; therefore, I seldom missed Spanish classes and previewed/reviewed lessons every day. Meanwhile, I exposed myself in Spanish-only environment and practiced the language. Although I encountered language fatigue at stages, the fatigue did not last long due to my determination, activeness, positivism, persistence, and eager for achievement. At the end of sojourn, I realized how much progress I had made and I was satisfied with my learning success.

"When I recall my language learning process again, I find myself much more confident and content of my Spanish now. I remember how I felt when I did not understand what my professor said in class. I was nervous and a bit frustrated because I did not want to be left behind. [...] in real life conversations, I felt so depressed and disappointed by myself because I could not understand what my friends were talking about. However, I did not give up. [...] the language learning accompanied with so many negative emotions, I was not beaten; instead, they have made me stronger and even more eager to learn Spanish. (Response to Journal 02/08/2012 written in April)"

"I think I was kind of aggressive in learning language and culture when I first arrived. This was good, I think, because it had been pushing me to go forward. And gradually, I have found myself developed several methods and strategies to immerse myself in this context. I have explored more and deeper in this culture after I spent so much time with the locals and other friends. (Response to Journal 02/18/2012 written in April)"

"I am glad that I have truly improved my Spanish and I have not wasted my stay in Spain. When I arrived in Malaga, I could not have any conversation in Spanish. I knew some words but that's all. I needed Google translation to talk with my friends. I needed friends who could translate what others said in Spanish for me. Gradually, I have learned more and more. The day before I go

home, I have gone to watch my first movie in Spanish, El Dictador, without any help of subtitle or translation from friends. And I understand so well though not 100 percent precisely. This is a terrific ending of my sojourn study in Spain. (Journal 07/31/2012)"

From the above results, I regarded my failures as a lack of ability that led to the inefficient or unsuccessful communication. I was willing to bear responsibilities and challenges to improve Spanish and to gradually become capable of managing similar situations in the future. I thought I was independent, able to bear upon the results of incidents and could overcome the obstacles on my way to success. Therefore, I was determined, felt ready to attain success, became more active and motivated in the learning process, had higher level of persistence for learning, and undertook responsibilities of failure of learning.

TL Proficiency & Coping Strategies

After discussing how internal LOC served as a facilitator in independent language learning, it is equally important to investigate how TL turns the scale of one's coping strategies used in situations. For instance, when I acquired with limited Spanish, I was inclined to view my behavior performance of interest difficult and challenging. I believed that I had few requisite resources and had lower confidence in my perceived power. I tended to exert less effort. Hence, while I spoke poor Spanish and faced with situations that needed intensive communication, I chose Acceptance over my original volitional coping strategies: Voice out.

CASE: COURSE FEE REFUND

Acceptance. When I was unable to communicate in Spanish, I could barely solve problems at the moment. Instinctively, I accepted consequences of significant incidents though I was not satisfied with its results. I realized what I was incapable of, so I reminded myself that it would be easier to simply accept what had happened as I could hardly make changes. Therefore, acceptance approach was a passive coping strategy. However, thought I chose acceptance approach to cope with problems I met, I felt frustrated due to my poor performance in dealing problems.

Example D: When I first arrived in Spain, I had an intensive Spanish course in February in total of 70

hours. I then signed up for a second course, but it was not an intensive one (see Appendix B). On the first day of class, a coordinator had an interview with me. He offered me with lots of information in Spanish, and I felt lost throughout the process to know which class I should go. I was so confused and allowed no time to ask for clarification. Then, the secretary told me that I could not attend since there was no space for me. I was upset, and I knew it was not my fault. However, due to my limited Spanish, I was unable to say much but accept the result. I felt angry and disappointed to the school service, but I felt even worse owing to my lack of language ability to understand and voice out for myself.

"I was completely lost and not knowing what had been wrong or what I should do. Then, he left without further explanation. So, I went to the secretary and realized that I could not take the course any more since there was no space for me. I was so pissed off because I had paid for the course, had passed the interview, and had entered the class. But now I could not take the course anymore? Are you kidding me? I was so upset! I could not even say anything for myself due to my poor Spanish!! I felt extremely bad at the moment. I bet that no one would understand what I have felt. [...] They did not care whether they have helped you or not. They think it is your duty to understand in their language. If you are not able to, it is your problem... In some aspects, I agree. But, I hope they can try to put themselves in our shoes to feel what we have felt and what we have been struggling about. (Journal 03/12/2012)"

Voice Out. Days after days, I have improved Spanish and became more familiar with social norms and rules in the target culture. Successful experiences in using Spanish in my daily life enhanced my confidence in using the language. When I faced with similar situations, unlike previous experiences, I was able to stand up for myself. I voiced out for myself, saying things that I thought correct and meaningful. I no longer stuck to a passive attitude in solving problems; rather, I managed situations better, applied other coping strategies and generated solutions that benefited me.

Example E: I had paid for my second Spanish course, but it turned out that the class was full. Administrators had promised to refund me through check and told me it might take 3 months to arrive (see Appendix C). However, I had waited for more

than 3 months, and there was nothing progressed. I started to contact with several related offices in school including language center, international office and cashier. All of them offered me with different information about the refund. I was told to wait and wait more when I contacted with the administrators who were responsible or semi-responsible for my case. I asked for a specific deadline for the refund, but no one could give me any promise on it. The conversations with them were all in Spanish.

"I asked if he knew when I could have my money back, but he said he did not know. I had no more patience for this so I yelled out at him through the phone. I said, "When you want me to pay, I have paid on time. Now, you need to give my money back and you tell me that you don't know when?" He responds, "Yes, Yes, I know. You are right. I am sorry. What I can do is to make calls for you." I told him that I would leave Spain soon and I needed my money back as soon as possible. (Journal 06/20/2012)"

They wanted my account in Taiwan so as to remit money to me if I left Spain. I felt angry and offended by the service and determined to get my money back before I went back to Taiwan.

"I was not going to accept the value loss due to the difference of money we use because it was not my fault. He said that he couldn't promise me anything about this. I was furious and they were ridiculous! [...] Hence, I decided not to give them my account and insist that I want my money back in check. Since it was the promise, I was not going to give in! I was extremely angry because I felt that they thought I was an idiot. No one gave me an explanation about the situation. All they wanted me to do is to wait and shut up. (Journal 06/20/2012)"

Then, I took a tougher and more aggressive approach in dealing with this problem. I asked my host-national friends to make sure the refund process was abnormal. Then, I wrote letters to language center (see Appendix D) and international office, claiming if things were not solved, I would report to police.

"Everyone that I had consulted for this problem told me that it must be someone who wanted to steal money from me. [...] I asked my Spanish friends if it was normal that it took months to give a check to someone. They said it is not normal unless the check was sent from the Moon. [...] I am not going to let them rob me of like this! I don't

care in reality if they want to or not, I will get my money back! This is unacceptable because I have been waiting for months. I decide to write a letter tomorrow to the international office and ask for the help (see Appendix E). If the international office can't offer any assistance, I will report to the police because the school has already failed its promise to refund my money on time. (Journal 06/20/2012)"

Lastly, secretary in language center asked me to contact with cashier since it was their transaction. Again, administrators in cashier asked me to wait for further notification and provided me with ambiguous explanations. Now that they showed little respect to me, I voiced out for myself. I doubted if there was corruption and insisted that I would have my money back before I have left. Interestingly, I had my money back 10 days after.

"I am so angry and annoyed so that I go back to the office. I start to complain. I tell her that if I need to wait until the end of July to have my money back, I will have already waited for 5 months. She corrects me they are 4 months in total because the process of refund starts one month after the date of the payment. Loudly, I respond, "4 months is a lot too! It does not mean that my time has no value!" Furthermore, I tell her that I have asked for information through different departments of the university and the information I had received are totally different. Strongly I say to her that I think all of them are lying. I do not loss my mind to say so. [...] All sound like lies! When the lady hears I say so, she seems to be really nervous. She replied that they do not lie. So, I ask her to deal with my case as soon as possible. She agrees and asks for my phone number so that they can call me once the check is prepared. Then, I leave the office, feeling much better after saying something for myself. Honestly, if they don't give my money back after I go back to Taiwan, I have no idea what I can do either. I hate their services because they don't respect me, neither do they treat me as they should. The quality of service makes me sick! (Journal 07/10/2012)"

To sum up, when I could not speak Spanish, I couldn't manage situations that needed intensive communication. I went through emotional ups and downs as I regarded outcomes of events as my lack of abilities. I felt angry, depressed and unsatisfied due to my poor performance. However, when I could manage the language, I performed well in defending myself as I wished to. Therefore, I could manage situations better, apply coping strategies and find out

solutions. With a better level of TL proficiency, I can voice out whenever I need to and talk back whenever I feel like to. Being able to conduct intensive communication helps to solve problems ahead and being capable of talking back generates higher satisfaction and less negative emotions.

WHAT IMPORTANT ISSUES WERE RAISED DURING THE SOJOURN?

Learning does not happen in a vacuum, and learning outcomes are related to environmental (educational environment, society, and politics), instructional (teaching approaches, quality of instructor and learning activity, learning support, and study workload), and learner variables (gender, course participation, self-confidence, locus of control, learning goals, motivations, efforts, and learning satisfaction) (Lim, Morris & Yoon, 2006; Lim & Morris, 2009). Among them, learners' LOC is one of the most significant variables in inducing/maintaining their interest and involvement in learning (Fakeye, 2011; Özen Kutaniş, Mesci, & Övdür, 2011). Research found internal LOC have positive relationship to higher language achievement (Ali Salmani, 2012; Yazdanpanah, Sahragard & Rahimi, 2010).

This study support previous studies, showing that internally-oriented learners can attain higher language achievement and higher learning satisfaction. In this self-study, I recognized the outcomes of learning as controllable, and I had active and positive attitude in learning. I viewed highly of my ability, thinking that if I continued learning, I would improve. I engaged myself in learning actively with confidence. I was willing to perform challenges and felt responsible for the outcomes. Results confirm to previous literature that internal LOC has positive impact on producing one's higher self-efficacy, which further predicts one's learning motivation (Taylor & Popma, 1990; Zimmerman, 2000). Similar results can be found in Zimmerman, Bandura & Martinez-Pons (1992) that internal-oriented learners tend to be highly motivated, active, confident and persistent in learning. They believe that their behavior is guided by personal decisions and efforts. In addition, despite failures and hard times in overcoming the difficulties, I did not give up but become stronger and more determined in pursuing goals. Throughout, my self-esteem and learning satisfaction were reinforced over times with progresses I had made. These findings correspond to previous studies which proved that internally-oriented learners

tend to have higher self-esteem, better learning performance, and greater task-role satisfaction (Bhagat & Chassie, 1978; Kisher, 1981; Leandro & Castillo, 2010; Saadat et al., 2012).

In conclusion, internal LOC has positive influences on learners' independent language learning in foreign context. When learners improve their language ability, they ameliorate their perceived behavioral control. Thus, they will have more confidence in choosing favorable coping strategies and attain higher satisfaction in cross-cultural learning.

WHAT DID I LEARN FROM MY SOJOURN?

Generally, students in study abroad programs rely less on classroom-based context when it comes to TL learning. Many of them will have to apply independent language learning such as self-direct learning to attain language ability. Independent language learning refers to a learning context in which learners are independent from direct supervision of an instructor (Bown, 2006). Independent language learners select learning opportunities and use learning resources according to an understanding of their needs and interests (Hurd & Lewis, 2008).

Students in sojourns are somehow learning alone in the foreign context when they are not provided or provided with little instruction of an instructor. Some of them attend intensive courses for TL learning; however, the courses are limited. They will have to harness independent learning once after completing the courses. Therefore, success of TL learning is largely based on one's independent learning. It is important for students to develop personal control over their learning experiences to facilitate improvements, and internal LOC can be bonus in language learning for independent learners.

In addition, it critical for students to gain cultural knowledge of the host country, communication variables, contextual application of cultural variables, and a variety of strategies encompassing aspects of effective intercultural communication. To reduce hardship in psychological adaptation, students who are going abroad should learn to cope with problematic situations ahead. Wait until the very last moment when problem is near at eyes is not an efficient way for one to overcome difficulties and adapt into the life and culture in target country. Thus, based on

research results, one pedagogical implication is to develop learners' internal LOC before departure by attribution training.

Attribution training can strengthen students' internal LOC and be helpful in increasing learning motivation, task persistence and self-esteem (Grantz, 2006; Shelton, Anastopoulos, & Linden, 1985). Implementation of attribution training intends to modify students' thoughts concerning why they have succeeded or failed on a task. Students need to see the relationship between their learning achievement, behavior and effort; thus, teachers should help them to gain a clear understanding of cause and effect. Instructors can help students to study themselves with activities that allow them to recall, rethink of and state their previous language learning achievements/failures and strengths/weaknesses. Then, instructors should guide them through their cases and help them understand what attribution styles they have and train them to say positive things to themselves. In this way, instructors can improve students' self-perception and increase their confidence in performing similar tasks. In addition, instructors should teach students to recognize the basic fact that they always have a choice by teaching them self-talks. Students should be encouraged to talk to and remind themselves that it is their choice to exercise different levels of effort in performing a task. This helps to strengthen their self-efficacy and increases their internal attribution.

Most of previous studies paid attention to the adaptation process and neglected the necessity in preparing students for cross-cultural learning from pre-departure. This study offers instructional advice from the perspective of independent learner. By using my own experiences, I hope to arouse attention to the power of learner's internal LOC in learning abroad so as to maximize their learning outcomes.

WHAT CAN PEOPLE LEARN FROM MY SOJOURN?

In addition to the pedagogical implications, I offer several other suggestions regarding to school administrators, future sojourners and future researchers.

Since most of school administrations pay little attention to the preparation stage of sojourn, it is suggested that administrators offer preparatory lessons which helps students in preparing themselves for learning and living abroad. The lessons should cover

3 dimensions: sharing from experienced sojourners, strategies for independent learning, and workshop for presumed scenarios. School administrators should invite experienced sojourners to share their experiences from visa applying, accommodation searching to traveling tips and safety notices. Their sharing offers future sojourners a quick start guide in preparing for the basic needs when they are going abroad. Then, they should provide lessons for students to discover themselves as what kind of learners they are and what learning strategies they are likely to use. This ensures students with knowledge of their ways to make the best of sojourn. School administrators also need to offer workshops for students to brainstorm and practice coping strategies they generate for problematic situations. This allows students to presume what accidents might occur while abroad and how they can deal with them while alone.

For future sojourners, it is crucial that they at least take one-academic-year courses to learn the TL. Survival language allows them to adapt more quickly in the beginning of sojourn. The self-discover that sojourn provides is an augmented profit that brings impacts to one's life for good. Hence, it is important for students to write diaries or journals to retrospect their life abroad. In this way, they can reflect upon themselves and see how they have progressed after some time abroad. Moreover, they are recommended to share their improvements (language, academic performance, personal growth, global perspective, philosophy and many others) in any forms such as speeches, studies, films, and blogs. The diversity and richness of their experiences can not only be references for anyone who plans to study abroad but also contributions to research fields.

For future studies, it is suggested to look into the power of one's external LOC. Similar qualitative self-study of externally-oriented learner is encouraged as it may eventually lead to a broader and more comprehensive understanding of how LOC touches on one's learning, motivation and behaviors. In addition, though internally-oriented learners are generally more successful in learning, there can be times that external LOC is an advantage. Therefore, future studies should pay attention to how external LOC helps learners in adapting to the target culture and learning. It is also suggested to investigate on ways to manage drawbacks of internal LOC since learners with strong internal LOC may have higher desire to

attain control over everything and suffer more from psychological difficulties in adaptation. Lastly, it is highly recommended to dig into the pull and drag process between internal and external of one's LOC shaping since there are changes that students will have after gaining foreign experiences.

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THE ROLE OF EARLY HIGH AUTHORITY CONTROL AND INTELLECTUAL REBELLIOUSNESS IN CULTIVATING CREATIVE THINKERS

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INTRODUCTION

Creativity – the ability to produce novel, appropriate and useful work – is often associated with psychological freedom. Indeed, how could Picasso have painted *Guernica*, or Darwin conceptualized evolution by natural selection, or Michael Jackson revolutionised pop music, if they had conformed to convention? No doubt creativity involves breaking the rules, to generate work that not a single person in the history of that domain has done before. Counter to common intuition, however, the biographies of many of the world's most innovative thinkers – such as Sigmund Freud, Albert Einstein, Pablo Picasso, Igor Stravinsky, T.S. Eliot, Martha Graham and Mahatma Gandhi, Madonna, Michael Jackson, Charles Darwin and Coco Chanel – reveal that they had experienced little psychological freedom as children. While there are many creative thinkers who follow a similar trend, I have chosen the above to represent a wide variety of domains. Further, they have revolutionised their respective domains, leaving a legacy even to the modern layman. The following report will explore the reasons behind the contradiction, as well as a key complementary characteristic that seems to tie creative thinkers together. It will then discuss the implications on education systems in America and Asia.

THE CASE IN ASIAN AND AMERICAN SCHOOLS

In the 2009 Programme for International Student Assessment (PISA), which assesses education systems across countries based on standardized tests, Asian countries ranked in no less than four of the top five countries for all subjects (OECD, 2010). Such countries as Singapore, Korea, Japan, China (Shanghai and Hong Kong) and Taipei have achieved similarly consistent rankings in the Trends in International Mathematics and Science Study (TIMSS) assessments from 2003 to 2011 (Patrick et al., 2004; Gonzales et al., 2008; Provasnik et al., 2012). However, exceptional competency in basic skills and knowledge, if accom-

panied by a “culture [that] promotes deference and order rather than questions and chaos”, does not offer a rich learning experience (Barber et al., 2012, p. 48). Often, Asian students expect to be spoon fed knowledge and have little motivation to engage in the joys of intellectual discovery (Kember, 2000; Barber et al., 2012). Such pedagogy has drawn criticism not only from the international community, but even more so from the very countries it manifests in. Government leaders like Chinese Premier Wen Jiabao have recognized the need to slant their education systems away from robotic rote memorization and drilling and towards greater intellectual curiosity, in order to produce creative individuals (Reuters, 2010).

Yet, while Asian education systems are criticised for overemphasizing basic content mastery at the expense of intellectual curiosity, the American system is faulted for compromising on discipline and basic content mastery in its drive to encourage that very intellectual curiosity (Ravitch, 1995; Barrett, 2005). Such a compromise is evidenced by international rankings; the United States ranked 17th and 30th in the 2009 PISA for reading and mathematics/science respectively. Furthermore, faced with a looming creativity crisis (Bronson & Merryman, 2010), America is grappling with the same problem as Asian countries – how to educate a new generation of creative thinkers who can solve future problems in a knowledge-based economy.

EARLY HIGH AUTHORITY CONTROL

Creative thinkers advance change in or about something (Harding, 2010). They perceive problems differently (Wallach, 1970), and produce solutions that are imaginative and surprising (Guilford, 1967; Mednick, 1962; Jackson and Messick, 1965; Bruner 1962). Their work is novel, appropriate and useful (Hennessy & Amabile, 2010; Barron, 1955).

A considerable amount of academic literature purports that in order to produce such work, one must think freely, think out of the box, and think with as little restrictions as possible. Indeed, studies have found that creative children often have less authoritarian (Bayard de Volo & Fiebert, 1977) and restrictive parents (Datta & Parloff, 1967; Getzels & Jackson, 1961; Parish & Eads, 1977). Furthermore, external constraints like evaluation and competition, and extrinsic motivators like monetary rewards, have been shown to be detrimental to creative thought (Hill, 1991; Kruglanski, Friedman and Zeevi, 1971; Amabile et al., 1986).

Layman opinion agrees, as seen from the criticism that Dr Amy Chua's "Tiger Mother" parenting style has drawn. Her book, "Battle Hymn of the Tiger Mother", highlighted a parenting style involving – among other things like parental warmth – constant drilling and high control by authority (Chua, 2011). David Brooks (2011) from the New York Times declared that "her kids can't possibly be ... truly creative"; Christine Carter (2011) from the Huffington Post writes that Chua's use of coercion is damaging to their creativity and problem-solving skills. Thus, both academic literature and layman opinion hold that in order to be creative, a child should be left to his own devices, his thoughts unguided by authority and control. In other words, psychological freedom is necessary to foster creativity.

Curiously, these views contradict numerous examples of great creative minds in the real world. In his book "Creating Minds", Howard Gardner (1993) selected and studied the lives of "seven creative thinkers" – Freud, Einstein, Picasso, Stravinsky, Eliot, Graham and Gandhi. He chose them from across the fields of academia, science, politics, music, art and dance. In his conclusion, he notes that the households in which these creative minds developed hung upon common threads of "strictness" and "a disciplined 'Protestant ethic'-style regimen" (p. 367).

Similarly, Madonna – who pioneered the exploration of themes of sexuality and eroticism in music – was brought up by her strict religious father. As a man with an unbending moral creed, he was "a firm disciplinarian" who enforced a regimented lifestyle in his house. Access to television and candies was limited, while daily household chores were compulsory (Morton, 2001). Given such a childhood envi-

ronment, Madonna is unlikely to have grown up with much psychological freedom.

Michael Jackson's path to his eventual reinvention of pop, passed through a similar upbringing. In relentlessly training his sons' performances, Michael's father Joseph demanded absolute obedience, disciplined regularly with his belt and built a web of rehearsal timetables around their lives (Jackson, 2011).

Darwin – who revolutionised natural science by introducing the idea of evolution – was no different. He was "born into a clan in which family and achievement were paramount... Indolence, lack of discipline, and passivity were not tolerated" (Thomson, 2009, p. 11).

Chanel spent a nomadic childhood tramping from town to town with a sick mother and an uncommitted father, the constant upheavals of which left her with very little control over her life. At the age of eleven she entered Aubazine, a large orphanage and convent for girls, where every activity from dawn to dusk was inflexibly planned out for them; biographer Chaney (2011) writes that "behind its high walls [she and her sisters] must truly have felt imprisoned" (p. 19). She later pioneered the use of jersey fabric in suits, combined the classy with the sporty, injected a style of casual confidence into aristocratic women's fashion, and created the timeless "little black dress" that is essential in every lady's wardrobe today.

Creative thinkers like the above completely defied convention to create novel and useful works for the world, yet experienced little psychological freedom as children. Empirical evidence thus demonstrates that creativity has occurred numerous times, contrary to expectations, in the presence of abundant restrictions.

THINKING AROUND THE BOX

In order to reconcile the contradiction, we must recognise that rather than stifling creativity, early high authority control familiarised many creative thinkers thoroughly with the contemporary conventions in their fields. The experience of high authority control as children endowed iconic creative individuals with the "strong motivation and persistence" that Weisberg (1988, p. 173) believed was key to their genius.

Madonna applied the same discipline in childhood later in life, dancing ballet for two hours every night as an adolescent, and poring over photographs, old movies, and various art works (Morton, 2001). As a child, Darwin kept meticulous lists of his findings and collected samples in a similarly organized fashion. As an adolescent, he and his brother Erasmus neglected their social lives in Edinburgh and instead "stuck rather grimly to their task" (p. 39) – studying, attending lectures, and reading voluminously. He was familiar with contemporary debates in geology, mineralogy, chemistry and botany.

As a result, having typically "invested a decade of work in the mastery of a domain", creative thinkers were "near [its] forefront" (Gardner, 1993, p. 361). Picasso's early notebooks record his persistence in mastering the existing formal knowledge in painting, including "varied compositional arrangements... diverse angles... contrasting emotions", surpassing his mentor by adolescence (p. 142). Familiarity with the domain then facilitated the thinker's discovery of uncharted waters that he could further explore. Weisberg (1988) similarly notes that a creative thinkers' lifetime of work accumulated a wealth of experience, allowing novel ideas to develop.

After all, creativity is never a completely original process. Any particular domain – be it science, music, art or fashion – has a related body of knowledge developed by the thinker's predecessors. Consequently, the domain has its own constraints and conventions – in natural history, for example, they were the laws of electro-magnetic action and earth processes, methods of fieldwork, and the biblical view of transmutation. Since it is impossible for any individual to recreate generations' worth of knowledge in a single lifetime, creative thinkers must first be familiar with the domain's body of knowledge, and work within the boundaries of the prevailing paradigm (Kuhn, 1970; Johnson-Laird, 1988). This allows them to avoid reinventing the wheel, helps them to develop alternative views, and expedites the development of new ideas by switching mental resources away from the basics (Sternberg & Lubart, 1995).

In other words, knowledge is first required in order to foster creativity. For example, with her experience in studying visual art, Madonna could infuse a "stunning visual sense" in music videos that are "exhibited in museums around the world... as modern works of art" (Morton, 2001, p. 15).

There is also Michael Jackson, whom his brother describes as having a "built-in recording chip for data, facts, figures, lyrics and dance moves" in his head (Jackson, 2011, p. 69). When Michael Jackson met singers like Smokey Robinson and Jackie Wilson, he

"hoarded these influences, absorbing every last detail: the way they talked, moved, spoke – and how their skin looked and felt. He watched them onstage with the scrutiny of a young director, focusing on Smokey's words, focusing on Jackie's feet" (p. 79).

And Darwin's theory of evolution by natural selection was based on at least a decade of knowledge he acquired from other academics at the time – knowledge such as the prevalent theories on transmutation, organisms' adaptability, 'monads' and how organisms inherited characteristics from their parent organisms.

In analyzing Picasso's painting Guernica and Edison's invention of the kinoscope, Weisberg (1988) concludes that the idea of the leaps of genius that creative thinkers take to land on a novel outcome is a misconception. Instead, such an outcome "began as a rather straightforward extension of earlier work. The initial conception underwent modification, until something new emerged" (p. 168).

Thus the knowledge of the domain's prevalent constraints is necessary to create novel and useful products. Likely, the early high authority control many creative thinkers experienced in childhood formed a psychological environment that demanded disciplined study and high expectations. This facilitated their eventual content mastery, allowing them to fly to the forefront of their respective domains. In developing their creative product, they essentially thought around the box, rather than completely outside of it.

INTELLECTUAL REBELLIOUSNESS

The reader must now be thinking that at any point in time, there are any number of thinkers who have acquired sufficient knowledge to stand at the forefront of their respective fields – but who can then produce novel, appropriate and useful work? Whether they can push boundaries and challenge existing norms differentiates creative thinkers from thinkers. To do so requires a certain spirit of intellectual re-

belliousness, a constant critical questioning of the purpose behind existing conventions and a desire to seek alternatives – not only in a specific domain but also as a general life attitude. I say “intellectual rebelliousness” because I refer not to petty disobedience for disobedience’s sake. I refer to a conscious rejection of certain principles that the thinkers had grown up with, in favor of those they discovered themselves.

We see such an attitude in Madonna’s desire to turn away from her father’s traditional principles, publishing her controversial book *Sex* in 1992. Even in childhood, she was always asking “why or why not” and relentlessly questioned the world around her. Michael Jackson displayed a similar desire to “[strain] against imposed order, pushing his luck more than [his brothers] ever dared” (Jackson, 2011, p. 82). Chanel demonstrated a stubborn defiance that earned her the name of “the bad one” who deserved to be “[sold to] the gypsies” (Chaney, 2011, p. 16). Gardner (1993) further notes how the seven creative thinkers he studied had all confronted and rejected authority, from Freud questioning of the hidden desires of high Vienna society, to Einstein’s frequent disagreements with his teachers.

Such intellectual rebelliousness allowed them to buck convention – but only after they knew what those conventions were, and why they were there. Therefore, content mastery brought about by early high authority control as well as a spirit of intellectual rebelliousness, are complementary facets of the creative thinker.

IMPLICATIONS FOR ASIAN AND AMERICAN SCHOOLS

Given that both basic content mastery and a desire to challenge that content are important, what implications does this have for education systems in Asian countries and America? As I have argued above, early high authority control is needed to firmly grasping the basics of a domain. In schools, such control is accomplished by drilling, consistent practices and memorization. Indeed, memorization is not necessarily accompanied by mindless acceptance of the facts, but can instead complement a desire to understand (Kember, 2000). The “open classroom concept” – involving a learning environment with constructive criticism, rich learning materials and more individual attention – has been suggested by researchers as a means to nurture critical thinking, intellectual explo-

ration and independent learning. (Amabile, 1996). Thus in at least the earlier segment of a student’s schooling life, the education system should promote a delicate balance between the rigour of basic content mastery and critical thinking. In this way, students learn the building blocks of the domains they study, as well as how they are useful to the field.

At the same time, such pedagogy fosters intellectual rebelliousness, an attitude useful in the later part of their schooling years. Having mastered a sufficient amount of content within the conventional boundaries of their fields, they should be encouraged to explore beyond the horizons that they know. Individual attention and consequently small class sizes are thus necessary. Knowing a student’s strengths will help teachers to customize student learning, by guiding them to work around those aforementioned boundaries, push them, and thus generate novel and useful products – the essence of creative thinking.

Therefore Asia should look to America, and vice versa. American schools could contribute with their emphases on intellectual curiosity, and Asian schools their methods of inculcating content mastery. Greater cross-national dialogue may produce a powerful combination of both education systems, one that would be relevant to cultivating creativity in students.

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ENGAGING YOUNG PEOPLE: Using Participatory Methodologies to Support Vulnerable Young People's Wellbeing

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INTRODUCTION

Adolescence is a time of transition in which young people experiment with their identities and work out who they are. This can be a challenging time, but for young people who are hospitalised, the challenges of adolescence are more complex. Hospitals often struggle to meet the diverse needs of young people and, without proper support; hospitalisation can lead to a decline in overall wellbeing¹. Young people need to feel comfortable; to maintain a positive state of mind, and to remain positively engaged with the experience and the environment (Bishop 2008). Research demonstrates that the best way to find out what young people need and to design policies, programs and products that will have strong uptake is to actively engage them and harness their insights and experiences in driving the solutions. Young people's involvement also helps to build credibility and rapport for the project and ensure that their values and attitudes are accounted for (Hagen 2012).

The creative arts are known to improve the wellbeing of patients, and recently a host of interactive technologies incorporating music and art have been deployed to better engage patients (Wolf & Wolf, 2011). Research shows that the majority of young people enjoy using computers, mobile phones, games and a range of other personal digital devices, and that they readily integrate them into their everyday lives. Social network sites, online games, video-sharing sites, and gadgets such as iPods and mobile phones are now fixtures of youth culture (Mizuko 2008) Building on the potential of these trends, from 2010 to early 2013, a study was conducted at the Department of Adolescent Medicine, at the Children's Hospital Westmead with the purpose of designing

an interactive music technology to promote engagement and support the mental health and wellbeing of hospitalised young people. The aim was to build an interactive music device that can enhance hospitalised young people's opportunities for socialisation, creative engagement and entertainment.

This study was known as the Music Cubes Project. The aim was to move beyond top-down approaches to embed young people at the heart of the design process, encouraging them to take ownership of devices that they collaborate, create and modify to create more sustainable changes in the hospital environment. Deploying a Transformation Design methodology and Ethnography, long-term adolescent patients between the ages of 12-18 were given the opportunity to explore and co-design an innovative music production and games device. By mobilising this combination of methodologies, the researcher actively placed young people at the heart of the solution to providing age-appropriate stimulation activities to better meet the diverse needs of an itinerant population.

This paper will discuss the importance, challenges and findings of engaging vulnerable young people in participatory methodologies to promote wellbeing.

Identifying Gaps in Stimulation for Young People in Hospital- The Challenge.

Hospitals frequently struggle with the appropriate placement of young people aged 12-18 (White, 1993). Depending on their age, the availability of space on the wards, and funding, young people are generally cared for in either a children's ward or an adult ward. That is, it is relatively rare for hospitals to have a dedicated adolescent unit tailored to meet the specific needs of young people. This means that, in most hospital contexts, young people have to adapt to an area in an existing ward designed to meet the

needs of a different age group, and frequently having no place to call their own. Whilst this is a problem for long-stay patients, it is particularly acute for short-term and returning patients, who regularly spend time in and out of hospital.

Hospital staff are often very aware of, and sympathetic to, the environmental needs of young people in hospital. Catherine Hubbuck, a hospital play specialist states that good communication with hospitalised young people is essential when trying to best meet their needs.

We will do our best not to put you next to the three-year-old, whose TV blares out Postman Pat all day long, and we will try our hardest to provide you with a space to call your own (Hubbuck, 2009)

Nonetheless, hospital staff are frequently ill-equipped – due to funding and time constraints – to respond in more than a superficial manner to adolescents' specific needs.

Dr Kate Bishop an environmental behaviour specialist points out that assuming that adults and young people respond well to the same environmental attributes is problematic, as is assuming that the needs of children and young people can be met by the same hospital environments (Bishop, 2008). Further, the needs of adolescents are likely to differ from one another, at least to some extent. Adolescence is a phase of human development in which young people must learn to adapt to a range of physical, social and emotional transformations. Many young people find this a challenging time. However, this can be a particularly challenging time for hospitalised young people, because they often don't have consistent access to the same structures of support and frames of reference (e.g. peer networks). Bishop has argued that the key environmental issues shaping a young person's experience in hospital include: the availability of age-appropriate activities and spaces; having access to school; spaces that provide young people with either privacy and community; as well as age-appropriate physical spaces (the importance of bright colours, soft furnishings, age-appropriate art work, and the removal of bland décor) However, she also states that a more holistic. Understanding of what constitutes patient's experience and feeling of wellbeing in a paediatric setting for adolescents is required (Bishop, 2008).

The Music Cubes study revealed that young people's sense of wellbeing represents their response to the experience of hospitalisation as a whole. When adolescent's needs are understood and met, adolescent patients can adjust more effectively to their illness or injury, maintain self-esteem and self-efficacy, and be more likely to cooperate with hospital routines and treatments. This may not only affect their immediate recovery, but also their attitudes towards health care in the future (The Association for the Welfare and Child Health, 2005). To meet the needs of all age groups, the ideal situation is to provide separate facilities for adolescents, children and adults, without the need to share facilities. AWCH states that all hospitals should strive to achieve this (AWCH 2005).

Providing age appropriate stimulation for young people and children at the Children's Hospital Westmead

Young people, from the age of 12-18 years, who require inpatient admission to Westmead Children's Hospital, are predominantly nursed in the Department of Adolescent Medicine. The Department provides inpatient and outpatient services to adolescents and their families, staff consist of adolescent physicians, social workers, nurses, psychologists, occupational therapists and youth art workers. This department, Australia's first Adolescent Medical Ward, opened as a centre of excellence in 1983 (NSW Health, 2012).

The Wade Ward, located on level 1 of The Children's Hospital at Westmead, is a 20-bed ward dedicated to the adolescent patients admitted to the hospital. The ward accommodates young people with managing anorexia nervosa and other eating disorders, as well as chronic fatigue syndrome, obesity, drug and alcohol abuse, Attention Deficit Hyperactivity Disorder (ADHD) and complex psychosomatic illnesses requiring a multidisciplinary approach to care (NSW Health, 2012).

Promoting an adolescent environment means that treatment is planned as much as possible around the needs of the adolescent, and medical professionals strive their best to achieve this. Maintaining 'normality'² is a high priority. In keeping with this environment the ward contains a pool table, table tennis

¹ Wellbeing is an overarching concept regarding the quality of people's lives; wellbeing is described as a dynamic process, emerging from the way in which people interact with the world around them (Rees G, Bradshaw J, Goswami H, & Keung A 2010)

² "Normalisation" is a term used frequently by Medical Professionals and is defined by the Department as helping patients to maintain and develop concepts around identity and connect with other peers in meaningful, relaxing and fun activities (The Department of Adolescent Medicine, 2008)

table, kitchen and T.V. and PlayStation room.

Although The Children's Hospital Westmead has its own designated adolescent ward, the hospital as a whole is largely designed for children. This can be seen through murals depicted throughout the hospital that are targeted to young children. The availability of facilities and recreation spaces for young people is of crucial importance. To meet the social needs of young people in hospital the issues that need to be addressed are:

• What there is to do

Bennett states the quality of the inpatient experience for young people, beyond the nature of their physical surroundings and the developmental sensitivity of staff, is largely dependent on what there is for them to do. The challenge here is to embrace a culture and innovative practice inclusive of health, lifelong learning, peer support and creative expression (Bennett, Towns & Steinbeck 2005). The Starlight Foundation³ is the primary organisation that promotes recreation activities for children and young people in hospital however it is not utilised by young people in hospital as they consider it to be "uncool"⁴. Therefore, it leaves little for young people to do and most are expected to provide their own entertainment and activities whilst in hospital.

• A variety of change

Being able to meet the need for variety and change reduces young people's level and burden of boredom. Boredom is described as a corrosive force, which participants acknowledge as having the capacity to undermine their positive mental state and threaten their ability to cope. Young people's need for variation and change in their experience, environment, and routines, greatly increases with time. This is one of the major impacts of time and the reason that having access to variety and change is so important (Bishop 2008).

• Lack of staff facilitation and space

A review of literature suggests that a young person's feeling of wellbeing is a holistic concept comprised of three major considerations, including a young person's ability to feel comfortable in the envi-

ronment, their ability to maintain a positive frame of mind, and their ability to remain positively engaged in the experience (Bishop 2008). It is argued by Ulrich (Ulrich, Zimring, Quan, Joseph, & Choudhary 2004) that the importance of a patient's sense of control over their physical and social surroundings in influencing stress and wellness is well documented in research. This further suggests that it is important for hospitalised young people to have a designated space and have a say in activities that promote wellbeing. This includes exploring innovative and age appropriate activities.

The issues described above highlight the critical need, but also the challenge involved in finding an approach to entertaining and motivating adolescent patients. The Music Cubes project seeks to offer a specific place for young people to play and interact with music in new and innovative ways.

What is the Music Cubes Project?

"Collaboration, Individualised, Creative Engagement, Entertainment"

The Music Cubes Project was first introduced in 2010 to fulfil the need of age appropriate stimulation for hospitalised young people. It is an Interactive Music Device that combines aural, visual and kinaesthetic stimulation. It is about providing hospitalised young people with age appropriate, creative, entertaining stimulation.

It involved the patients experimenting with devices called the Audio Cubes (renamed the Music Cubes for the purpose of this study). The Music Cubes contain sensors that can be used to detect and interact with other cubes, with humans and also computer software, whilst simultaneously providing visual feedback. They interact with software that allows patients to create and explore sound, music and visuals through hands-on interaction without needing any prior musical knowledge. Patients were encouraged to experiment with the cubes by turning or placing the cubes in different positions in order to interact with computer software that trigger different audio samples.

One of the design considerations for the Music Cubes was to ensure that the relationship between the user and the device was simple, but also engag-

ing and rewarding. When a cube is turned, a different audio sample is triggered to play. Therefore, the relationship between each cube face and the audio sample associated with each cube was easy to understand. Participants were asked to guess the instrument, and then use the Music Cubes to build a composition either individually or in groups of up to six players. This capacity for group play can encourage socialisation and normalising activities for patients, which is an important consideration within the Department of Adolescent Medicine.

Finding an appropriate methodology for the ever-changing needs of young people: Transformation Design and Ethnography.

In an interdisciplinary project that spans a range of different fields including music, design, composition, computer science; health and wellbeing, the challenge was to find a methodology that could account for the design and use of the device(s), as well as provide an analytical frame for understanding how hospital affects the adolescent way of life. Therefore the project required a "mixed methods" approach.

It is unfair to assume that a designer could produce a technology that would meet young people's needs without consulting young people. The strength of using Transformation Design is that it moves beyond a top-down approach seeks to engage all stakeholders in the process well as gain an in depth understanding of the environment and its cohort.

By following the design guidelines of Transformation design (combined with the field analysis of Ethnography) the project was successfully able to contribute to the wellbeing of young people within the hospital whilst simultaneously allowing space for them to impose their own questions and offer other unsolicited input and have a sense of control and ownership over the technology.

Participatory design engages with users in their own context and develops early prototypes that users can evaluate, understand, appropriate and interrogate from within their own contexts and practices (Third A & Richardson I, 2009).

The design process was thus iterative, allowing patients to have input into the design of the device at every step of the way. A range of tools utilizing both qualitative and quantitative data was used in creative ways

to make the research process more user friendly for patients, such as brainstorming, indicative questions, games, feedback forms consisting of wellbeing scales, informal interviews and rating scales. Research shows that creating and sharing content has positive effects on vulnerable young people's sense of community, belonging and connection (Third & Richardson 2009).

Meeting the needs of a department and its patients- Limitations and Specifications. The Music Cubes Project Research Findings

Over the three-year project, forty-five patients between the ages of 12-18+ used the Music Cubes Project. Members of staff and parents also offered feedback on the device and how it would work best for patients and the environment. We found that there were numerous constraints on the study that could only be learnt through consulting staff, parents and young people. These aspects included:

- Design specifications to meet patients of different abilities and illnesses.
- Different structured workshops to meet the needs of the wellness of patients,
- Maintaining a high level of hygiene to not spread germs
- Portability to meet the changing dynamics of space

Design Specifications: In the research phase of the project, staff were consulted on how best to implement the Music Cubes Project in the hospital environment. They outlined numerous limitations on the design specifications of the project such as the need to make the project appropriate for eating disorder patients whose energy expenditure is heavily monitored. This meant that the project needed to be utilised sitting down and did not encourage too much exertion. Therefore, the Music Cubes project was designed to be portable so it could be moved to hospital beds and waiting rooms, and could be used sitting down or standing up and used a small amount of movement in the arms in order to turn cubes to trigger different musical sounds. This was necessary in order to meet the needs of Department of Adolescent Medicine and its patients.

Different structured workshops to accommodate for different levels of wellness: It was evident throughout the project that the needs of patient's different levels

³ The Starlight Foundation is a charity that provides programs to help to enhance the emotional well being of these children by giving them an opportunity to forget their illness for a while; to simply be kids, laugh, have fun and connect with other children

⁴ As stated by Natalie Anderson and Elise Franke, Youth Artists within the Department of Adolescent Medicine

of energy and the constraints of their illnesses were a constant challenge. The workshop process therefore needed to be re-evaluated on a regular basis to meet the wellness levels of each patient. Over the span of the study ten participants were not well enough to partake in the full workshop process, which was at least half an hour. The point of the project is that it needed to develop a product that could respond to the needs of a very diverse and transient population no matter what level of participation, any input was vital. Key questions were shortlisted for the unwell patients whilst other patients were engaged in the full workshop process.

Hygiene: Hospital environments solicit many germs and it is important that there were measures in place to maintain cleanliness and limit the spread of germs, particularly given the Music Cubes were designed to move from one location to another within the hospital, and would be used by patients with a wide range of illnesses and capabilities. It was therefore important that the materials of the interactive music device be easy to clean after each session. The Music Cubes had a plastic casing that could easily be wiped down with a disinfectant cloth as to not spread germs.

Portability: The need for Music Cubes to suit a range of able bodied and disabled patients is important in a hospital environment. This meant that the device needed to be easily accessible to different parts of the hospital whether that is a hospital bed, hallway or lunchroom, as well as to cater for patients regardless of mobility capabilities. This was achieved by building a trolley to cater for the Music Cubes layout. This trolley enabled easy accessibility to patients located on different floors of the hospital. It could be used at bedside, over a wheelchair and allowed for access to patients who were in different areas of the hospital that may not have access to the Wade Ward environment due to full beds. This gave scope to access all patients that wanted to use the Music Cubes, even ones that may miss out on specialised activities for young people due to being housed off the Wade Ward.

Learning about the diverse tastes and needs of hospitalised young people- Key Findings.

Research shows that the involvement of young people in music and other arts programs engages them in their environment, which leads to increased engagement with their treatment (Bennett, Kang,

Alperstein & Kakakios 2004). Behne (Behne 1997) states that adolescents (aged 11 to 17) use music predominantly for mood management. In terms of contemporary music genres, many of the patients are drawn to contemporary pop, rock, dance, hard rock, and metal styles of music.

In the medical field, technology is vital to the survival of many patients. To patients who spend long periods of time within hospital, technology plays an important role in allowing them to keep up with the world, or staying sane in times of loneliness, uncertainty and fear. For Young People especially, integrating the use of technology into practices such as play can be a key to positively engaging and motivating them. It was therefore decided in the research phase that both music and technology would be used as mediums to encourage patients to have a say in how recreational activities could better accommodate their needs. It was paramount that the participants felt like they had a space in which they could integrate their sense of identity with their embodiment, allowing them to just 'be themselves' and forget about their illness for a while which helps them focus on positive activities. Transformation Design allowed us to explore the unique tastes and needs of young people and tailor the Music Cubes to reflect this. Our key findings were:

There are limited age-appropriate activities available to young people in hospitals The Music Cubes were designed to institute a new activity that was distinct from the other activities on offer. It was important that we did not overlap with activities already being conducted. The workshop questions that focused on activities that patients did to pass time in hospital. It indicated patients had a need to fill their free time with stimulating and enjoyable activities. Feedback showed that patients utilised their free time by listening to iPods, reading, catching up on homework, or drawing. This showed that there was a substantial gap in providing patients with activities that promote socialisation and creative output. This was especially the case for "bed rest" time where patients are required to sit on their bed after meals.

The before and after feedback forms showed that 72% of patients had improved levels of creative engagement and stimulation after use. Improved levels of creative engagement in hospital settings or out in the wider community can therefore actively contrib-

ute to people (Butler A, 2011):

- Establishing or re-establishing structure and routines in their lives;
- Developing feelings of stability and continuity; and
- Acquiring a stronger sense of community and belonging.

Feedback convincingly showed that utilising the Music Cubes during this time was a great way to keep patients stimulated. Patients were given an opportunity to record their own remixes and keep a c.d that they could listen to in their free time. This was a well-received aspect of the project. Therefore the impact of the Music Cubes study had a positive impact on young people at the Children's Hospital, Westmead.

Young People generate unique ideas and contribute meaningfully to the design process. Throughout the design process young people were asked how they would change the Music Cubes to suite their desires. Young people are diverse and a lot was learned and interesting results were recorded about numerous aspects of the project such as:

- Glitches in the system
- Sounds and samples that were pleasing / unpleasing.
- Genres of music that they wanting to see the Music Cubes adopt.

Suggestions for change included "get the music cubes to remember patterns played", "be able to draw and design different patterns on them", "creating a mega cube band so all my friends can play" and "using the music cubes to change music at parties". This shows that when consulted young people have a lot to say about the activities that they wish to take part in, by giving young people ownership of the design process it enhanced their engagement, giving them purpose and meaning during a difficult transitional period in hospital.

The design process needed to respond to the rapid evolution of technology. Music and Technology evolve at a rapid pace and at each new phase the Music Cubes needed to reflect the diverse needs of young people. Each new patient offered their own feedback as how the device could best suit them. Over the length of the study the Music Cubes evolved visually, kinaesthetically and musically, for example;

- In Year 1, patients wanted to see more visual aesthetics in the design. In particular, the flashing of different lights in the Music Cubes.
- In year 2, patients wanted to see more Music Cubes to allow for more friends to play and engage in deeper socialisation.
- In year 3, patients wanted to mould sounds rather than trigger different samples. By providing sensor cubes that patients could touch and alter sound.

The more creative input patients wanted, the more challenging the project became, but it creates meaningful change that appropriately reflects the needs and wants of young people.

Social dynamics determine users' willingness to participate. The diverse needs of hospitalised young people create interesting dynamics. Even with the constraints of the environment and their illness, the social dynamics of working in a group environment created interesting observations. One session in particular, included four female patients from the ages of 12-15. It was clear from the beginning that there was a dominant patient in the group and that the other three participants were going to be influenced by the social dynamics. This affected the results were neutral results in the way of the feedback forms with patients stating that they were "entertained a little" by the Music Cubes. A week later, a session was conducted with the same group but without the dominant participant and the group was more lively and engaged. The feedback also showed increased positive results from the last session with the three participants stating that they were "very entertained" by the music cubes. This shows that social dynamics play an important role in users willingness to participate in new activities. This can create challenges in reception to try new things in the environment.

It is not all about the music, visuals make a difference too. The Music Cubes Project sought to appeal to numerous senses. Utilising music devices that consisted of visual, kinaesthetic and auditory stimulation worked well because they were visually appealing and interactive also. Patients responses included: "The lights & changing colours are captivating, simple & sleek", "Lights and colours are nice", "I love the Music Cube look cause they're flashing, innovative and modern style". It can be concluded that the visual el-

ement of the project was received well and that the Music Cubes sought to provide an immersive experience touching on different senses that fully engaged young people in a creative way.

Young people and their taste in music are individual.

Music and musical taste played a central role throughout the study. On average young people listen to music five times a week for about one and a quarter hours a day (Livingstone 2002). Music is a predominant part of young people's identity. Hospitalised young people at the Children's Hospital predominantly used music to pass the time, especially "bed rest" time. The majority of patients stated that they listened to music with their headphones using an iPod or personal media player. In the workshop process, young people were asked about their particular tastes in music and what genres they would like to see the Music Cubes adopt. Our sample of young

people had a diverse range of music tastes that needed to be accommodated by the Music Cubes to create the maximum appeal. An overwhelming majority of the participants expressed a preference for pop music, naming a range of genres, radio stations and artists such as Rihanna and Adele. There was also a strong response by young males in the Dubstep style of music such as Bro step, Chill step and Clown step being preferred choices of musical style. The capacity for the Music Cubes to allow for group play allows patients to connect with the media, texts and culture of their peers beyond the confines of the hospital – increasing their sense of normalcy.

Case Study- Rosie



Long term participant Rosie playing with the Music Cubes

Rosie loves music, especially genres such as blue grass and particular artists such as Taylor Swift. It provides her with stimulation whilst in hospital. It is an environment in which she knows well as she has been an inpatient over 40 times in her young life.

Rosie was born with a Moebius Syndrome, which is a one in a million rare congenital neurological disorder. It affects her cranial nerves, which affects her breathing, her heart rate, her speech and very much her sleep. In the three years that the Music Cubes Project has been conducted, Rosie has been in hospital at every session. "I felt challenged and focused by the Music Cubes, they are comfortable to use, and it's easy to understand how they work"

Rosie loved the Music Cubes. Rosie found them stimulating and challenging. She loved being able to guess the instrumentation and took joy in creating her own remixing and turning the cubes to the beat of the music. This shows the positive impact on a young person of engaging with the Music Cubes.

SIGNIFICANCE

The project is not only of value to the community, to the hospital, and to the university, but to its patients by promoting wellbeing. The use of Transformation Design Methodology coupled with Ethnography has allowed for a deep understanding of patients, staff and the environment of the Children's Hospital, Westmead. The iterative process placed young people at the heart of the solution and provide a meaningful and engaging process for all young people of any capability. The strength of the project was the methodologies that gave scope to constantly reassess and re-evaluate the needs of marginalised young people, the stakeholders and the environment. This form of methodology could lend itself to other fields of knowledge such as politics, economics and health to create sustainable and meaningful change.

CONCLUSION

There has been much research on the importance of youth participation in marginalised youth populations. The Music Cubes Project sought to positively influence hospitalised young people by giving them a say in activities provided for them. By utilising Transformation Design (coupled with Ethnography) we sought to move patients away from their disconnect through social inclusion, and re-engagement with their environment. What we are offered is engagement in their creativity to help normalize their stay through connection to others and a response to the stimulus. The most interesting part of the research is observed through the Transformation Design Methodology. In the future, it is hoped that the Music Cubes could be integrated with existing play tools regimes to support educational, therapeutic, and assessment outcomes in the areas of communication, social and self-esteem development and become a permanent fixture within the Department of Adolescent Medicine. The co-design process is an innovative way of reaching, connecting and engaging some of the most marginalised populations amongst the youth demographic. We hope that through the devices that we collaborate, create and modify that the patients will continue to develop and achieve positive outcomes for marginalised youth populations by placing them at the heart of the problem and seeking their input at every stage of the process.

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HIGHER EDUCATION AND INNOVATION FOR SUSTAINABLE DEVELOPMENT IN NORTH AFRICA

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INTRODUCTION

Recent trend of globalization has been involving the economy of developing countries into international competition as well as that of developed countries. It has become also a driving force for their government to pursue measures to reinforce competitiveness of existing domestic industries and to create new innovative industries based on science and technology researches in order to survive the global competition and to realize sustainable economical and social development. The measures include financial, legal and institutional privilege, promotion of investment and technology transfer, establishment of centers of excellence for science, technology and innovation and improvement of higher education.

It is also the case for North African countries, on which I focus in this paper. Since their independence, European countries have been the largest trade partners. Till the end of the 20th century, the domestic industries of North African countries were protected by the import quotas and other privilege like tariff barrier. However, transition to free trade by expiration of Multi-Fiber Arrangement Regarding International Trade in Textiles on 1 January 2005 and conclusion of Association Agreement with European Union gave considerable damage to the conventional domestic light industries such as textile. In order to promote the industries and the society more competitive by transition to knowledge-based society, the governments of North African countries have investigated much budget to education and innovation. For example, Tunisia emphasized development of human resources as compensation for lack of natural resources and has spent around 20% of the national budget on education. In addition, they have installed and improved infrastructure for innovation such as science and technology universities and science and technology parks.

In this paper, I introduce three different examples of center of excellence for innovation actually implemented in North Africa and discuss their perspectives

and issues from the viewpoints of short and middle term as well as long term.

CENTERS OF EXCELLENCE FOR INNOVATION IN NORTH AFRICA

Tunisian Technopark Project

Tunisian government has implemented the project to establish 10 technoparks (technopoles in French) aiming to create innovation-based industries by synergy of higher education, scientific research, innovation and production (Fig. 1). Each technopark is assigned specific fields of research and innovation based on regional context and national priority (Fig. 2).

The technopark consists of four components corresponding to the activities for innovation (Fig. 1). Higher Institutions provide education and training of researchers and highly skilled engineers. Research Centers take charge of scientific research and training of graduate students and young researchers. They have a Research Valorization Unit to evaluate research results and to give suggestions for their application to industry. Business Incubation Centers (Pépinière d'entreprises) and Technology Resource Center provide business incubation and technological facilities and services. For production, Relay Workshops is a facility to improve manufacturing process and Industry Zone provides space and facility for commercial-scale production.

Among the technoparks, Borj-Cédria Technopark (Technopole de Borj-Cédria, TBC: <http://www.ecopark.rnrt.tn>) is one of the most advanced technoparks and cooperates with Japan as a strategic partner. TBC is assigned four specialties: renewable energy, water and environment, plant biotechnology and material sciences. In higher education component, it has Higher Institute of Environmental Sciences and Technologies (Institut Supérieur des Sciences et des Technologies de l'Environnement: ISSTE), the first higher education school in Africa and Middle East focused on environmental sciences.

The ambitious concept of Tunisian technopark project to install all-in-one package of innovation and commercialization will be a potential model for innovation in developing countries which have poor infrastructure and experiences for higher education, innovation and production. However, in practical, there is still plenty of room for improvement of the bridge between scientific research and technical development. Especially, development of human resources in charge of Research Valorization Unit will be a critical key to success. It will be better to establish higher institute of management technology to provide one or two years program including some months of internship for postdoctoral young researchers.

Egypt-Japan University of Science and Technology

Egypt-Japan University of Science and Technology (E-JUST: <http://www.ejust.edu.eg>) was established in cooperation with Japanese government and universities. It has 3 graduate schools (Master and Doctoral) in science and engineering including School of Electronics, Communication and Computing, School of Innovative Design Engineering and Energy, Environmental and School of Process Engineering. As well as graduate schools, undergraduate schools will accept students in fall 2014 and two additional schools of humanities and business are planned to open.

E-JUST adopted Japanese style, laboratory based and project oriented education system. Japanese Supporting University Consortium consisting of 12 Japanese universities supports educational programs and supervision of students.

E-JUST is regarded as a model of educational cooperation between Japan and developing country. In March 2013, the first batch of PhD and the third batch of MSc students graduated. It should be kept notice how Egyptian and world labor market, especially private sector, finds added value in the graduates.

Institute of Science and Technology – Rosso, Mauritania

In contrast to the two examples above, which pursue advanced technology and innovation, Institute of Science and Technology (Institut Supérieur d'Enseignement Technologique, ISET: <http://www.iset.mr>) located in Rosso, Mauritania rather specializes in investigation, education and application of appropriate technology to regional agriculture and environmental issues.

ISET is research and educational institute for agriculture. It has four core areas of competitive agricultural and animal production systems, nutrition and food safety, food production and processing and natural resources and environmental systems. As educational activity, ISET provides three and five years training programs. Because one of the main missions of ISET is technology transfer to local communities, its research activities are oriented to regional issues focusing on development of easily applicable technologies. For example, overgrowth of a weed *Typha australis* on the Senegal River close to Rosso causes disturbance of river flow and is a threat of water resource management and river transportation. In order to solve the problem, a research project was implemented to produce charcoal at low cost using simple apparatus. It succeeded to replace conventional charcoal of lignin origin and saved wooden biomass.

Currently, the research and innovation activities of ISET orient to improvement of productivity rather than commercialization towards the world market. But they have potential to create local SMEs such as *Typha* charcoal business, if appropriate financial and technical assistance for starting new venture through its Business Incubator.

PERSPECTIVES AND ISSUES

It is undoubtedly significant and essential to develop highly-educated human resources and to promote innovation for solution of regional problems and establishment of competitive and innovative knowledge-based society and its sustainable development.

On the other hand, however, youth (aged 15-24) unemployment rate in North Africa and Middle East in 2011 is still much higher (27.1 % and 26.2%, respectively) than the average rate in the world (12.7%), which is regarded as one of the major factors in the recent political uprising in the region, so-called "Arab Spring" (International Labour Office, 2012). Especially, the unemployment rate of youth who received higher education has been not improved or even has become worse for recent years (Kashiwagi, 2011). One of the main reasons is immature growth of private sector to absorb labor force of university graduates and highly dependence on public sector (Richards and Waterbury, 2008,

Kashiwagi, 2011). For example, in Egypt, 73% and 13% of researchers work at universities and national institutes, respectively and only 14% at private sector (Center for research and Development Strategy, 2011). In Japan, in comparison, 26%, 5% and 68% work at universities, national institutes and private sectors, respectively.

Considering long-term impact, the three examples of centers of excellence mentioned above, especially Tunisian technoparks and E-JUST, will contribute to reinforcement of domestic private sector and extend its labor market for highly educated youths. However, it is uncertain whether they could satisfy immediate demand for employment because commercialization of results of scientific researches and creation of employment take long time. In the case of ISET which focuses on agriculture sector and appropriate technology, graduates will be accepted to local agriculture community as leaders of technology transfer.

As discussed above, human resources who play a role of a bridge between scientific research and industry are very important for successful innovation and its acceleration. Those human resources are continuously demanded not only in developing countries including North Africa but also in developed countries. Systematic training of management of technology and technology marketing for postdoctoral young researchers will give them new opportunities of career as innovation consultant and manager as well as 'conventional' researcher. In addition, North Africa has been a 'crossroad of cultures' where African, Arab-Islamic and European cultures encountered and interacted each other. Based on the historical and cultural background, integration of cross-cultural study and experiences in educational program will add value and advantage to North African graduates for working in global innovation market. E-JUST has a plan to establish academic programs international business management and cross-cultural management and therefore it is highly expected to develop multi-disciplinary academic program.

The centers of excellence for innovation themselves also have potential new competitive industry as international higher education like Australia where international higher education and related industry is the third largest export industry with marked growth. North Africa has advantages of lower cultural gap for Middle Eastern and African students, accessibility to

arid land and deserts to develop and train appropriate technology under these context and well-established field of cross-cultural studies and experiences. Taking these advantages, establishment of reputation as the global center of development of certain human resources, as India succeeded as center of developing ICT specialists, will create employment in middle term and will contribute of national venue. The advantage will be also attractive to promote investment from developed countries by installing regional branches of their universities in North Africa.

Finally, I emphasize that the centers of excellence discussed above and others in North Africa should not be mutually exclusive and should avoid unnecessary competition. Rather they should cooperate and complement each other for sustainable development of the whole North African countries as well as each one.

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FIGURE LEGENDS

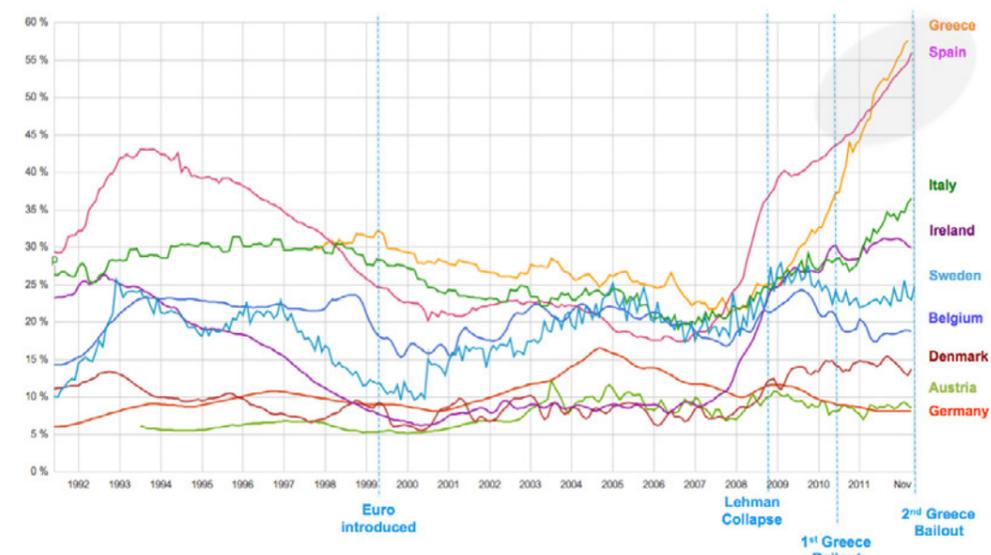


Fig. 1. The concept and components of the Tunisian Technopark

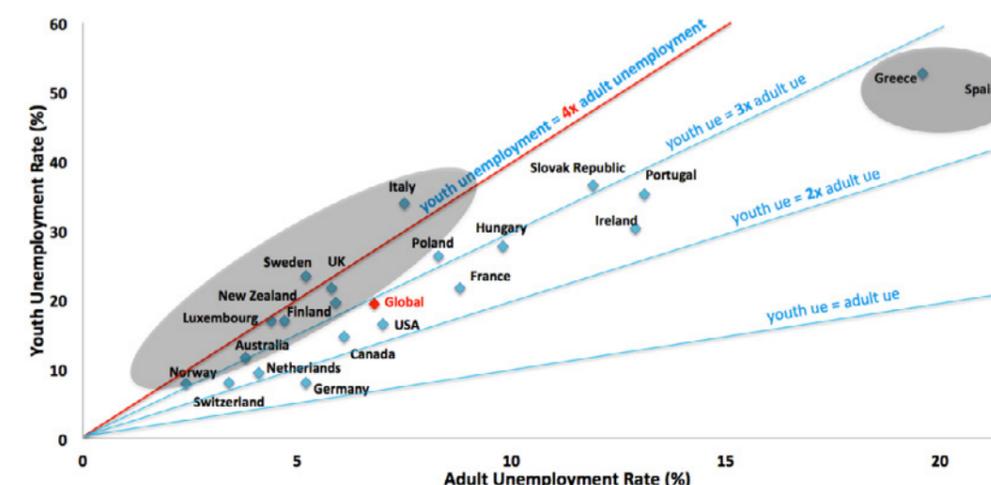


Fig. 2. Tunisian Technoparks and their specialties

ACCELERATING UNIVERSITIES FOCUS ON SUSTAINABLE DEVELOPMENT THROUGH STUDENT INVOLVEMENT

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INTRODUCTION

According to the newly released World Bank report on climate change (1), the world is heading towards a 4 degrees temperature rise at the turn of the century, with possible disastrous consequences. Along with other major problems concerning a decreasing biodiversity, overfishing and environmental degradation in general, the need of a drastic change towards sustainability is vital.

With that as background, in recent time it has become an increasingly important question to integrate sustainability challenges in the conventional education and to encourage students and researchers to find solutions to our common problems concerning environmental degradation and climate change. The challenges are of large dimensions and will in the coming years require advancements in technology, education and social sciences, to mention a few. The universities that educate the future experts within these areas will need to adapt and educate students who are both aware of the environmental and climate challenges, and maybe even more important, also students who are motivated to solve them.

This article recounts how student organizations at Chalmers University of Technology (Chalmers) in Gothenburg, Sweden, have operated to raise questions concerning sustainability at university and in society. The article aims to provide ideas on how students can work independently on raising sustainability issues at university level and also how the students can assist the universities to gain momentum for their larger vision to act as a transformative actor in society when it comes to sustainability. The projects and solutions that are exemplified in this article are also applicable from a university point of view. Ultimately, the article discusses how the interaction between the students and universities can work in symbiosis and what decisions can be made at a management level to encourage a deeper engagement in sustainability and collaboration between students and university.

The article is based on three successful student-led projects that has been planned and executed by the student organization Chalmers Students for Sustainability (CSS). The projects include a national lecture series "The Reflecting Engineer" (TRE), a bicycle-trip through Sweden "Cykelsamba" (Bicycle-samba in English) and a seminar series on Sweden's energy politics "Watt Next?". All projects have led to extensive attention among students, media, university and politicians. Ideas and experiences in this article are largely gained from the author's own work as the chairman of CSS. Information is also gained from literature and official documents from Chalmers.

INTRODUCTION TO CSS AND THE UNIVERSITY'S WORK TOWARDS SUSTAINABILITY

At Chalmers University of Technology there are approximately 11,000 students (4), consisting of mainly engineering and architecture students. Most of the students study for a Master of Science in Engineering, which at Chalmers are five-year programs in disciplines such as civil, mechanical and computing engineering. When it comes to sustainability practices, Chalmers has during the last years worked proactively on introducing sustainability as a core vision of the university (2). Some important steps has been to introduce compulsory courses of five weeks full-time studies, in the area of sustainable development (ESD), for all students at bachelor level (2) and setting up a multi-disciplinary research network on sustainability called the Gothenburg Center on Environment and Sustainability (GMV). Today, the vision of "Chalmers – for a sustainable future" is often and clearly communicated from the management team, most frequently at the yearly conference carrying the same name (2 and 5).

Chalmers Students for Sustainability (CSS) is a student organization that was founded in 2001 (6) with the underlined purpose of engaging students and doctorate students at Chalmers in issues related to sustainability. It is a multicultural, democratic and multi-disciplinary organization where the members

run the different projects in autonomous project groups. The executive board has mainly an administrative role and handles economy, memberships and the member meetings. Today CSS consist of approximately 130 members of which about 40 are active in the different project groups. Historically CSS has focused a lot on international collaborations and exchanges through the World Student Community for Sustainable Development. Today CSS is mainly working with on-campus projects and aiming to increase engagement and also set the student agenda on a diverse range of sustainability issues.

Another organization mentioned in the article is Engineer Without Borders (EWB) (7). The organization is working on aid projects, mainly in developing countries, and arranging The Reflecting Engineer (TRE) at Chalmers together with CSS.

THE REFLECTING ENGINEER

The Reflecting Engineer is a project that has been organized at Swedish universities since 2007 (8). The core of the project is a set of lectures that is organized every spring with the purpose of engaging and motivating students to take part in a wider discussion on the role and societal responsibility of engineers. The theme is focused towards the topics of sustainability, technology and ethics and the main goal is to create an atmosphere among the Swedish engineering students, where everyone who graduates sees sustainability and social responsibility as something obvious.

The series was started in 2007 by sister organizations to CSS and Engineer Without Borders at The Royal Institute of Technology in Stockholm, Sweden. In 2011, TRE moved for the first time outside Stockholm to include Gothenburg, when CSS and Engineer Without Borders took initiative to arrange the first The Reflecting Engineer at Chalmers. By expanding the series to involve the two major technical universities in Sweden, it would increase the notion that engineering students value environmental and societal impact of technology as something essential. It would also send clear signals to future engineering students, employers and the universities, thus potentially contributing to a wider cultural change in the profession of engineering.

TRE at Chalmers

Until the writing of this report, the series has been organized three times at Chalmers. During spring 2011 and 2012 the series has been centered on an amount of 8 lectures each time. One of the first things that were decided one while establishing the project was the theme and format of the lectures. Eventually three different themes were picked out and it was decided to arrange the lectures as one-hour lunch seminars (at Chalmers there is a strong culture of attending and arranging lunch seminars). The three lecture themes were as following;

1) Inspirational lecture. A lecture where it is demonstrated how technology has shown to be used in a good way (i.e. environmentally and socially). Give practical examples on what engineers could work with in order to be able to confront, for example, environmental problems proactively. Lecturers that have been invited in this category were Johan Ununger, CEO of Saltå Kvarn, producer of organic food and one of Sweden's fastest growing companies at the time, and Julie Gold, professor of applied physics and head of a research time at Chalmers who are culturing meat in laboratories.

2) Theoretical lecture. A lecture where environmental and societal issues are discussed on a more theoretical level. What challenges do we stand before and what is the nature of the problems? In order to be able to solve our challenges we need to be aware of them. Examples of lecturers in this category have been Christel Cederberg, agronomist and professor of environmental system analysis, Bo Rothstein, professor and social scientist who has written several books on corruption and quality of government, and Brian Palmer, social anthropologist who has been appointed best teacher of Harvard University for his courses on civic courage.

3) "Controversial" lecture with decision maker. This theme aims to discuss important questions regarding environment and social aspects of technology with influential decision makers. Especially within the private sector and in government there is a discrepancy between what scientists say is sustainable and what is done practically. Thus, many companies and states have big challenges when it comes to adapting and transforming to sounder and more socially acceptable practices

(e.g. reducing green gas emissions and, in general, extract natural resources in a sustainable way). The idea with this theme was to invite decision makers to discuss what problems the different industries confront and how they can be solved. Example of lecturers in this area has been Ingvar Nilsson, CEO of Schenker AB, the biggest logistics and transportation company in Sweden, and Agneta Rising, head of environment at Vattenfall, one of the largest energy companies in Europe.

Apart from the central lectures, TRE has contained several PR events and outreach through the university press (websites, university and student union magazines) all over Sweden. The overall purpose has all along been to raise important questions concerning society, environment and climate within the engineering education and the PR events has consequently been arranged in order to do so. One example, during the first year, was to set up several scarecrows with belonging speech bubbles on campus. The scarecrows were asking the passer-bys questions, and two of them were “What is the purpose of technological innovation?” and “How do you want to see the world in 200 years?”.

Approximately 1300 students annually, have taken part of the lecture series at Chalmers.

Nationwide collaboration

In 2012, TRE expanded into a nationwide collaboration, also including University of Linköping and Lund University of Technology. The series was as previous years organized by separate student organizations at the different universities. For the first time, however, a group consisting of representatives at the different universities coordinated the national collaboration. A co-coordinated website for the project (8) was set up and the series started during the same week in March 2012.

Anticipating The Reflecting Engineer of 2013, the series has now spread to two new universities in student cities Umeå and Uppsala. Thus, the result is a nationwide student-led lecture series with the focus on our grander challenges, taking place each year at six of Sweden’s largest universities.

BICYCLE-SAMBA

In the summer of 2011, around fifty CSS-members went on a bike journey through Sweden under

the name Cykelsamba (Bicycle-samba). The idea to bike 900 kilometers across a big part of Sweden had occurred several months earlier. The idea had come from the notion that our modern lifestyle isn’t especially sustainable (when it comes to providing the same opportunities to the generations to come) and that we, as a society, could do a lot better when it comes to empathy, care of environment and general behavior towards each other. Maybe we would even be better off in the process? In school we are frequently taught about the challenges we stand before and what technologies can be used to solve the current problems. Cykelsamba would completely turn the perspective by looking from the point of view of a future “sustainable society”, i.e. before we solve the problems we should actually discuss what we want society to be like. The project goal that was formed was thus formulated as following;

“The goal with the project is to arrange a learning journey where the participants, along the way, will teach each other the ins- and outs of a future sustainable society, and at the same time demonstrate for the Swedish public that compassion and a sustainable lifestyle doesn’t need to be something primitive or dull, but rather something desirable. To get the wide picture and a possibility to grasp the complexity of “the sustainable society”, musicians, economists, social scientists, artists, politicians and high school students are invited to bike along to share their views.” Several build-up events were planned. Amongst them, the handing-out of 100 used bicycles to students at Chalmers, and a couple of weeks later, a release party at a club in Gothenburg. The mayor of the city of Gothenburg, Anneli Hulthén, came to the event and held a speech about the importance of integrating bicycle infrastructure in the urban planning of the city, and thereafter acted DJ by playing some of her favorite “bicycle-songs”. During the night, the official Cykelsamba-poster was displayed and Art Acoustic (a Gothenburg band) played the theme song for the first time.

On the road

The bike trip started off in one of the most multicultural parts of Malmö (Sweden’s third largest city) in southern Sweden on the 30th of July. 25 bicyclists with carriages, a couple of reporters and representatives from the Malmö municipality had arrived to the Möllvången plaza to help kick-start Cykelsamba

(the name Cykelsamba came out of a desire to resemble and mediate the (happiness) sentiments of a Brazilian samba parade, while biking).

Once the trip had started, the bicycle parade went in and out of cities, playing music whenever possible and arranging workshops and shows. We expressed our message that we can act differently; sometimes it just requires a little bit of contemplation. How are our cities affected if we bike instead of taking the car? What happens in a forest if the animal, at the top of the food chain, is extinguished? Don’t we want to take care of nature and our future generations?

The open landscapes of southern Sweden were exchanged to the deep forests a bit up north. This is where our Indian and Pakistani friends got to experience the true Sweden (the land of lakes and forests). We visited a refugee quarter where boys, newly arrived from Afghanistan, were hosted. We played football and discussed how it is to come as a refugee to Sweden. It hit us that open-mindedness is easy – and fun. What you give, you get back and we gathered lots of positive energy meeting these new friends.

All along the way, media and politicians greeted us. We discussed with mayors and local politicians what is required for their cities to evolve and confront the challenges of tomorrow. When we finally arrived in Stockholm, we had been featured in Swedish media over 20 times, met mayors in three cities and biked almost 1000 kilometers. Family, friends and a parliament politician (leader of the Swedish Green Party) finally welcomed us at the central square in Stockholm.

WATT NEXT?

In the early autumn of 2012, CSS decided to initiate a public seminar series on the topic of Swedish energy and climate politics at Chalmers, under the name “Watt Next?”. The mission was to raise and at the same time deepen the national discussion on how Sweden can accelerate the transition towards a fossil free, secure and more efficient energy system. The underlying sentiments was that the pre-existing discussion on several energy-related questions 1) wasn’t highlighted enough in the public debate and 2) wasn’t adequately prioritized from a political point of view (the two points are often correlated). The seminar series was also a possibility to give en-

gineering and doctoral students at Chalmers and inhabitants of Gothenburg the opportunity to take an active part in the discussion on a technology-related and an important sustainability issue, i.e. how Sweden’s energy use could be cleaner and more efficient. Before the politicians were invited, a format and several bullet points were decided on for the series and speeches to focus on. The time of the seminars was set to one hour, half of the seminar dedicated to a political speech and the other half, dedicated to QA with the students represented at the seminar. Some of the bullet points that were sent out with the invitations were as following;

- When shall Sweden’s energy systems (including transports, electricity, heating and production) be made carbon neutral and what political incentives are required to meet the goals?
- What policies does your political party propose in order to meet the goals that Sweden already have agreed upon in the European Union compared to the levels of 2008 (20% less energy use by 2020, 40% reduction of green gas emissions etc. (9))
- According to your political party, which energy sources should be part of the future Swedish power production and what political incentives are needed to reach such a mix?

The invitations were exclusively sent to Swedish parliament politicians and were focused towards the party leaders and energy and environment spokespersons for the different parties. In Sweden, 8 parties make up the parliament seats. The Moderate Party, Center Party, Liberal Party and the Christian Democrats form the governing alliance whilst the Social Democrats, Environmental Party, Left Party and, the far-right party, the Sweden Democrats are in opposition. The invitations were sent out to representatives for all parties except the Sweden Democrats.

Outcome

Prior to this article, two seminars have taken place. At the premiere, the party leader of the Left Party came and presented their political ideas on the Swedish energy transition. The seminar gathered approximately 220 attendees, mostly engineering and doctorate students. The following seminar was with the energy spokesperson from the Moderate Party (the largest of the governing parties in the last election), and attracted around 100 attendees. In Febru-

ary 2013, the series will continue with four scheduled events with the party leader from the Green Party, energy spokesperson from the Social Democrats and the environmental spokespersons from the Christian Democrats and the Liberal Party.

CONCLUDING REMARKS

The concluding part of this article focuses on what can be learnt from the experiences of CSS and its work on different sustainability projects at Chalmers. This article can provide input to students or universities that have the desire to raise questions regarding sustainability at university and in the public debate.

Three student-led projects have been recounted of: (1) The Reflecting Engineer. The focus was to establish an extra-curricular platform where the bigger role and societal responsibility of the engineer could be discussed and where good sustainability examples could be shared. Researchers, business leaders and NGO representatives were invited to share thoughts on what challenges we stand before and in some cases provided inspiring examples of solutions. The series also ignited a nationwide collaboration between student organizations at 6 Swedish universities of technology, running the series simultaneously during spring. The series have been organized during two years and drawn around 1300 students each year.

(2) Cykelsamba. It was a learning journey through Sweden on bicycle with the aim to demonstrate for the public that sustainability can be something positive, rather than primitive and dull. In total an amount of 50 persons biked the whole trip (900 kilometers) or some stages. Workshops, music shows and several discussions with politicians were arranged along the way. The project led to a large medial attention, highlighting engineering students and young people's view on a future sustainable society.

(3) Watt Next? A series in the energy futures of Sweden. How are the politicians planning the future energy transition towards more efficient energy use and a smaller carbon footprint? Swedish leading parliament politicians were invited to provide answers to these questions and to discuss important technology related questions with engineering students and the public. Another aim was to empower students

by giving opportunities to discuss important sustainability questions with top decision makers.

All projects have gained widely from the engagement of individual members and the organizational structure of Chalmers Students for Sustainability (CSS). Each project has been executed through an autonomous working group that has appointed their own project leaders and organizing teams. This has expanded the work output and capacity of the organization compared to simply having an executive board in responsible of the different projects. Working in smaller organizing groups also tends to give more opportunities for the individual students to participate in the creative process and to take on more leading positions in projects. Another important structural asset of CSS has been the open and flat format, and the many opportunities to engage in discussions and input to conventional academic studies and other extra curricular projects. It is not only a platform where you arrange and digest speeches. This has led to a creative atmosphere, where engaged and interesting individuals meet.

During the projects it has also been noteworthy how easy it has been to attract top researchers, NGO-leaders, politicians and business leaders, to come and lecture. The lecturers have generally also offered to come and lecture for free and it has been evident that many of them have had a strong devotion to come and speak about sustainability and therefore done it pro bono. Also financing of the projects has required little effort. Financing of the projects has come mostly from the university and its different departments and partly from private companies. It is however important to state that this is largely thanks to the good will of the university and its good connections to Swedish industry.

Another factor behind the success of the projects has been the support provided by management, teachers and administrative personal at Chalmers. In general, CSS has felt appreciated and members of CSS have been invited several times to take part in decision-making together with the management, regarding the sustainability work at Chalmers. It is also important to emphasize the importance of the coherent focus from the university management towards integrating ESD in the every day practices. It has for example resulted in a large supporting network for projects related to sustainable development at the university. Additionally, during all three projects described in this article, the administrative personal at Chalmers has in a large extent been covering the projects

through the web site and through university press.

A final reflection

Given the degree of seriousness when it comes to climate change and environmental degradation, the students that are being educated today, will in the future have to be able to rise in different contexts and lead transformative processes when it comes to sustainability. In order for this to happen the students will need the analytical and technological tools, but they will also need a strong commitment of wanting to solve our big problems. At Chalmers, a fruitful collaboration between students and the university have proved to be a successful tool in regard of accelerating the development towards educating aware and motivated students.

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THE FEMINIST'S THINKING ON TRANSLATION

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Abstract: The feminist translation theory has greatly influenced the development of translation theory. With its own special thinking way, it stands out in the process of translation theory. In feminist translation theory, translation is viewed as production, not reproduction. The notion of fidelity, equivalence and the invisibility of the translator have been redefined. In the report, I will give a brief introduction of the feminist translation theory as well as its limitations.

INTRODUCTION

The discussion of gender issues in relation to translation theory connects with the view of translation as rewriting. But this is a recent development in translation theory. The very beginning of feminist translation is related to the status of the translator and the translation. Feminist is part of post-structuralism thinking trend and post-modernism theory. Theoretically, feminist has natural affinity with post-structuralism thinking trend and post-modernism theory. Post-structuralism is a thinking movement, which deconstructs the center and fights for the right of marginal.

THE POSITION OF THE TRANSLATION AND THE ORIGINAL TEXT

Translations and women have historically been the weak figures, translators in relation to writers and women in relation to men. When it comes to woman translators, there is a double heritage of inferiority. Ever since the sixteenth century there have been numerous authorities that have pointed out the female position that translation has in the target culture. According to the Bible, God first created Adam, then Even with one of the ribs of Adam. Similarly, translation also bases on the source text. The feminist feature of translation has long been a topic. 'Women' and 'translation' both are in the position of margin. The source text has its authority and hierarchy. People associate this conception with patriarchy, taking the original text as strong and productive men, while taking the translated text as weak and derivative women. The gender logic makes a lot of metaphors about the source text and the target text. At the most,

'translation' is the 'echo' of music. No matter on the quality and quantity, musical performance is lower than composition. In the copyright law of the U.S.A today, translation and musical performance are all derivative production. It emphasizes in the secondary position of translation.

The task of feminist translation theory is to identify and discuss the concepts, which place both woman and translators at the bottom of the system. Patriarchy and logo centrism have much in common and they meet in translation. The original is the natural, the truth and the paternal authority, whereas the translation, the woman, is secondary, an imitation. The work of feminism translators seeks to undermine the power invested in patriarchal language and describes and tries to develop ideas beyond the influence of patriarchal structure. But it is not easy to read these ideas because they are often created in innovative language in terms of vocabulary and syntax. With the view of that the patriarchal languages confine feminine thinking and writing to some extent. Feminism translation, a branch of feminism movement, not only throws light on the translation subjectivity study in the aspect of gender but also on the multiple possibility of female translator's subjectivity practice. In feminist theory, translation is viewed as production, not reproduction. It makes the masculine less visible and the feminine more visible in language. In other words, the masculine is no longer dominant. Feminist translators assume the feminist role deliberately in order to convert a form of subordination into a form of affirmation. Language interferes actively in the creation of meaning and does not only mirror reality but contributes to its creation.

THE OVERTURN OF TRADITIONAL TRANSLATION THEORY

The aim of feminist translation is to overturn the philosophical tradition that puts women to the bottom of the system and includes translation into literary dependency. Thus, feminists have to discuss about the process of how the translation is feminized and deconstruction of the traditional translation the-

ory, which is based on the structuralism, and gender logic, which constitutes its philosophical basis. They put forward doubts on the gender, role of translation and the 'fidelity' of the rule and the functions and roles of language. Feminist thinks that the original and the translated text is equivalent. Language not only reflects the truth of gender discrimination and also emphasizes on the gender discrimination. Translation is not just mechanical transformation. It is creative work which relates to cultural intervention and coordination. Feminist translation theory gave fresh impetus to the 'cultural turn' of translation studies for its political discourse. It establishes the philosophical basis for criticizing structuralism-based translation theories from the perspective of the nature of language, the ethics of translation, and the relationship between the source language text and the target language text.

THE BATTLE FOR WOMEN TO GET THE SPEAKING RIGHT

Before the nineteenth century women in the Western world were restricted to the domestic areas of life and prohibited from publicly displaying their interests in culture. The prohibition referred primarily to the activity of writing and publishing literature. In Europe, from the beginning of mid-century, translation has been the way for women to enter into the literary world. Excluded from the privileges of authorship, women turned to translation as a form of public expression. Translation allowed women to take part in literary culture without openly challenging either tradition or male domination of that culture. It provided an opportunity to be involved in text production and to manifest some degrees of creativity. From the 1960s to 1990s, translation theory has its fixed thinking way, because of influence of structuralism. Language was seen as an objective and value-free symbolic system and a tool which human beings used to know and master the world. It is analogous to mathematical symbolic system which is the symbol of rationalism and regularity. This kind of translation view bases on a transparent poetic theory and restrains its research focus to the transformation of language, follows the research tradition of natural science, discards the subjective and pursues the subjective description of absolute neutrality. It aims at providing 'scientific' explanation for translation research, but when it's applied to the explanation of practical use of language, many weak points appear.

Feminists acclaim that structuralism pay much attention to the universality and objectivity and ignores difference, which in fact reveal the gender discrimination issues. The radicals of feminism point out that language is the fundamental cause of feminine discrimination, while to reformationists; Language at the least reflects the social fact that women are discriminated. Feminism has its doubts on the feature of tool and the media of the language. Feminists conclude that gender discrimination is not an ideological but a language issue. They state that male-dominated language has been the reflection of the male experience, and has formed its rules. Although there is no strict grammatical gender, but it takes men as a general unmarked form, or the general signified. For example, A student who pays his own ways gets the tax credit.

Translation also is the critical means of enforcing language reform for feminists. They combine the decomposition of masculinity words and the deconstruction of the traditional translation theory. Feminists first cast doubts on the grammatical gender and challenge the male-dominated grammatical regulation in that grammatical rules say that male words are hyponym of the female-words. Feminist theory meets translation in the emphasis on the polyphony of the translated text. The text foregrounds the reflective elements of the rewriter's discourse. In opting for a less fluent language in the translation than in the original text, women call attention to their own intervention in the target text. In its attention to gender, feminist translation seeks to draw attention to the patterns of patriarchal domination, using language to draw attention to the patterns of patriarchal oppression. Inevitably, a translated text reflects the translator's reading and this is a factor, which empowers the translator.

THE LIMITATIONS OF FEMINIST TRANSLATION THEORY

Feminist translation theory has widened the visible domain of translation research, especially for the explanation of the right relationship and the deconstruction and overturn of the hierarchy, for the affirmation and support of the difference, making the feminist translation theory, deconstructionist translation theory and post-colonialist translation theory together. Since feminist translation theory was introduced into translation theory, it has opened new research fields gradually, and flourished till 1990s. The explanation of difference successfully deconstructs

the original text and the dominant position and provides new theoretical basis for the reflection of the equivalent in the traditional translation theory, cultural difference, and subjectivity of the translator and the nature of language. But there are many schools of feminism whose view are too radical and regard the overturn of the traditional translation theory based on the structuralism as the end aim, irrationality as rationality. To fulfill its political aim, they pay too much attention to the manipulation of language and intervention of the translator. In some way, it distorted the nature of the translating activities; inevitably, there are criticisms on feminist translation theory. Feminist translation theory has thrown light on the activity of translation from a fresh perspective and has thus provided us a new dimension to think about the issue of fidelity and the invisibility of the translator. But despite all these, feminist translation has its own limitations and has been the subject of much criticism mainly because of its innovative approaches to translation.

One of the attacks on feminist translation comes from Rosemary Arrojo, a Brazilian critic, who bases her first attack on the visibility and infidelity of the translator. In her opinion, it is “opportunistic” for feminist translators to “claim to be faithful to the tenor of text”, and yet “admit to deliberately intervening in the translation for feminist reasons”, and it is contradictory to claim “fidelity” to a text one deliberately “subverts”. And the second target of Arrojo’s criticism is the feminists’ adoption of a “double standard” -- they tend to “describe as violent and aggressive the theories produced by George Steiner or the comments made by John Florio, while refusing to see that feminist intervention in texts is no less aggressive”. Another target of criticism is the overpowering of feminist interventions, especially Barbara Godard’s notion of “woman handling”. Critics equate it with the traditional notion of manhandling and its accompanying notions of violence and manipulation. Despite claims to trying to find a new way of translation that is not governed by traditional binary opposites —neither between original and copy, author and translator, nor between male and female, they feel that the feminist translators are prejudiced in favor of the feminine, and that they are actually constructing a new hierarchy.

CONCLUSION

It is not accidental to discuss about the matter of translation and gender in cultural conceptualization. Feminist gives many revelations for the translation research. Historically speaking, women’s association with translation originated from a social prohibition.

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THE MADNESS OF SEPTIMUS AND CLARISSA

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Virginia Woolf is among the most famous novelists of the twentieth century. She was born in London in 1882 and drowned herself in 1941 owing to mental depression. “Mrs. Dalloway’ received wide critical acclaim and is one of Virginia Woolf’s most accessible novels”¹. The story focuses mainly on what Mrs. Dalloway does in one day for the purpose of organizing her evening party, and what another man, Septimus, who suffers from shell shock does in the same day. This paper aims to analyze the madness of both Septimus and Clarissa (Mrs. Dalloway).

When talking about madness, most readers would think of Septimus, who apparently suffers from ‘shell shock’ after World War I and hallucinating of his friend Evans, who died in the war. According to the novel, it is not difficult to conclude that Septimus lives in his own world. Lacking adequate communication, ‘Septimus is an outsider’² in others’ eyes. Being quite detached from the society, he has got a disordered mind as well as an insane pattern of behavior, which involves the following three aspects.

Firstly, Septimus holds a negative attitude towards love between man and woman. He reads Shakespeare a lot, and when her wife Rezia ‘putting her arms round Septimus, her cheek against his’³, he thinks in this way: ‘Love between man and woman was repulsive to Shakespeare. The business of copulation was filth to him before the end’⁴. Besides, he remains mute facing her wife’s apparent intimacy. As we can see, Rezia is merely showing affection for her husband, which could not be more understandable. Nevertheless, the reaction of Septimus is quite abnormal, or rather mad. First, he uses the word ‘repulsive’ to describe the natural love between man and woman. Second, instead of using a euphemistic expression, Septimus directly uses ‘copulation’, which indicates humans are nothing but animals. Third, faced with intimacy, his remaining mute is the most direct way of refusal and harm to Rezia. ‘Madness is

the supreme isolator, which cuts off Septimus from nearly all human contact, even from sex with his wife’⁵. Therefore, we could tell Septimus has a clear abnormal attitude—love and sex are shameful.

Secondly, his madness can be seen in the fact that Septimus is living in terror of death. He mentions twice that he is sentence to death: ‘the sin for which human nature had condemned him to death’ and ‘the verdict of human nature on such a wretch was death’⁶. In fact, according to the plot, it is apparent for readers to find that Septimus himself has done nothing wrong in the war, even his indifference to Rezia is owing to shell shock. However, guilt-ridden Septimus flings himself into the world of death which he creates for himself, without any effective communication with others. Meanwhile, we could also tell that Septimus is not willing to commit suicide, he is simply frightened of death, and he fails to contact with others for help. He imagines that ‘the whole world was clamouring: Kill yourself, kill yourself, for our sakes’⁷, but he still doubts it, ‘Why should he kill himself for their sakes?’⁸ Although he indeed does not mean to surrender to death, he lets himself live in the shadow of the world of death. At last, he throws himself out of the window to show this terror.

Thirdly, another noticeable feature of Septimus’ madness is that he is haunted by the image of Evans every now and then. His friend Evans has lost his life in the war, which has left deep scars. Always when his racing mind is filled with issues of human nature and death, Septimus will hear his dead friend speaking. Then what he will do is crying loudly: ‘Evans, Evans!’⁹ Even before Septimus throws himself out of the window, he still cries out Evans in the dark evening. The whole story does not clearly specify why Septimus cries the name of his dead friend all the time, and even her wife tries to figure out but in vain. However, Evans haunts Septimus somehow, which is seen as the most apparent feature of his madness.

1 Virginia Woolf, Mrs Dalloway (London: Penguin, 1996), p.1
 2 Cai Yuxia, [] and Zhao Yingjun, [] ‘The Existentialist Image of Septimus W. Smith in Mrs. Dalloway’, Journal of Hebei Youth Administrative Cadres College, vol.4 (2008): 50-53 (p.52)
 3 Ibid. p. 99
 4 Ibid

5 Han Ruifang, [] ‘On the Defense Mechanisms in Mrs. Dalloway’, Yinshan Academic Journal, vol.21(2008): 29-32 (p.31)
 6 Virginia Woolf, Mrs Dalloway (London: Penguin, 1996), p.101
 7 Ibid. p.102-103
 8 Ibid. p.103
 9 Ibid

The above are relatively obvious features of the madness of Septimus. When it comes to the heroine of the novel, Clarissa, few readers would link her with madness. After intensively analyzing the similar aspects of Clarissa's cases, we could find that Mrs. Dalloway suffers from madness in a more private way as well.

To begin with, though Clarissa does not regard love between man and woman as repulsive, she still holds an abnormal attitude towards it. 'She could not dispel a virginity preserved through childbirth which clung to her like a sheet'¹⁰. This feeling infers that Clarissa does not truly enjoy the love between her husband and her; otherwise she would not have the feeling of a virgin, being untouched and detached. Moreover, she directly says 'she resented it'¹¹, resents the emotion between man and woman. What's more, Clarissa has a special affection for Sally, one of her good female friends. She describes in this way when Sally kisses her, 'then came the most exquisite moment of her whole life'¹². Clarissa uses the word 'exquisite' to depict that moment, showing how beautiful and delicate this kiss means to her. Here, it is not a criticism of homosexual love, but a proof of Clarissa's complex attitudes towards love. 'What is repressed in Clarissa is the trauma of her female development and the spontaneous homosexual love inhibited by imposed heterosexuality. Her sexual and emotional calcification is a sigh of her repression'¹³. Indeed, it is clear that her attitude towards love can aptly reveal her madness to some extent.

Moreover, Clarissa has a latent idea of giving up her life. It seems that Clarissa has filled her life with a number of colorful activities, and 'isolation' is a word the world never learns to say to her. However, once we analyze what is behind those seemingly fancy activities, we will discover how isolated Clarissa is and the proof of her latent desire for death. 'Peter and Sally leave her; Lady Bruton criticizes her and asks her husband to lunch without her, even Miss Kilman takes Elizabeth from her. Since her illness, she has slept alone in a narrow bed in all attic room'¹⁴. This is the very reason that Clarissa throws herself into preparing her party, hoping that through the stage which she herself creates, she could have more contact and communication with others. She is 'one

who desires to bring together a number of different people'¹⁵. Because of the isolation, when she hears the death of Septimus, she remembers once she has said to herself: 'If it were now to die, 'twere now to be most happy'¹⁶. Clarissa repeats this thought over and over again in her mind, perceiving that 'she felt somehow very like him—the young man who had killed himself. She felt glad that he had done it; thrown it away while they went on living'¹⁷. Obviously, Clarissa thinks Septimus has done what she desires but has not done. 'The only difference between Smith and Clarissa Dalloway is that her own continuous thoughts on suicide have remained private'¹⁸.

As we can see, Septimus and Clarissa share similar aspects of madness, and Deborah Guth calls him as Clarissa's 'symbolic double, Septimus'¹⁹. They both hold negative attitudes towards love between man and woman; they live in the shadow of death more or less; though Clarissa is not haunted by a dead friend, she forces herself to fill the mind with a number of people: Peter, Sally, Elizabeth, Miss Kilman, and so forth. 'Both Clarissa and Septimus are insane, insofar as the state of their minds is wholly anti-intellectual and anti-scientific. The difference between them, again, is one of degree, not of kind'²⁰. Thus, we could draw the conclusion that these two characters both suffer from madness, which Septimus behaves in a more obvious way while Clarissa behaves in a rather reserved way. Nevertheless, there is one thing in common concerning the reason for the madness: Septimus and Clarissa both have the problem with contact and communication, which makes them fail to effectively communicate with their family members and their friends.

To sum up, Virginia Woolf wrote about the same kind of madness rooted in the problem of communication with the outer world, one of which is exhibited in a more obvious way, as what Septimus does; the other of which reveals in a rather private way, as what Clarissa shows in her mind.

¹⁵ Morris Philipson, "Mrs Dalloway, 'What's the Sense of Your Parties?'," *Critical Inquiry*, vol. 1 (1974): 123-148 (p. 130)

¹⁶ Virginia Woolf, *Mrs Dalloway* (London: Penguin, 1996), p.203

¹⁷ *Ibid.*, p.204

¹⁸ Ralph Samuelson, "The Theme of Mrs. Dalloway", vol. 11 (Winter, 1958): 57-76 (p. 64)

¹⁹ Deborah Guth, "'What a Lark! What a Plunge!': Fiction as Self-Evasion in Mrs. Dalloway", *The Modern Language Review*, vol. 84 (1989): 18-25 (p.18)

²⁰ Ralph Samuelson, "The Theme of Mrs. Dalloway", vol. 11 (Winter, 1958): 57-76 (p. 63)

¹⁰ *Ibid.* p.36

¹¹ *Ibid.*

¹² *Ibid.* p.40

¹³ Han Ruifang, [蔡玉侠] 'On the Defense Mechanisms in Mrs. Dalloway', *Yinshan Academic Journal*, vol.21(2008): 29-32 (p.30)

¹⁴ *Ibid.* p.30

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“A NEW ERA OF MASS MEDIA” - Briefly on the Features and Impacts of Social Media

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Abstract: A new era of mass media is coming. Since the emergence of the first social media network about two decades ago, social media has carried on evolving and influencing almost every aspects of our daily life. Now years later, social media is still growing rapidly and has come to be an integral part of the current times. Today, social media is truly a global phenomenon. The thesis aims to analyse social media through the discussion of its features, its basic Internet technology (Web2.0), its differences from traditional media and its impacts on several major aspects.

Keywords: Social Media; Mass Media; Web2.0; Interact; Websites

“A NEW ERA OF MASS MEDIA” -- OVERVIEW OF SOCIAL MEDIA

Social media is no more in its infancy. No matter we want it or not, social media has already stepped on the stage and acted boldly to hit its “elder brother”(traditional media) off.

Introduction of Social Media

Tech book publisher Tim O’Reilly, a keen observer of bleeding-edge Information Age trends, believes that phenomena like user-generated content are sparking nothing less than a revolution. Speaking to attendees at the annual Web2.0 Expo in 2008, he declared, “We’re at a turning point akin to [the development of] literacy or the formation of cities. This is a huge change in the way the world works.”(O’Reilly,Battelle)

Some observers portray social media as a unique expression of the second generation of the web, which high-tech book publisher Tim O’Reilly famously dubbed “Web2.0.” The term came into popular use after his publishing company, O’Reilly Media, organized the first Web2.0 Conference in 2004. Web1.0 was about displaying web pages; Web2.0 is about dynamic content, social mobilization, and user collaboration. But we may also hear IT old timers argue that social media is nothing new, that it was around in less sophisticated forms before

there was a web. The truth lies somewhere in the middle.

Social media is a phrase being tossed around a lot these days, but it can sometimes be tough to answer the question of what is social media. If MySpace is a social media site, and Facebook is a social media site, and Wikipedia is a social media site, then just what is social media?

The best way to define social media is to break it down. “Media” is an instrument on communication, like a newspaper or a radio, so social media would be a social instrument of communication.

In Web2.0 terms, this would be a website that doesn’t only provide you with information, but interacts with you while giving you that information. This interaction can be as simple as asking for your comments or letting you vote on an article, or it can be as complex as Flixster recommending movies to you based on the ratings of other people with similar interests.

Think of regular media as an one-way street where you can read a newspaper or listen to a report on television, but you have very limited ability to give your thoughts on the matter. Social media, on the other hand, is a two-way street that gives you the ability to communicate, too.

On account of such a broad term it is, social media covers a large range of websites interacting in different ways. For instance, social bookmarking websites interact by tagging websites and searching through websites bookmarked by other people; social news sites intact by voting for articles and commenting on them; social networking sites interact by adding friends, commenting on profiles, joining groups and having discussions; social photo and video sharing sites interact by sharing photos or videos and commenting on user submissions; wikis interact by adding articles and editing existing articles. But the one common link between these websites is that you are able to interact with the website and other visitors.

Results of the Nielsen Company’s “State of the media: The social media report 2012” show that more people are using smartphones and tablets to access social media(Fairley). Forty-six percent of social media users say they use their smartphone to access social media; 16 percent say they connect to social media using a tablet(Fairley). Although the personal computer is still the most popular choice for the social networking experience, but consumers are increasingly searching for other devices to connect on social media. In a press release, Mark Donovan, senior vice president of comScore’s mobile group, summarized this similar phenomenon revealed also by their report: “Social networking remains one of the most popular and fastest-growing behaviors on both the PC-based Internet and the mobile web,” he said. “Social media is a natural sweet spot for mobile since mobile devices are at the center of how people communicate with their circle of friends, whether by phone, text, e-mail, or, increasingly, accessing social networking sites via a mobile browser.”

In this way, social media is, according to Andreas Kaplan and Michael Haenlein, “a group of Internet-based applications that build on the ideological and technological foundations of Web2.0, and that allow the creation and exchange of user-generated content”(M.,Michael 61). The core concept of social media is the blending of technology and social interaction for the co-creation of value.

Web2.0

What is Web2.0? It is a question with many different answers. Some people may argue that Web2.0 is the underlying technology of social media and has taken the place of Web1.0 whose webpages’ information is not dynamic, being updated only by the webmaster. This is very close to the answer. It’s true that Web2.0 site may allow users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community, in contrast to websites where people are limited to the passive viewing of content. Yet it does not refer to an update to any technical specification, but rather to cumulative changes in the ways software developers and end-users use the Web, or in other words, it suggests a new version of the World Wide Web and has led us to a social web where we aren’t just getting information dumped to us from a computer, but we are reaching out to connect with other people to hear

what they have to say on a subject.

Web2.0 is the move toward a more social, collaborative, interactive and responsive web. It is a change in the philosophy of web companies and web developers, but more than that, Web2.0 is a change in the philosophy of society as a whole. Web2.0 marks a change in us as a society as well as the Internet as a technology. In the early days of the web, we used it as a tool. Today, we aren’t just using the Internet as a tool -- we are becoming a part of it. Therefore, every netizen is able to perform part of the functions of a journalist.

Web2.0 ideas have taken on a life of their own. They have taken people and put them on the web, and the idea of a social web has transformed the way we think and the way we act. The idea of sharing information is being valued as much as the idea of proprietary information.

Differences Between Social and Traditional Forms of Mass Media

Traditional media refers to diversified media technologies that are merely intended to reach a large audience by mass communication, such as television, radio, newspaper and magazines. These old technologies tend to cover significant news and aim to inform and educate the public, whereas social media is comparatively inexpensive and accessible to enable anyone, even private individuals, to publish or access information. Industrial media generally requires significant resources to publish information as in most cases the articles go through many revisions before being published. Besides, social media differentiates itself in many aspects such as quality, reach, frequency, usability, immediacy and permanence(Jones, Hodges).

It would be hard to overstate the significance of these differences. Since Gutenberg invented movable type, the majority of people have acted as passive receivers of information. It has been produced by others and fed to us over what are essentially one-way communication systems. But social media is turning us into active participants in the generation and exchange of information. And that’s a huge step for the development of mass media.

“FRIEND OR ENEMY? “-- ANALYSIS FOR THE IMPACTS OF SOCIAL MEDIA

Social media has transformed the way we live, the way we work, the way we socialize and meet, and the way our countries develop and grow. If the US presidential election of 2008 was the first occasion that social media played a major role in politics, then perhaps the ash drama of 2010 will be the most significant so far in travel. Numerous examples have proved to us how large its scale of influence could be. Then in what major aspects is social media impacting us?

The Economic Impacts

On Customer

First of all, social media allows customers to generate and tap into the opinions of an exponentially larger universe. Although word-of-mouth has always been important, its scope was previously confined to the people you knew and contacted with in daily life. Social media has removed that limitation and bestowed new power on customers.

Secondly, social media has transformed the way that customers all over the world make purchase decisions. Customers across the world are using social media to learn about other customers' shopping experiences to find more information about various brands, products and services, and to find deals and purchasing impulses. Customers' attitudes toward advertising on social media are continuing to evolve. Though roughly one-third of social media users find advertisements on social networking sites more annoying than other types of Internet advertisements, a research suggests that there are opportunities for marketers to engage with customers via social media. More than a quarter of social media users say they are more willing to pay attention to an advertisement shared by one of their social connections. Consumer behaviors are increasingly driven by the preferences of a much large, global pool of friends and peers. Besides, more than a quarter of users do not feel disturbed by seeing advertisements on social networking sites tailored to them based on their profile information.

On Enterprise

First, social media has provided the enterprise with a large market to develop. The market prospect of tapping into online communities composed of millions of potential customers has become down-

right mouthwatering to companies of every stripe. Second, it initiates a change in marketing concept of the enterprise. “Social media marketing” has been included in the business dictionary now, and a lot of companies are taking it very seriously. “Social media marketing” has emerged as another popular buzzword. The situation is all the enterprises race to innovate their marketing strategy and create new social media method to draw the eye of consumers.

Outside of the changes above, social media also poses some potential threats to the enterprise. That is, it spreads bad news very fast. Virtually any crackpot with a bone to pick can speak evil of your business. As long as it's not libelous, everybody's opinion should be welcome here. For this reason, if for no other, companies can no longer ignore social media.

In general, social media represents a huge opportunity for brands to gain positive favor with customers. With growing disposable income in emerging markets, savvy marketers can harness the growing adoption and influence of social media to impact business. In the meanwhile, it is much easier for the problems of products or services to be exposed in public. It is high time that the enterprise confronted the challenge brought by social media.

The Politics Impacts

For many governments, social media has come to be a chief carrier to make government affairs more open and transparent. Officials can improve the social media system for releasing information and increase the application of e-government so as to promote citizen engagement.

Social media websites are nothing new in political circles, but American President Barack Obama's use of social media in the 2008 presidential campaign changed politics in America forever. Mr.Obama adopted social networking platforms such as Facebook and Twitter, and media services such as YouTube, so effectively to build support and raise money for his campaign that it's already become standard practice. What sometimes goes unsaid about why social media worked for the Mr.Obama campaign is that although they merely utilized it to establish closer relationships with supporters in cyberspace, it also got those supporters to do things to help the campaign in the real world.

President Barack Obama was probably the first politician to fully exploit the potential of social media, both for his campaign, and to reach out to the people he governs, but he won't be the last. The point to keep in mind here is that social media are making it possible for more people than ever before to gain access to, and interact with, their leaders.

Benefits always come with threats. While the unaddressed safety issue of social media is involving political sector, the consequences can be extremely severe. The Internet affords anonymity to its users — a boon to privacy and freedom of speech, causing a declination of people's sense of responsibility for their words. Some immoral people may deliberately spread false news to disturb social order or divulge state secrets on their own behalf though social media. Such potential dangers have already been taken seriously by some governments. For example, the White House now has a Director of New Media who is responsible for developing and managing the administration's “online agenda”. That includes the White House's website, WhiteHouse.gov.

The Cultural and Social Impacts

In the aspect of culture, social media stimulates consciousness of individuality, creates new culture carrier, promotes international cultural exchanging and personal culture development, and impacts on social progress of culture. Moreover, its high technologies and convenience features have allow it to be a platform where people can share and acquire information and knowledge, yet the truthfulness and safety cannot be guaranteed.

In the aspect of society, it facilitates the operation and development of philanthropy and other utilities. It is quite usual for us to see a microblog for donation or looking for a lost family is reposted by warm-hearted netizens over thousands of times. Though social media generates a great number of virtual communities and groups, it enables communications of social members, rather than divides them, even in a broaden scale.

A Shock for Traditional Media?

With the rapid growth of social media industry, some people criticize that social media has prevent the development of traditional media. But actually, we can consider this shock as a positive one in that

it stimulates the industrial media to seek ways of survival not in the competition with social media, but in the fast-moving times, and also sets a higher standard for old media and the journalists. The rise of social media forges old media to retrofit itself to accommodate the current needs of customers. Many traditional media companies have further collaborated with the new form and broken a new road. Whether there is the new form or not, traditional media are bound to change.

CONCLUSION

As people continue to feel their way through the world of social media, they are led to believe that numbers mean power, but more important is the number of people who are actually listening and engaging. When someone says “social media”, website giants like Facebook, Twitter and YouTube instantly pop into our minds usually because they have the most people using them and the most information being pushed out every second of every minute. We tend to get distracted by them numbers game, thinking “volume, volume, volume.” More updates, more friends, more followers, more links, more photos, more everything. The tendency triggers lots of meaningless noise and information overload. As the old saying goes, quality over quantity is usually the way to go. So, no. Social media is not just about lots of people pushing around lots of information. After all, social media shouldn't be an end in itself. It was built to enhance your actual social life, in real life.

To lead social media to the right track, we still have a long way to go.

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INTERCULTURAL TRANSMISSION OF ARTISTIC TRADITIONS IN THE LATE OTTOMAN, ANATOLIAN ICONS IN THE 19TH CENTURY

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The paper aims to present a selected group of post Byzantine icons; including bema doors and an epistyle of an iconostasis and discusses their style and iconography. Currently these liturgical art works are preserved in the archaeological museums in Turkey. They are attributed mostly to the 18th and 19th century. After the fall of Constantinople in 1453 the Greek-Orthodox panel painting continued to be practised mainly in northern and central Greece, in the Peloponnese, in Crete and on other Aegean and Ionian islands. Among them the so-called Italo-Cretan school plays an important role. The masters of the school, which was founded on the island of Crete by the end of the fourteenth century, elaborated the iconographies and stylistic elements of the late-Byzantine period. The school took its basic artistic inspirations from the Palaeologan painting as well as from the printed material which was widely circulated at that time, and covered for the most part the engravings and paintings of the Italian Renaissance as well as of the Mannerist artists. Later, in the seventeenth and the eighteenth centuries the number and importance of regional and local centres increased, also the wandering painters became one of the leading actors of the period. New iconographical types became popular. Illustrative examples are also found in the archaeological museums in Turkey with their highly local and provincial quality, and with their mere attempt to become Byzantine as well.

Key words: Italo-Cretan school, late-Byzantine, Anatolian icon(s)

INTRODUCTION

This present paper aims to discuss the challenges of and responses to the globalization and its potential effect on a culture – which leads to either a total disappearance or a certain uniformity of the cultures. It is argued that intercultural competence and a mutual acknowledgment of other cultures are valuable tools to overcome these problems.

At this point an art historical case provides a vivid example of an intercultural transmission and -competence, leading ultimately to a successful cultural learning. Therefore in this paper the Anatolian icons of the nineteenth century are introduced and their style and iconography are discussed. The topic is relatively less explored one of Christian art which came to light under the Muslim rule. In the mean time the points elaborated in this paper expected to anticipate further questions and other issues on the topic.

A selected group of 100 icons, six wooden bema/royal doors and an iconostasis epistyle are investigated according to their style and iconography in particular¹. These art works are attributed mainly to the nineteenth century and currently they are found in the icon collections of the archaeological museums such as the museums in Antalya, Sinop and Tokat. These Greek-Orthodox devotional objects used to belong either to churches – so they were part of public devotion – or were subjects of private veneration.

HISTORICAL BACKGROUND

Following the First World War and the subsequent Turkish War of Independence, which ended in 1922, the then collected antiquities were transferred to then newly founded museums. Unfortunately their historical and cultural context, their provenance, original settings were lost during these turbulent historical events. However, these collections can not be regarded as a homogenous group and they all ended up in numerous archaeological museums, representing the tastes of the 19th century Greek-Orthodox communities in Ottoman Anatolia and the kinds of icons that they could obtain either locally or during their travel, for instance back from pilgrimage visits. This alone justifies examining them together, even if so much about their production remains unknown. The place of manufacture of these panels is almost

¹ For an extensive examination of the topic please see S. Yandım Aydın, *Die Ikonen aus den Museen in Antalya und Tokat in der Türkei: Ikonographische, stilistische und kunstsoziologische Untersuchung*. Saarbrücken: Verlag Dr. Müller, 2008

without exception unknown. There is no written document available reporting their place of manufacture, their painter, owner or use.

An overall picture is fragmentary due to the lacking inventory records and written documents. Therefore a complete and comprehensive picture and analysis concerning these questions becomes difficult. A thematisation of the complicated historical context of the Greek-Orthodox population of Anatolia is not within the scope of present paper. Still it will be useful to provide some remarks about the social history of artistic production.

SOCIO-ECONOMIC BACKGROUND

The cultural diversity of the Ottoman society with its extensive ethnic, linguistic, and religious dimensions generate a vivid picture. It should be kept in mind that the Ottoman Empire illustrates a much greater cultural diversity than the European states of the time. These different groups merged, interconnected, and were interwoven; ultimately syncretising the legacy of different cultures, religious faiths and traditions.

At this point some useful information about the situation could be provided; between the years 1750 and 1815, the Ottoman Empire, as a whole, was incorporated into the world economy². Later, by the second half of the 19th century, accompanying the removal of the trade barriers, new discoveries of gold mines, development in transportation and communication and the absence of major wars in Europe enabled safer circulation of goods, people and capital. Therefore trade had already become extensive by the second half of the 18th century among Anatolia, the Balkan countries and Europe as far as France and Spain. At the end of this century, the Ottoman trade underwent a great expansion. Thanks to the relatively peaceful international relations they enjoyed, the Ottomans were able to develop secure trading routes in order to profit from the growing demands of the developing industries of central and western Europe. In addition, the ongoing unrest in Europe caused by the French revolution (1789) and the Napoleonic wars which ended in 1815 (1799-1815) provided opportunities to the Ottoman producers and traders. Greek merchants and shippers were noticeably active in this trading network.

² R. Kasaba. *The Ottoman Empire and the World Economy of the Nineteenth Century*. (New York: University of New York Press, 1988), 34-35; Karpat, K. *Ottoman Population (1830-1914) Demographic and Social Characteristics*. Madison-Wisconsin, 1985

These new commercial opportunities stimulated migrations as people sought to take advantage of them³. This movement of people basically strengthened the social fabric that accompanied the economic networks already developed in the border regions of the Ottoman Empire in the 18th century. For example a Chian family with business in the big cities of Britain, continental Europe and the Balkans could have family members actually living in these different places⁴. Not only the Greeks and the Jewish population but also other ethnic groups such as Vlachs, Serbians and Albanians migrated from eastern to western Anatolia and from the Balkans to Europe.

Eventually during the second half of the 19th century, trade became intensive and profitable in the Ottoman Empire and commercial networks were established with the neighbouring Aegean and Mediterranean islands and regions, and also with Europe. The Ottomans, mainly the Greek commercial intermediaries, became the main beneficiaries of the improved relations with the world economy, ultimately building up a new middle social class with its respective taste and preferences; what we might call a petit bourgeoisie.

Moreover there was another group of people in the Greek-Orthodox society; the so-called Phanariots who lived mainly in Constantinople and considered themselves the direct descent of Byzantine ruler families, who were the aristocrats of the social strata in this heterogeneous society⁵. These people were then among the possible patrons, and commissioners who initiated major projects and determined the most significant features of individual art work, and who were also the painters, beholders, finally the congregation venerating the liturgical art works, now preserved in the archaeological museums.

After having given a brief outline of the socio-cultural background of the Ottoman Empire, artistic production with its crucial aspects on style and iconography could be described within a more general context of “Anatolian icons in the 19th century”.

³ G. Augustinos, *Küçük Asya Rumları. Ondokuzuncu Yüzyılda İnanç, Cemaat ve Etnisite*, trans. D. Evcı (Ankara, 1997), 39

⁴ Augustinos, *Küçük Asya*, 42

⁵ S. Runciman, *Das Patriarchat von Konstantinopel vom Voraubend der türkischen Eroberung bis zum griechischen Unabhängigkeitskrieg* (München: Verlag C. H. Beck, 1970), 348-371; R. Clogg. *A Concise History of Greece*. Cambridge, 1992

ARTISTIC PRODUCTION

The study of the Greek-Orthodox liturgical artwork produced in the Ottoman period, in particular the icons of the 18th to the 20th century, is incomplete and less explored. Some have been published in catalogues, but synthetic studies have been rare. Major comprehensive work is still lacking. Such icons are in churches, museums, private and public collections in Greece, in Cyprus, in cities across Europe, in Turkey and elsewhere. Better attested, however, are the functions of icons in our time, thanks to the research carried out by sociologists and anthropologists.

An icon, as a religious, liturgical object or as a work of art, refers to an (/any) image, eikon in Greek, representing the likeness of a sacred person(s), and/or a sacred event(s). The subjects illustrated on an icon generally show Old and New Testament content or are from the Apocrypha. However, in different historical, social, and geographical contexts, additional sacred images were produced of subjects not included in the Bible such as subjects from daily, religious and/or from church life of great historical importance like the theme of “the Feast of Orthodoxy” celebrated on the First Sunday of Great Lent which is the reminder of iconoclasm in the eighth and ninth centuries and which becomes part of the canon.

Icons could be painted on or made of various media; on ivory, mosaic, enamel, marble, ceramic, paper or steatite and in different sizes, although all the examples, selected for this paper were painted on wooden panels.

The aspects on the theology of icons, its historical development, use and function will not be further elaborated. Rather, important features in icon painting after the fall of Constantinople in 1453 are focused. The icon production continued in northern and central Greece, on the Peloponnese, in Crete and on other Aegean and Ionian islands. Among them the so-called Cretan-School plays an important role⁶. It became particularly important from the late 15th to the 16th century and illustrates a strong western influence, and is superior to the other regional and local workshops. Their tradition and effect lasted until the 18th century. Its adherents were also employed

elsewhere on the Ionian Islands, in the monasteries of Mount Athos and Meteora, on Sinai, in Italy, especially in Venice. In the 18th century, an art theoretical debate took place concerning the style of Greek orthodox religious painting to follow through⁷. At its core lie two opposing, elaborate theoretical works composed by the two painter-monks from Mt Athos. One is Hermenia or the Painter’s Manual compiled by Dionysios of Fourni (1728-1733) and the other one “Peri Zographies” On Painting, written by Panagiotis Doxaras of Zante.

Both works took inspirations from the past, from older examples and/or from previous centuries. Dionysios turned its face to the 14th century, for example to the works of Manuel Panselinos, while Doxaras admired masters of European late Renaissance, especially Titian, Tintoretto and Veronese. Dionysios’ view on religious painting was decisive in regard to style and iconography. Thus the majority of the Greek-Orthodox community shared his taste and conception on how a religious painting should look like⁸.

Within these centuries the lack of a central school and a common stylistic aspiration set off a range of trends and different centres – mostly local centres.

In the post byzantine period, in general, there is no central, main school of icon painting, nor a common central movement in style and iconography, which could be especially exemplary of the icon painting in the 19th century. Instead, at that time and already two centuries before that many workshops of regional character were founded featuring regional, local ideas and conceptions in icon painting. They were usually in mutual relations with each other such as exchanging ideas, providing itinerary artists⁹.

At the same the time design pattern, motifs and style of the Late Renaissance, of Mannerism and Baroque periods were favoured and applied to icon painting.

7 D. D. Triantaphyllopoulos. Die nachbyzantinischen Wandmalerei auf Kerkyra und den anderen Ionischen Inseln. (München, 1985), 387; Th. Gouma-Peterson. “The Survival of Byzantinism in 18th Century Greek Painting.” Allen Memorial Art Museum Bulletin 29, 1 (1971): 32

8 Ch. Soldatos. Christian Painting. Post Byzantine and Seven Ionian Islands Art in the Churches of Lefkada (15th-20th century). (Athens, 1999), 34

9 Mitsani, A. The Collection of Byzantine and post Byzantine Works of Art in Naousa, Paros. Athens, 1999; Drakopoulou, E. “The Itineraries of the Orthodox Painters in the Eighteenth Century: The Common Aesthetics in South-East Europe.” The Historical Review 5 (2008): 21-37; Petković, S. “Art and Patronage in Serbia during the Early Period of Ottoman Rule (1450-1600).” Byzantinische Forschungen XVI. (Amsterdam, 1991): 401-414

The iconographic and stylistic analyses with certain assumptions about their production date and provenance provide the idea that these panels were emanated mainly from the models and patterns of the middle and late Byzantine iconographic formulations and currents, handed down already over the centuries. Yet, these works in their iconographical and stylistic modifications were also influenced by “Zeitgeist”, as was developed and demonstrated in the regional, local post-Byzantine painting. There is no consistent development in the former Byzantine territories, nor in Anatolia.

Among the existing icons, there are representations of both the conventional Byzantine iconography and of elements, motifs and forms adapted from west European painting that reveal a new way of artistic constellation. For instance, the Lectern with an open book added to the Annunciation-scene¹⁰, or the tiny cloth that becomes an element of the newly-born Christ’s garment, usually found in the Renaissance paintings of the Nativity¹¹. Another example an unusual scene, in the Byzantine painting is of the Circumcision of Christ (in Menologion of Basil II in the eleventh century, there is the preparation of the act of Circumcision, however, this is an exceptional example available from the Byzantine art)¹² and another one is depicting Christ on the way to Golgotha, although there are Byzantine models, the Renaissance conception of the event shows Christ heavily suffering while carrying the massive Cross on the way to Calvary¹³. In addition, there are highly appreciated middle and late Byzantine examples from the liturgical cycles: such as the 13th century images of Christ as “High Priest”, St. John the Baptist as the

10 J. H. Emminghaus. “Verkündigung an Maria,” LCI 4 (1994), 429; G. Schiller., Verkündigung an Maria, vol. 1, Ikonographie der christlichen Kunst, Güterslog, 1966-1991; Robb, D. M. “The Iconography of Annunciation in the 14th and 15th centuries.” The Art Bulletin 18, 4 (1936): 480-527, see also figures 29-31 for the representation of the Lectern in the Annunciation scene. Since the 15th century the scene is usually given in an inner space i.e. in a house interior, examples include Mérode-Altarpiece (c. 1427-1432) in the Metropolitan Museum of Art, New York. Freeman, Margaret B. “The Iconography of the Merode Altarpiece.” Metropolitan Museum of Art Bulletin, New ser., v. 16, no. 4 (December, 1957): 130-139

11 The illustration of a tiny cloth over the head of infant Christ is preferred by the Venetian artists of the 16th century. Examples could be found on the works of Bassano and Titian

12 R. Schoch and M. Mende and A. Scherbaum, ed., Albrecht Dürer, das druckgraphische Werk. Holzschnitte und Holzschnittfolgen Band 2 (München, 2002), 251. also see a comparative example in Y. R. Drishti. Konstantin Shpataraku. Piktori i Atit Mesjetar Shqiptar. (Tirana, 1992), 75, fig. 36

13 K. Bußmann, ed., Die deutschen, niederländischen und italienischen Tafelbilder bis um 1530. Bestandskataloge. (Westfälisches Landesmuseum für Kunst und Kulturgeschichte Münster Landschaftsverband Westfalen-Lippe: Münster, 1986), 79, 102, 346, 369, 372-73

Angel of Wilderness¹⁴. Likewise, the images of Virgin Mary as Zoodochos Pege and as the “Unfading Rose” favoured mainly during the post-Byzantine times in the 17th and the 18th century¹⁵. Besides, new episodes were added to the vita-cycle of the Saints, in particular new scenes of Martyrdom to the vita cycle of, for instance Saint Charalampos, or the Council scene to the vita-cycle of St. Nikolaos as is represented in today’s icon selection. The first ecumenical council held in Nicaea in 325 is added showing the Bishop of Myra St. Nikolaos while attacking Arius in front of the emperor Constantine I and the other participants. This scene is not attested prior to the 17th century¹⁶.

Furthermore there are festal themes which are widespread especially during the late and post-Byzantine periods; such as the Synaxis of the Archangels, the All Saints, the Exaltation of the True Cross and the Triumph of Orthodoxy, (An icon with this theme comes from the Antalya archaeological museum and deserves further investigation concerning its curious iconography of the theme). Although the study of the icon collection in Sinop is in progress, still, for most of the panels from Antalya and Sinop there is a strong reference to the works of Aegean and Ionian islands. Inspiring examples seem to come from the models and design patterns of the Cretan school, whereas relatively conservative works from Tokat reflect a strong traditionalism with conventional design patterns, and iconographies. In order to obtain a more complete picture of the possible supra-regional relations, comparison is driven among the result of the stylistic and iconographical analysis and other coherent material which are mostly featured and presented in the exhibition- and museum catalogues. However, the situation without further information and records bequeathed about their provenance limits the true identification of their locality. So the possible origins of their manufacture could be specu-

14 The Byzantine image of a winged Johannes Prodromos, its historical and biblical sources are discussed in the article with further references to the earlier publications on the subject: Yandım Aydın, S. “The Appearance of the Winged-Image of St. John the Baptist in the Thirteenth Century Byzantine Painting”, First International Sevgi Gönül Symposium on Byzantine Studies, Proceedings. (Istanbul, 2010): 626-634

15 A. Sukrow, Einige Anmerkungen zum Thema der Gottesmutter “Nie verwelkende Rose” in der Ikonen-Malerei, Griechische Ikonen. Beiträge des Kolloquiums zum Gedenken an Manolis Chatzidakis in Recklinghausen, 1998, ed. E. Hausteil-Bartsch and N. Chatzidakis. (Benaki Museum: Athens, 2000), 63-70

16 For a detailed analysis please see Yandım Aydın, S. “Überlegung zu einer Vita-Szene in nachbyzantinischen Nikolaos Ikone aus dem Museum in Tokat.” Festschrift für Prof. S. Yıldız Ötügen zum 65. Geburtstag. Byzanz und die benachbarten Kulturen, (Istanbul, 2010): 368-378; Vassilaki, M. “METABYZANTINH EIKONA TOY AΓIOY NIKOLAΟΥ.” ANTIΦONON (1994): 229-245

6 Selected works include K. A. Manafis, ed., Sinai: Treasures of the Monastery of Saint Catherine. (Athens, 1990), 124-133; B. Rothmund. Handbuch der Ikonkunst I. (München, 1985), 102-114; R. Cormack. Painting the Soul, Icons, Death Masks, and Shrouds. (London, 1997), 176-177

lated as well as the origins of their artists. Nevertheless, in Antalya, a considerable number of panels and stylistic affinities among the icons make us consider the presence of a local workshop(s) there. We should take into account the fact that in Antalya there were artists/painters actually based there and who become accustomed to the concepts and models of the Renaissance and Baroque via the printed material circulated, mostly, of the engravings. The painter was expected to be familiar with the long-established conventional Byzantine models and examples.

Providing a similar argument about the local and artistic attribution for Tokat and Sinop is virtually impossible due to the relatively small number of icons preserved in these cities. Roughly speaking, at least two significant approaches to the style of icons can be identified in Antalya and Tokat, obviously with possible variations. The first one provides robust, humble figures with wide bodies and geometric facial features accompanied with voluminous garments. The iconographical elements, the landscape and/or the background are carried out schematically. The second one reveals a more plastic approach to the figural forms with a more realistic look. It is matched with decorative rendering of the draperies of the garments and small doll-like figures with expressive faces. In general, brighter colour tones enrich the palette and gold is overused, not only for the background, but for example on decorative elements, on draperies, and nearly on every object depicted.

Few icons are dated with inscriptions painted on them. Others have dates pencilled at the back or iconographic indicators of dates and so can be assigned a terminus post quem or a terminus ante quem. These dates, either a precise year or within a certain range, are mostly in the nineteenth century. The rest of the icons, because of their general similarities of style and iconography to the dateable ones, seem also to be the products of the nineteenth century. There are two exceptions where we have signatures of the icons; one comes from Tokat the icon of Virgin Mary, and the other is the icon of St. John the Baptist from Sinop, also dated back to the 17th century¹⁷. Only a few allow us to trace individual traits of a certain painter.

¹⁷ The panel is dated to 1662 and has a votive inscription mentioning the donor's name as Nikephoros and his friend Daniel with two other names, one of which is called Chrysanthos and both are labelled as "monk-priests." A comprehensive study of this panel from Tokat museum is the subject of a current working paper by the author

FINAL REMARKS

In general, the icon painters of the post-Byzantine periods could not influence and shape the established traditional content – which also was the case centuries before them –; rather, they acted towards the individual convenience and needs of their patrons. We can conclude that the post-Byzantine icons between the 15th and the 19th century remained Byzantine in their essential aspects, regarding form, content, function and meaning. On the other hand, they not only generated the traditional compositions but also, especially during the post-Byzantine times, reflected western patterns, elements and motifs used by their artists in icon painting, who somehow internalized these stylistic and iconographic aspects.

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IN THE SHADOW OF THE JULIAN'S COLUMN: The Late Roman Ancyra

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"Inde obviat Galatia provincia optima sibi sufficiens. Negotiatur vestem plurimam; aliquotiens vero et milites bonos dominis fraestat. Et habet civitatem maximam quae dicitur Ancyra. Divinum panem et eminentissimam manducare dicitur."

The fourth century geographical treatise of the Roman Empire "Expositio totius mundi et gentium" gives the description above on the Roman Ancyra, which enlightens us briefly about the city's importance. Ancyra, long before the later capital Constantinople became the most important city in the Eastern half of the Empire, played a major role thanks to its' strategic location in Asia Minor. It was already the capital of the Galatian province and its' significance grew only higher as the capital of the empire moved to Byzantium by the first Christian Emperor Constantine I. As the disturbances with the East grew restless and some emperors of the fourth century chose Antioch as their headquarters for their dealings with the Sassanids, Ancyra became a major road between the capital and the East. Not only emperors but also many pilgrims passed through the city before they reach their main destination and enjoyed the city's hospitality. While the empire was going through a transformation period in the Late Antiquity, the city itself also, slowly but surely, has experienced a similar change. Once a center for especially rhetorical education, it gently turned into an ecclesiastical center. The Galatian capital, the roles of being a military base, center of trade, industry and intellectual life on its' shoulders, has been mentioned sporadically in the histories of the Church and the Empire, in hagiographies and in speeches and letters. When we examine these sources they tell us something forgotten or neglected in the history of the Empire. Imperium Romanum was not only about Rome, Alexandria or Carthage, sometimes big changes took place in lesser known locations, in our case in Ancyra, like Valentinian's ascension to the throne in 364 thanks to the letter of the most important man of his time Donatius. And when we read these first hand sources, we realize something big: Ancyra was once

a metropolis, which many could call home, like the Greek rhetorician Libanius, and fascinated the visitors with its' monumental buildings, of which today very little remain intact.

BEFORE THE CONSTANTINIAN DYNASTY

The third century crisis began with the murder of Alexander Severus by his own troops in 235 and ended with the beginning of Diocletian's rule in 284 left heavy marks on the Empire. Aside from the internal bloodshed, the empire's frontiers have been left defenseless for the coming barbarian attacks and many unwallled cities of the pax romana suffered pillage and murder. In 260, the Emperor Valerian set out to meet his tragic end at the hands of the Sassanids. As he passed through Ancyra he repaired the military highway of the city and with this last positive act of his he was captured in battle and humiliated. Not only the prestige of the Empire suffered but also the Sassanids advanced into Asia Minor and captured the important city of Caesarea. Though this was only the beginning of the distressed times for Asia Minor. Again, in 260, the Goths have penetrated into Asia Minor and even though we are not sure whether they captured Ancyra or not, we know at least they attacked it. After the Goths the city fell under the forced administration of the Queen Zenobia and her so-called Palmyrene Empire. Aurelian (270-275) recaptured Ancyra in 271 and started the works of repair and restoration. As the wars tire out the city two separate famines broke out: the first one in the reign of Aurelian (probably after 271) and the second one in 280. The severity of these should be so high that a merchant from Lycaonia could travel to Ancyra just to help. A local saint St. Clemens (born in 265) also tried to help the inhabitants by performing miracles, which we learn a great deal from his Vita Clementis. The casualties of the third century crisis for the metropolis were heavy, so in order not to relive the tragedies of the past local benefactors came into spotlight. Maybe the most important of them was the unnamed governor of the Ancyra in 289, who built

the city's first walls. Some others, besides helping the building of the city walls, repaired the damaged gymnasium of Polyeidus, restored the office of registrar of members of the local senate. An another citizen, whose name known to us, Ioannes (or John) "the Restorer" carried out extensive repairs which include the restoration of the gymnasium, repairing of the Palace, the building of Theodotus, the aqueduct and its' reservoir. Seeing all these extensive restorations we can easily say that the third century affected the city as much as it affected any other Roman city, be it as far as in Gallia. With the tetrarchia the rebuilding program continued. But perhaps the biggest change of the tetrarchia on the city was the reorganization of the province and eventually Ancyra. The province was reduced by size by Diocletian and its' governor started to hold the high rank of consularis and contained five minor cities and one urbanized region in addition to the metropolis.

FROM CONSTANTINE TO JULIAN

After the crisis of the third century the region was finally stabilized thanks to the efforts of the citizens and the goodwilled emperors. As Constantine I. became the sole augustus of the Empire in 324 and the old Olympian Gods began slowly to disappear, Ancyra started to gain an important role in the ecclesiastical controversies. Thus the city is best known for its' ecclesiastical history in the reigns of Constantine I. (307-337) and Constantius II. (337-361). In late 324 or early 325 Constantine I. decided to solve the problem of Arianism, which had many adherents in the Eastern half of the Empire in the fourth and fifth centuries, by leading an ecumenical council somewhere near to his court. At first Ancyra was decided to be the place to hold the honor of the first council but later, probably to encourage the participation of the Western bishops, it was relocated to Nicea (today Iznik). Even though Ancyra has missed the chance of being home of the first ecumenical council it was one of the significant centres of the Church in the fourth century. During the first ecumenical council, Ancyra was represented by the bishop Marcellus, who even though at first had supported the Orthodoxy but later fell into heresy and ejected from his seat and replaced by Basil. Basil was an Arian bishop and thus had a great influence on Constantius II, an Arian Christian. He was also a learned man, a doctor by profession and a skilful rhetorician. We also know that he dedicated a church in Ancyra in the year of

358. After Marcellus' deposition Basil became the favourite of the citizens but the case of Marcellus could hardly close. His heretic doctrines gained support in Ancyra, and not surprisingly familiar, in the streets of Ancyra both groups clashed against each other. The winner in the end was Basil but this example of rioting shows us that not even Ancyra is very different in Late Antiquity in comparison to other cities of the Empire at ecclesiastical matters.

While the Arians, the new heretics Ancyro-Galatians of Marcellus and the adherents of Orthodoxy found themselves in an endless quarrel, Paganism was not dead yet. Julian, or as the history labelled him "the Apostate", became the sole ruler of the empire in 361 and tried to revive Paganism. His questionable success was short lived as he died in the sands of Persia while following the footsteps of his hero, Alexander the Great. He tried to imitate the organs of the Christian Church and promoted philanthropy. For this, before he left Ancyra in May 362 for Antioch, he appointed a pagan high priest in Galatia named Arsacius. He wrote letters to the pagan clergy and requested from them that they should not show up in taverns. He declared that yearly 30.000 bushels of wheat and 60.000 pints of wine should be given to the poor and beggars in Ancyra. While he was there he also held curials, listened the pleas of the people, as he was doing the same thing in his Caesar days in Gallia, and passed another law that declares all teachers had to be approved by municipal senates. The praetorian prefect of the city Saturninus Secundus Salutius dedicated a statue and an inscription in the honor of Julian which declares him "the lord of the whole world". The monument was still visible until the 18th century but today it's unfortunately lost. The only surviving monument from the time of Julian is the humble yet elegant column of his, which is not in its' original position today. It stands about 15 m. high, standing on a rectangular base with a horizontally grooved shaft. The capital originally, perhaps with a statue, has an acanthus leaf and blank medallion ornamentation of a type which can be dated to the sixth century. The latest ruler of the Constantinian dynasty was not the only one who left his mark in Ancyra. Probably between the years 324-327, praetorian prefect of the city Flavius Constantius dedicated a statue of Constantine I in the city and the vicar of Pontus (who was also resided in Ancyra after the reorganization of the provinces in the time of tetrarchia) dedicated another one to Constantine I. or his son Constantius II.

FROM VALENS TO THE END OF A METROPOLIS

After Julian's death during his Persian campaign in 363, a new emperor was chosen by the legionaries named Jovian. Jovian was one of those unlucky emperors, whose rule was very short lived. He died on his way to the capital but as he was passing through Ancyra he left behind some his imperial retinues in Ancyra. One of them was a good commander Valentinian. When the news of the death of the emperor reached the city, Donatius, a masterful politician in the empire wrote a letter and spoke for the rule of Valentinian. This was autonomously accepted and Valentinian became the new augustus of the empire. After some time, as he was giving a speech in front of the army, they requested that he should also name another co-ruler, as this was the unofficial custom in the last centuries of the empire. Valentinian then named his brother Valens as his co-ruler and gave the responsibility of the Eastern part of the Empire to him. Valens spent most of his reign at the frontiers of the empire; he even lost his life when he was fighting against the Goths in 378 at Adrianople. Before this he had to fight against an usurper named Procopius, who for a short time even controlled the capital of the Eastern part of the Empire. During his fight against the usurper he spent most of his time in Ancyra, and while he was there a son was born to him on 18 January 366. Since he was born in Ancyra, he was named Valentinianus Galates, "the Galatian". In the reign of Arcadius (395-408) Ancyra became the almost-capital of the Empire as the emperor and his retinue spent most of their time, especially their summers, in Ancyra. The decision was made by the eunuch Eutropius, the real power behind the emperor. Even though their sojourn was disturbed sometimes because of events like 399, the year when the Goths revolted in Galatia, the city absolutely enjoyed the presence of the emperor. Justinian, whose achievements, Hagia Sophia being the most important, are still visible to us today, re-organized the administration of the province by abolishing the vicar of Pontus in 535 and adding his salary to the governor of Galatia, who now held both civil and military as a comes, since the brigandage in Asia Minor is on rampant. Though with a decree in 548 the military power of the governor has been revoked and the seat of Pontus restored to his previous position. During the time of Justinian there is no mention of a building in the city but the military highway to Ancyra has been repaired. As one of Justinian's aims, re-conquering the

Western half of the Empire back from the Barbarians who now rule there, he launched an attack against the Vandals in Africa. Thanks to his brilliant general Belisarius he seized the old province and captured the Vandal king Gelimer. After he was forced to show himself as a booty in front of the crowd in the Hippodrome of Constantinople, Justinian let him live his "retirement" days in Ancyra.

As all things come to an end, the fate of Ancyra was also sealed by the Goddess Fortuna or the Christian God. The emperor who is best known as the first Crusader, Heraclius (610-641), spent most of his reign by defending the Roman Empire. Before the Islamic armies left their Arabian peninsula he had to deal with a traditional enemy of the Empire, the Sassanids. The tide of war shifted back and forth and in the end the Sassanids were driven back from Asia Minor by Heraclius. But the cost was too high. In our case, Ancyra, was destroyed by the Persian general Sharbaraz in 622. All inhabitants were either enslaved or killed, only some could escape before the Persian army arrived. Ancyra never found the strength or the resources again to rebuild itself. It was no more a metropolis, now it was only a town on hilltop. This was the end of a once shining Late Antique city.

AN ECCLESIASTICAL CITY

Since the rise of the Christianity Ancyra was also an important location to host religious issues and personalities. Especially the city is known for its' local martyrs, one of them being St. Clemens (258-312). Before he lost his life he was numerously interrogated and was subjected to beatings. He was a philanthropist and executed in Ancyra in a place called Cryptus. A small shrine was later built in his memory. Another martyr, St. Plato was the patron saint of the city. There was a church dedicated to him in Ancyra and his cult had spread to Constantinople in the sixth century as Justinian built a martyrium in his name. He was executed because the vicar of the city Agrippinus had him ordered to offer a sacrifice to the gods but St. Plato was refused.

Even though Julian the Apostate was tolerant in his dealings with Christians, this couldn't stop the arrival of new martyrs. St. Basil, during the reign of Julian, attacked the pagans in the city and to see him come to reason, Julian sent handful of rhetoricians. St. Basil stood his ground and this time Julian him-

self tried to convince him. When this also unsuccessfully ended, Julian left the man to his faith and he was killed on 29 June 362. Under Valens, the last of Arian sympathizers, another Arian, vicar of Pontus Demosthenes called a synod in Ancyra 375 in order to discredit Basil of Caesarea and Gregory of Nyssa. In the fifth and the sixth centuries city became a lot more pious. Thanks to the stabilized Christianity in the Empire the martyrdoms ended and the local saints, deacons and bishops held records of the city, together with civic matters, which helps us to learn about the history of the city from the fifth until the sack of the city by the Sassanids in the seventh century.

The church of Ancyra was very vocal and held important seats at ecclesiastical matters. The seat of the Galatian bishop was there, who ranked fourth in the hierarchy of the Church. As we have previously mentioned, it was going to be the host city of the First Ecumenical Council. 11 years earlier, in 314 it hosted another council, though not ecumenical, to deal with the problems of the actions of church members during the persecutions of the third and early fourth centuries. All these shows us that Ancyra was not only a military base camp for the legionaries and the emperors. It was a many-sided metropolis.

A CENTRE FOR RHETORIC WITH MONUMENTAL BUILDINGS

On 8 March 347 a young orator named Themstius wanted to give a speech on Philanthropia to the Emperor Constantius II. His speech was so impressive that the citizens of Ancyra asked him to stay in there to teach. He just did that and with the help of the Emperor he became one of the best rhetoricians in the empire.

Via the letters of Libanius (314-394) we learn so much more about the educational face of the city especially in the fourth century. The Antiochian rhetorician visited the city two times in his lifetime. He established strong relationships, especially with the aristocrat families of the city, which connect to each other by marriages and were patrons of education and learning. With this strong relationship he did favors for his friends just as they did favors for him when they have the power to do so. This was a traditional thing in the Roman Empire even in the Republican times. If one person is young and has the potential of becoming an important face for the empire, he needed someone else who help him to achieve this.

Libanius, in the fourth century, was one of those men. In his letters he says that he loves Ancyra as much as his own hometown and praises the citizens as noblemen. Again thanks to his letters we can produce a list of governors of Ancyra without problem. One exceptional governor shines out: Maximus (governor of Ancyra 362-64). He was a benefactor of the city and his extensive building program has been recorded. Other than numerous fountains and nymphaea to the city he was a patron of education. Thus he increased the number of teachers in the city and held rhetoric contests with great prizes. He did so much to the city that Libanius wrote that the city should be called "the City of Maximus" not Ancyra. The inhabitants of the city, but mostly the leading families were pagan and fervent supporters of the classical learning. Though as the Christianity became prominent also in Ancyra this social appearance of the city has changed. As Christianity became prominent also in Ancyra the social fabric of the city has changed it gradually became a city of bishops and local saints.

With benefactors like the governor Maximus, Iohannes "the Restorer" and other persons whose names are unknown to us have built the city that is known as Ancyra the Metropolis. When we try to give a list of the buildings of the city between third and the fifth centuries, this picture should be enlightening enough to show us the splendour of the city: numerous fountains, nymphaea, aqueduct (ca. 300), city walls, the palace (ca. 300), the senate house (365), agora (343), two basilicas for civic duties, the temple of Zeus (ca. 300), the temple of Asclepius (362), the gymnasium of Polyeidus (ca. 300), the building of Theodotus (ca. 300), a prison, the cathedral church (420), Church of St. Plato (ca. 430), Church of St. Clemens at Cryptus, Church of the Archangels, Church of the Saints, Church of the Novatians (420), Monastery of Nilus (fifth century), Monastery of Attalina (ca. 620), Convent of Magna (426), Convent of Petris (late sixth century), Convent of the Mother of God of Beeia (late sixth century), hospice (420), hospital (420) and the county estate of Maximus (362).

Other than these Late Antiquity buildings, the older buildings of Ancyra should not be forgotten, like the amphitheater, Caracallan baths, Augustus Temple and other numerous structures. Unfortunately for us almost none of these are visible today or very little remains. Thanks to the sources we aware of the fact that today's capital of Turkey was once a rich Late

Antique city which lived a prosperity after the third century crisis until the Sassanids came and gone.

Ancyra was not originally a Roman city, other cultures have also left their mark before and after the Romans on the city but even though today it's a Turkish city, it was once an important location for an Empire which ruled the world. Just as the Roman Empire is a cultural heritage to us, a something that all the people in world can look up and learn from, Ancyra is a part of that heritage, which should be known as any other famous Roman city in Europe. Its' monumental buildings, aristocrat families and contests of rhetoricians could be long gone but when one steps into the shadow of the Julian Column in Ulus, he can not stand still there and think nothing as he looks up to the capital of the column. Maybe this column should be the starting point for us if we want to enlighten our world's past much more than ever before.

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INTRODUCTION

INTERCULTURAL COMMUNICATION IN CHINESE-RUSSIAN BORDER AREAS

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China and Russia are neighbors who share a thousand-mile inland border line. With the requirements of people living, various types of economic activities, such as trade contacts, emerge in the Chinese-Russian boarder areas. Economic and trade relations in border areas inevitably lead to both language and cultural contacts. Different culture and traditions intensely collide during their communication. Besides, there are some features of the talk between Russians and Chinese in these areas on which we focus in this paper.

This paper first provides with a short description of the history and current situation of Chinese-Russian boarder areas, including the socio-economical situation of border trade in these areas and the brief introduction to some main border cities in China.

In this paper, we then use the approaches of both sociolinguistic and intercultural communication, such as: observation, interview, field work and so on in related areas for studying some distinctive phenomenon during the contacts and communication between Russian and Chinese. In order to gather the relevant data for the analysis, I have done the field work in Heihe in Nov.2011, in Suifenhe in Oct 2012, in Manzhuria in Dec.2012 and Jan. 2013. The audio records of the conversations between Russians and Chinese in these areas are about 5 hours long in sum. Most of these records were recorded without the awareness of both interlocutors. Interviews were conducted both in Harbin and Manchuria. In Harbin, interviews had been done mainly with the Russians who have been to the border cities in China. In Manchuria, we did interviews with the businessmen and vendors who do business with Russians everyday. In addition, some other information was collected from the documentary films of the border areas, some materials both in magazines and the local newspapers.

Based on the materials derived from the publications, interviews and field work, we analyze, we in-

vestigated some distinctive language phenomenon on border areas.

Like any means of communication, it involves both the verbal communication and some other means. We analyze phonetics, words and expressions, grammar and conversations between Russians and Chinese.

Finally, we will draw the conclusion and give some advices to enhance the competence of intercultural communication skills in these areas. Current situation on the Chinese-Russian border

At the beginning of the 1990s, China first opened the border trade in several border cities in China, like Heihe, Manzhuria, Suifenhe and so on. Border trade became the main source of income for Chinese in these areas. The opening of Russian market stimulated for the Chinese to do business with Russians and gained a great number of profits. The great profit attracted many Chinese even the Chinese who came a long way from South China, to join in the border trade. In less than ten years, small frontier station had changed into cities in China. Besides, Chinese goods became the indispensable part of everyday life as well, because of their cheap price and convenience¹. Although, in recent years, Chinese-Russian border trade is no longer that blooming like in the past 20 years, these border cities in China has also developed tourism to support the economical development. According to the interviews with the Russian tourists and the travel notes which are written by the Russians, they come to the border cities in China, like Heihe, Manzhuria, Suifenhe, not only for shopping, but also for entertainment: going to the restaurant, night clubs and having massage treatment which are cheaper in China than in their hometown². In addition, some big border cities in China are tourist-oriented city for Chinese to experience Russian culture. For example, in Manzhuria, the main tourism regions

¹ based on the interview with Chinese businessmen
² http://lib.ru/EM_IGRATION/china2.txt

are “Matryoshka square” and the border station on the Chinese-Russian border line. The Chinese come to Manchuria for traveling to see the buildings in Russian style, having a taste of Russian cuisine which is very rare in mainland China and buying some Russian souvenirs, like Russian matryoshka (Russian dolls)³. It is an exotic city for Chinese tourists and some tourist guide was called the city Manchuria “little Moscow” in Northeast China⁴.

INTERCULTURAL COMMUNICATION ON THE CHINESE-RUSSIAN BORDER

Effective communication has always been the cornerstone of human cooperation and endeavor. On border areas, successful intercultural communication is of great importance for the success of doing business. For individuals, the first essential question is the language of communication. It is important for both sides to acquire an adequate knowledge of both standard languages in order to gain access to the market. Chinese in border areas spares great efforts to learn Russian language, in contrast, Russian insists on speaking his/her mother tongue and very few Russian learn Chinese to communicate, especially in the last century. Consequently, Russian language serves as a main tool for communication. Russian language competence has become important for be able to participate in the trading process. In fact, due to the lack of systemic and formal language education in border areas, most Chinese vendors and businessmen are suffered inadequate knowledge of Russian language. In the process of language contacts with Russians, pidgin, jargon, foreign talk and imperfect second language learning has been struggled in these areas. Chinese vendors and businessmen have their own way to remember Russian words that are essential for their trades. In 1900s, with the rapid development of Chinese-Russian border trade, many Chinese businessmen swarmed into these border areas and Russian businessmen also shuttled between two countries to do business. This had led to the language contacts between Russians and Chinese⁵.

PHONETICS

³ based on the online tourist guide -- <http://lvyou.baidu.com/scene/view/cadc56c0a53ec6adcd2f8ddd>

⁴ <http://travel.sohu.com/20091201/n268607275.shtml>

⁵ Li Xiaolin, “eluo si chi ta yipie”, *Zhong Guo Min Zu*, vol.01, pp.31-34, 1993

In order to communicate with Russians and to do business with them, these businessmen ‘created’ a way to learn how to remember some basic but useful words for communication. The handbook for trading with Russians, which is known for border traders as the “five-yuan handbook”, is constantly very popular for almost 20 years since the opening of border areas⁶. They try to use Chinese characters whose pronunciations are similar with that of the syllables in Russian words to mark these useful words and expressions. However, due to different phonological systems between Russian and Chinese, the pronunciation of these words have to make some change when they are “borrowed” into Chinese aiming to adapt to the Chinese phonological system. There are mainly two characteristics of the change in order to reflect the pronunciation with similar syllables by using Chinese characters. One is to replace phoneme and the other is to add or cut phoneme. The examples below are collected from the field work in Heihe and Manchuria. In addition, it is also refers to the handbook for border traders.

REPLACE PHONEME

It is known that the vowels and consonants in Russian language differ from those in Chinese, although in certain phonetic positions they are similar. Because some of the Russian phonemes do not exist in Chinese, without having formal training of Russian pronunciation, Chinese businessmen try to imitate these sounds that model on the nearest appropriate vowel and consonant sounds of Chinese.

Here are some examples to show how they learn these Russian words in the form adapted to the Chinese phonological system:

- Alveolar trill [r] ([p], commonly called rolling ‘R’), in most consequences, is replaced by the side tone [l]. Majority of the Chinese have problem in rolling ‘R’, because it doesn’t exist in Mandarin. For example: [lu-bu-li] instead of [ru-bl’] (рубль, ‘ruble’), [ha-la-so] instead of [ha-ra-sho] (хорошо, ‘good’), [de-lu-ke] instead of [d’ruk] (друг, ‘friend’), [da-luo-gu] instead of [da-ro-gu] (допустить, ‘let me pass’), [la-si-mie-le] instead of [ra-zmer] (размер, ‘size’);

- Labiodental consonant [v] (in Russian [в]) is usually pronounced by Chinese on boarder areas like the bilabial consonant [w], due to the lack of labiodental consonant [v] in Chinese. For example: [jie-wu-si-ka] instead of [de-vu-shka] (девушка, ‘girl ‘lady’),

⁶ based on the interview with residents in Manchuria

[ao-bu-wi] instead of [o-bu-v’] (обувь, \shoe’), [da-wa-lei] instead of [da-va-ry] (товары, ‘goods’);

- consonants [sh] [sh’] [ch] (in Russian [ш], [ш’], [ч]) is usually switched by using [s] [s’] [c’], because of the dialects on these areas in China, that they do not distinguish from [sh] to [s], from [ch] to [c’]. For example: [ha-la-so] instead of [ha-ra-s ho] (хорошо, ‘good’), [d i- se- w u- le] instead of [d i- s he- vle] (дешевле, ‘cheaper’), [da-va-li-si] instead of [da-va-rish’] (товарищ, ‘comrade’), [ou-c’en] instead of [o-chen’] (очень, ‘very’), [ha-c’u] instead of [ha-chu] (хочу, ‘(I) want’), [ba-c’e-mu] instead of [pa-che-mu] (почему, ‘why’);

ADD OR CUT PHONEME

On border areas of China, many businessmen use Chinese characters to write down these Russian words reflecting similar syllables in pronunciations. In the process, they need to add or cut some phonemes, especially the vowels to write down the Russian in Chinese hieroglyphs. Because Chinese syllable structure is quite different from that of Russian language. In Chinese language, most hieroglyphs are monosyllabic and every word is usually made up with two or three syllables, in contrast, in Russian, every word is polysyllabic. Adding or cutting phoneme is a way to make up a syllable of a Chinese hieroglyph. For example, [hle]p], by cutting consonant [h], is usually pronounced like [lep], which means bread in Russian; [do-lla-r], by cutting consonant [r], is usually pronounced like [do-la], which means American dollar in Russian language; [yo-gurt], by cutting consonants [r] and [t], is usually pronounced like [yo-gu], which means yogurt; by adding vowel [e], it is usually pronounced like [de-lu-ke] instead of [d’ruk], which means ‘friend’ in Russian language); by adding vowel [u], ‘wholesale’ in Russian is usually pronounced like [o-pu-do-mu] instead of [op-dom].

Now in Russian-Chinese border areas like Heihe, Suifenhe and Manchuria, it is still the most easy and convenient way to gain some basic knowledge of Russian language, especially for the tourists who go to visit some border cities in Russian, like Vladivostok and Blagoveshchensk. During the 20 years since the opening of Chinese-Russian border trade and border areas, Chinese vendors and businessmen during their interactions with Russians have learnt to speak some essential Russian language for trade and

can do business with Russian people.

FREQUENT USED WORDS AND EXPRESSIONS

When it comes to the words and expressions which are used by the Chinese, they are very limited and are used only for trade. It is obvious that when people do business on boarder areas, most of their talks are matters of trade. So there are some frequently used words and expressions in these areas. These words are of importance for doing business with the Russian, so the Chinese vendors and businessmen on border areas can quiet successfully grasp these words and expressions. Initially they did not learn to speak and use these words through the standard Russian language instructions. During my interview with these Chinese businessmen, they mentioned that they all learnt the Russian language by themselves with the help of a handbook of fundamental Russian language. This handbook is well-known on border areas as the ‘wu yuan shou ce’ (‘five-yuan’ handbook) and enjoys the popularity for almost 20 years since the opening of border trade between Russia and China⁷. In this handbook, it introduces the most frequently words for everyday life and trade in Russian and uses the Chinese characters to show the pronouncing of these words, in order that without any knowledge of Russian language, the Chinese people could also speak in Russian and communicate with the Russian people. After learning the fundamental words and expressions, they also try to know some essential words of the specific areas of the products they sell, such as the cosmetics, fur, household appliances. According to the interviews with the Chinese businessmen in these areas, they said that these words they knew through the everyday interactions with Russian people and sometimes the acquainted Russians would also teach them to read these ‘professional’ words because they can not read in Russian. Here we try to classify the most frequently used words and expressions into four groups and list some of them as the example:

To show characteristics of products:

doraga - dorogo (дорога - дорого), dyesevo - dyeshe vo (дешев - дешёво), ha los ha -ho los ho (халоша - хороша), ha los ia - horoshaya (халосия - хорошая), klasivuyue -krasivuyue (класивые - красивые), ochen’ haloshe kacestva (очень халосе качества), bol’se (больше), min’se (меньше), chisda

⁷ Lin Xia & Quan Wenzeng, *Eyu zi xue ru men*. Harbin: Heilongjiang Chao Xian Min Zu, 1992

CONFUCIUS INSTITUTE: The Culture Bridge between China and the World

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INTRODUCTION

With a history about 5000 years, Chinese culture is an important part of the treasures of world civilization. Nowadays, the global culture is diversified. But the situation is that Chinese history and cultural product is really limited worldwide, and people around the world may only know a little about Chinese traditional and modern culture. Therefore, to set up the communication between Chinese culture and the world is important, and it is also responsible for China to spread its culture and promote the diversity of world civilization. Language is the carrier of culture. It is an efficient way to disseminate Chinese culture and communicate with the world by language teaching and cultural exchange. In addition, with the fast increase of Chinese economy, more and more people are interested in Chinese language learning. Confucius Institute is born under this background. As the leading brand in Chinese language teaching as a second language, the Confucius Institute has ignited another global wave of enthusiasm in Chinese culture.

INTRODUCTION TO CONFUCIUS INSTITUTE

As China's economy and exchange with the world have seen rapid growth, there has also been a sharp increase in the world's demand for Chinese learning. Benefiting from the UK, France, Germany and Spain's experience in promoting their national languages, China began its own exploration through establishing non-profit public institutions which aim to promote Chinese language and culture in foreign countries in 2004: these were given the name the Confucius Institute.

Non-profit Educational Institution

Instead of being an ordinary school, the Confucius Institute is a non-profit-making-public-welfare institution involved in the dissemination of Chinese culture and cultural exchange. It is always under educational institutes like foreign universities or graduate schools. It is clearly claimed in *the Regulations of*

*Confucius Institute*¹ that the Confucius Institute, as a non-profit educational institute, is aimed to enhance people's knowledge of Chinese language and culture, develop friendship with other countries, promote the diversity of world civilization, and contribute to a harmonious world. Its most important work is to provide standard and authoritative textbooks of modern Chinese as well as some genuine channels to study Chinese for people all over the world.

Chinese-foreign Cooperation in Running Confucius Institute

On November 21, 2004, the first Confucius Institute in the world was unveiled in Seoul, Korea. Since then, Confucius Institute insists running by Chinese-foreign cooperation. Under the Regulations of Confucius Institute, after the foreign partner making an application, Chinese and foreign partner will sign a cooperation agreement through full consultation and set up Confucius Institute together. With both Chinese and foreign efforts, by the end of August, 2012, 400 Confucius Institutes and 500 Confucius Classrooms had been established in 108 countries and regions in the world². Confucius Institutes adopt flexible teaching patterns and adapt to suit local conditions when teaching Chinese language and promoting culture. They have become the platform of Chinese language learning and cultural communication.

Volunteer Program

In order to actively promote Chinese and improve Chinese language teaching worldwide, the Office of Chinese Language Council International (Hanban) launched the Chinese Teacher Volunteer Program to boost the spread of Chinese language and culture overseas, strengthen the mutual understanding between China and other countries and increase the friendship and exchange among all the countries. This program is one of the measures taken by Hanban

¹ http://english.hanban.org/node_7579.htm Website of Hanban/Confucius Institute Headquarters

² http://www.hanban.org/hb/node_7446.htm Website of Hanban/Confucius Institute Headquarters

to meet the current thriving development of Chinese teaching in the world, taking advantages of human resources in China as the native country of Chinese to provide Chinese teachers to countries in need all over the world³. Every year, hundreds of volunteers goes to different countries teaching Chinese. Volunteer teachers bring Chinese language and culture to the world, teach local students to study Chinese happily and quickly. At the same time, they need to learn local language, actively involved in local culture. In the mutual communication and understanding, not only Chinese language and culture will adopted by local people, but also local language and culture will come to China.

CULTURAL FUNCTIONS OF CONFUCIUS INSTITUTE

400 years ago, Confucius' theory was introduced to the west for the first time by an Italian missionary, who translated *The Analects* into Latin and brought it to Europe. Nowadays, Confucius Institute has been set up around the world. Even though using Confucius to be the name of Confucius Institute is not really mean to teach or research Confucius' theory, it takes Confucius' idea of "Within the four seas all men are brothers" and "Harmony but not uniformity" into practice. As the culture bridge between China and the world, Confucius Institute has two main cultural functions.

Culture Exchange. From the perspective of civilization, Confucius Institute is not an ordinary college, but a college teaching Chinese language and spread Chinese culture. Cultural exchange will help us learn to treat foreign people and their culture from our views and perspectives, as well as understand that foreign people and their country will conversely treat us and our culture from their views and perspectives. The value of Confucius Institute is to help Chinese civilization reach mutual communication and understanding with other civilizations around the world. The ultimate goal of Confucius Institute is making China and other countries to evaluate each other equally with same attitude, thus accepting and knowing each other's civilization, and finally may reach a universal harmony. In order to fulfill this dream, culture exchange is especially important. Ji Xianlin, the world famous linguist, paleographer, historian

³ http://english.hanban.org/node_9802.htm Website of Hanban/Confucius Institute Headquarters

and philosopher, the only one who was honored the lifetime professor by Beijing University, maintained that "Cultural exchange is the main drive for mankind's progress. Only by learning from each other's strong points to make up for shortcomings can people constantly progress, the ultimate target of which is to achieve a kind of Great Harmony"⁴. He also claimed that "Culture has its nationality and epochal character. A nation creates its culture and develops it as time goes on, then it becomes the nation's traditional culture. It's culture's nationality. A nation creates its culture. In the process of development, it communicates with other nations, absorbs their culture and mixes them together. It's culture's epochal character. Culture's nationality and epochal character is the unity of opposites and none is dispensable. Inheriting the traditional culture is to keep culture's nationality; communicating with other civilization and absorbing foreign culture is to keep culture's epochal character"⁵. Confucius Institute is playing such an important role of culture exchange and communication.

However, with the fast growth of Confucius Institute around the world, there emerges suspicion of Chinese cultural invasion. Different misunderstandings of Confucius Institute appear, most of which are related Confucius Institute to political purpose. Despite the fact that Confucius Institute is guided by National Hanban, it is a non-profit organization which aims to provide Chinese language learning opportunities for people all over the world, preserves the diversity of world civilization, and promotes dialogues between different civilizations. If we know that lack of communication among people leads to misunderstanding, it will be easy for us to understand that lack of communication among countries leads to misunderstandings and cultural bias as well. It's like a kind of prisoner's dilemma and communication is the best way for them to reach the best result finally. So, the better intercultural communication we have, and the more we know about other countries, the less misunderstandings there will be.

Develop and Inherit Chinese Civilization

Cultural dissemination and communication are key factors affect the development of Chinese civilization. Without cultural exchange, it's impossible

⁴ "Ji Xianlin: A Gentle Academic Giant", china.org, August 19, 2005

⁵ 季羨林: 东学西渐与“东化”, 光明日报, 2004-12-23

for Chinese civilization to develop with other civilizations and integrate with time and the world. Thus culture exchange and communication has become a way for Chinese civilization to enhance itself. "The river of Chinese civilization has kept alternating between rising and falling, but it has never dried up, because there was always fresh water flowing into it. It has over history been joined by fresh water many times, the two largest inflows coming from India and the West, both of which owed their success to translation. It is translation that has preserved the perpetual youth of Chinese civilization."⁶ Translation is a kind of cultural exchange, which spread one culture from a country to another. Confucius Institute, as a Chinese language teaching institute and culture exchange platform, not only spreads Chinese language and culture to the world, but also preserves the traditional Chinese civilization and develops it with time and the world. Because of culture exchange were Papermaking and Compass introduced to the west, thus promoted the process of modern western civilization. And because the world need culture exchange and communication that printing, library, Internet and electronic media were invented. Without culture communication and storage, there will be no heritage and development of spiritual world and human civilization.

China enriches its own culture as well as spreads its culture to the world by Confucius Institute. This kind of enrichment is the fruit of the sparks by the collision among different civilizations. The process of culture collision, consciously or unconsciously, spreads Chinese own culture and affects itself by other civilizations. The two-way cultural transmission process will eventually produce global harmony.

CONFUCIUS INSTITUTE'S FUTURE DEVELOPMENT

In December, 2012, the 7th Confucius Institute Conference was hold in Beijing. Presidents and representatives of universities and Confucius Institutes from 108 countries and regions attended the Conference. Several main topics and projects about the development of Confucius Institute were discussed. Here is a brief introduction to two of them next, and to some extent they represent the future development of Confucius Institute.

Topic of Promoting Confucius Institute's Integration into Local Universities and Communities

Liu Yandong, president of council of Confucius Institute Headquarters, claimed in her speech that Confucius Institute should make characteristic development according to local cultural tradition, local students' feature and multiple needs. Right now Confucius Institute should focus on enhancing the teaching quality by improving level of teachers, standard textbooks and teaching methods. Emphasizing on the quality will be the main tendency of Confucius Institute's future development. Today, 300 Confucius Institutes have made their own special development plan, for example, Confucius Institute of University of Michigan in America pays more attention to business and Traditional Chinese Medicine, while Suez Canal University in Egypt focus on the combination of Chinese teaching and vocational training, in order to cultivate professionals for local companies⁷.

Confucius China Study Plan was a hot topic in the Conference. This plan is set up by Confucius Institute Headquarters. The majority of financial support is provided through support of specific research and other projects to foster deep understanding of China and the Chinese culture among young elites from around the world, to enable the prosperous growth of China studies, to promote the sustainable development of Confucius Institutes, and to enhance the friendly relationship between China and the people of other countries. The Plan consists of six subprograms. The majority of financial support is provided through support of specific research and other projects on designated academic areas of Humanities and Social Sciences⁸. Through this plan, the culture education of Confucius Institutes will no longer be simply making dumplings, playing martial arts and lion dancing. It will set up a Chinese Teaching Model based on research-oriented education, expand Chinese teaching and research scope. Thus help students overseas study Chinese history, philosophy, economy and so on. Definitely reaching this goal will take quite a long time.

⁷ <http://www.chinese.cn/conference/7/> Website of the 7th Confucius Institute Conference

⁸ <http://ccsp.chinese.cn/> Website of Confucius China Study Plan

CONCLUSION

Jiang Zhiruo, the chairman of China Institute, describe Confucius Institute in her own experience, "Once, I travelled China with some American educators and got a phone call from my son, who is an high school student. He told me that their Chinese teacher taught them a poem: and he told us every year there were millions of Chinese student learning and reciting it. My son was really shocked, because he realized that he was just having the same experience with Chinese children. This formed a clear picture in my head: through Confucius Institute, we build up a language and culture bridge for the whole world"⁹.

窗前明月光，疑是地上霜；
举头望明月，低头思故乡，

Just like Jiang's description, Confucius Institute is building a culture bridge between China and the world. It enhances people's knowledge of Chinese language and culture, develops friendship with other countries, promotes cultural dialogue among different civilizations, preserves the diversity of world civilization, and contributes to a harmonious world. However, since it is the early stage of Confucius Institute's development, and the fact that it grows a little too fast, there are some problems and misunderstandings about Confucius Institute. But I believe, with time goes on, Confucius Institute will have a better development, show the world its friendliness and play a better cultural bridge between China and the world.

⁹ <http://gb.cri.cn/27824/2012/12/17/3245s3960689.htm> CRI Online

WOMAN AND IDENTITY: The perceptions of African women on the concept of motherhood

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Abstract: This paper seeks to evaluate the perceptions of women on the concept of motherhood in the Ndebele (African) society. Most African female writers assert that motherhood is a role that one cannot be excused from. Women may try to liberate themselves emotionally psychologically and physically from any preconceived bondage but they will not succeed in truly being free. This is because “man is not born free”. It is the chains that he is born in that define mankind. One’s culture defines who one is. Thus African women are defined by their role as creators of life, nurturers and care givers, in essence motherhood. However it is not all African women who embrace this concept. The idea of motherhood has changed over time and this paper seeks to explore this change. Socialisation prepares women for the motherhood role, amongst others. This role traditionally occurs within a marriage. However, with rising divorce rates single mothers (the latter through divorce or choice not to marry) represent a force to be reckoned with. This paper will also discuss the different roles women have and how these roles relate or compete with each other. Motherhood has been the predominant framework of identity for women in African literature, be it from the perspective of male writers or from that of female writers. This is probably because motherhood is so closely linked to understanding African women’s lives and identities within their socio-cultural contexts. Similarly, women seem to challenge in their writings the “fairytale ending of the children, success and happiness” prevalent in the writings of men. For women who write identity and “motherhood [become a] site of struggle”, with motherhood often interwoven with or presented as an intrinsic or shifting component of women’s identity. The paper will analyse women and motherhood in the African society with particular reference to the Ndebele women using the socio-historical approach. However the researcher will also draw on some aspects of Africana womanist theory as this is theory will enable the writer to analyse the gender roles in

Ndebele society as separate but complementary. The theory is a constellation of Afrocentric alternatives to western feminism by African women scholars such as Clenora Hudson Weems a professor at the University of Missouri Columbia and author of *Africana Womanist Literary Theory* (2004) and Molaria Ogundipe-Leslie (1994). This is an ideology that was created and designed for women of African descent and is grounded within African culture. Hudson Weems’s concept of *Africana Womanism* is firmly rooted in Afrocentric ideology and therefore draws from the strength of this ideology in rejecting the marginalization of black people in Western episteme and in promoting a mode of thinking and living that unapologetically challenges Western hegemony, particularly in cultural and intellectual contexts. *Africana Womanism* is the only gender theory so far, that allows one to analyse the gender roles in African societies without distorting their cultural contexts as well as labeling or tagging men as the enemy like Radical feminism.

INTRODUCTION

This paper evaluates the perceptions of women on the concept of motherhood. Like P’bitek, the Ndebele female writers assert that motherhood is a role that one cannot be excused from. Women may try to liberate themselves emotionally psychologically and physically from any preconceived bondage but they will not succeed in truly being free. This is because “man is not born free”. It is the chains that he is born in that define mankind. One’s culture defines who one is. Thus African women are defined by their role as creators of life, nurturers and care givers, in essence motherhood. However it is not all African women who embrace this concept. The idea of motherhood has changed over time and this chapter explores this change. Socialisation prepares women for the motherhood role, amongst others. This role traditionally occurs within a marriage. However, with rising divorce rates single mothers (the latter through divorce or choice not to marry) represent a

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Motherhood has been the predominant framework of identity for women in African literature, be it from the perspective of male writers or from that of female writers. This is probably because motherhood is so closely linked to understanding African women’s lives and identities within their socio-cultural contexts. Similarly, women seem to challenge in their writings the “fairytale ending of the children, success and happiness” prevalent in the writings of men. Ogundipe-Leslie in Nfah-Abbenyi (1997:36) has shrewdly, though sarcastically, noted that “the way African writers enthuse about motherhood, one wonders if there are no women who hate childbirth or have undeveloped maternal instincts.” And Mariama Ba in Nfah-Abbenyi (1997: 36) aptly states that,

As women, we must work for our own future, we must overthrow the status quo which harms us and we must no longer submit to it. Like men, we must use literature as a non-violent but effective weapon. We no longer accept the nostalgic praise to the African Mother who, in his anxiety, man confuses with Mother Africa. Women have a place within African literature, the place due to them on the basis of their participation-side by side-with men –in all phases of the liberation struggle, and their contribution to economic development. But women will have to fight for that place with all their might.

For women who write identity and “motherhood [become a] site of struggle”, with motherhood often interwoven with or presented as an intrinsic or shifting component of women’s identity. According to Nfah-Abbenyi (1997: 39) Motherhood is so ingrained in women’s psyche that the alternative to the loss of a child is the loss of self, of gender and of identity. The woman’s body has no *raison d’être* when it cannot fulfil its procreative function. The woman’s body is terrain on which patriarchy is erected. That is why she has argued for motherhood to be an experience of choice for women, not an institution.

GENDER ROLES IN NDEBELE SOCIETY

There existed a complementarity between male and female roles in pre-colonial African societies

(Van Allen, 1975 in Hay and Sticher, 1984) and it is during and after colonisation that the downfall of the African woman from a position of power and self-sovereignty to becoming man’s helper occurred. In the pre-colonial period, the family division of labour was less conflict ridden than in later times. Older and young people’s roles were accepted largely without question since such roles were supported by the ethnic myth of creation. Women are thus presented as the domestic figures. They were responsible for the homestead, food-crop production and the care of the children. It must be noted that most scholars refer to the care of the children and very few highlight child bearing. Child bearing is also an important role women were given both by nature and society, considering that the Ndebele society put an emphasis on family development.

Men were responsible for protecting the home, for hunting and caring for the cattle. Since the Ndebele people were a militant society the men were also expected to be warriors. This does not mean that they did not partake in the planting of crops. The men did the harder physical work like clearing the fields, and tended the more permanent food crops such as maize, Nyathi (2002:9). According to cultural beliefs misfortune would befall any adult who attempted to do the work of another sex. Children were also groomed from a tender age to maintain their gender roles. They were not over worked but were expected to contribute through performance of age and sex appropriate tasks.. The imposition of colonial rule led to a variety of changes in the division of family labour. Although the impact was not uniform for all Zimbabwean ethnic groups, even in one country, changes were quite similar between Ndebele and Shona society.

The Ndebele society uses mythology, oral narratives and proverbs to legitimise gender roles. The fertility myth was very important to the Ndebele people because children were very important in Ndebele society. They were so important that husbands were allowed to marry a number of wives to guard against being childless. Even to date, a childless marriage is thought of as a troublesome one since the institution of marriage seems meaningless without children. In situations where a woman could not bear children for her husband, as mentioned before, arrangements to have other wives were amicably made. For example, when a woman was barren a second or third wife was

brought into the marriage with her full consent. In some cases she was even allowed to marry a wife who would bear children on her behalf, this woman was referred to as “umthanyelo” [the broom]. This was because she would literally sweep issues of bareness under the carpet by bearing a child for the woman. Only in a few cases did the man make an independent choice of bringing another wife without consulting his elder wife.

It is even better if among the children there are sons. In fact the status of a woman improves if she has children, and this becomes yet more elevated if she has sons. This means that, in situations where a couple fails to have any children for various reasons, many problems are faced (Onyango, 1984:60). For example when a man had realised that he could not have children in the traditional Ndebele society, he accepted his limitation and arrangements were made secretly with his full consent for his wife to have children either with a close relative or a friend whom he trusted would not let him down by either divulging the arrangement or taking his wife from him. If the wife was the one with the problems arrangements were made as mentioned earlier.

However, Masuku (2008:81) argues that procreation did not have the same value for both sexes. It was more advantageous for the man, she believes, because by having numerous children the African man is safeguarding his wealth, as he will beget people who will work for him and safeguard his wealth. He who has many descendants has the strongest possible manifestation of immortality, he is “reborn” in the multitude of his descendants, and there are many who “remember” him after he has died physically and entered his “personal immortality”. Such a man lives on the concept that “the more we are, the bigger I am”. This however is in contradiction with Molefe Asante’s (2003:2) theory on African philosophy that “I am because we are, so if we are therefore I am”. This theory shows an inter dependence ideology of the sexes, therefore both sexes benefit equally from procreation.

Ngcanga (1987:5) confirms that marriage enhances the status of both men and women in the community. It gives them new rights and a measure of respect. Once a woman gives birth to her first child, her social status changes. She enters motherhood and she is considered to have fulfilled the main

function of marriage and that gives her recognition in society. Fertility therefore becomes the backbone of marriage. One can therefore deduce that, in Ndebele society child bearing not only enhanced the woman’s social status but also secured her marriage. A barren woman is regarded as incomplete. Pottow (1990:145) attests that

Childlessness is a great affliction for a married woman and her own people. It means she cannot from a uterine grouping (kwethu-a “house”) which constitutes an economic unit and assures her comfort in old age when her daughter in-law take care of her. Secondly, having children who grow to maturity also assures the perpetuation of her house and, thus, her status as an ancestress in the life hereafter. The first child is especially important, for no marriage is considered complete before a child has been born. If a wife is barren or dies before she has borne children to the husband, the husband can reclaim lobola.

Granted the society did not discriminate in the failure of conception but, the way it resolved the problem led to gender discrimination. The husband’s infertility was never advertised or made public. This is because society feared it would lower his status and he would lose respect amongst his peers. Arrangements were always made secretly such that the end result would be considered his effort. On the contrary, a woman’s infertility was dealt with in the open, made a public and at times a societal affair. Leaving the woman to be at the mercy of the society and her in-laws, being labelled and always reminded of her failure as a woman.

In as much as the woman chosen to bear children for her would have no authority or claim over the children, the knowledge of her infertility put her in a vulnerable position. Thus in this case she was considered a second class citizen. The problems faced by couples who cannot have children nowadays are many. For the most part men tend to blame women for infertility even before consulting modern physicians. Often men marry other wives without consulting the first wife. Hence marriages often suffer, leading at times to suicide attempts or dissolution of the marriage. In the African context, motherhood is a responsibility shared with the extended family and includes mothering other children in the community. Motherhood further carries the role of fostering

racial or ethnic identities to the mothers’ children. In Zimbabwe it is quite common that the children of domestic workers are reared by their grandmothers while they take care of their employer’s children, who are of different racial groups in most instances. However, the Western cultural view defines motherhood within the nuclear family context. The question remains: are women socialised differently for motherhood, and do they develop distinct personality types or other coping strategies because of differing cultural or racial backgrounds?

SOCIALISATION: A TOOL FOR DEVELOPING GENDER SPECIFIC SOCIETAL ROLES

Since gender as opposed to sex, a biological given is by definition the meaning given to femaleness and maleness, being a woman and being a man will necessarily vary from one social context to another (Fidela Fouche, 1994: 79). It was generally accepted that oral narratives were by women in the African society. Canonici (1995:19), comments that, at the centre of this world is the grandmother, the performer par excellence, for ever ready to entertain her young charges and to impart to them the wisdom that life has taught her. As if driven by intimation of her morality and getting ready to join the ancestors of the clan, she is able to reflect on the life lessons and to transform them into bold images that will remain impressed in the memory of her audience. She is the living tradition, the link between generations, between the present, the past and the future, between the living and the living dead; the ancestors of the clan and the tribe.

Grandparents treasure storytelling, sharing their history and playing games with their grandchildren leaves deep mental imprints on young minds whilst passing on valuable life lessons. This is one form of socialisation. It is defined as a process by which each generation passes along to its children the knowledge, beliefs and skills which constitute the culture of the social group (Etaugh & Bridges, 2004). The older generation, such as parents and siblings, and institutions such as schools, churches, peers and media, transmit this information so as to shape young minds regarding what is expected of them. This socialisation occurs in the belief that adult psychological development involves an accumulation of experience which is crucial to the way individuals act (Nicolson, 1996).

Mothers use their childhood experience and positive or negative role models in raising their children

(Daly, 1993), running their families and making related decisions regarding their adult lives. Research also indicates that children show less stereotyping in their activity preferences if their fathers are highly involved in sharing child care and housework and if their mothers frequently engages in traditional masculine work (Etaugh & Bridges, 2004).

The consequence of this patriarchal society socialisation for professional women is that certain aspects of their beliefs about gender are becoming increasingly difficult to sustain (Nicolson, 1996; Parasuraman & Greenhaus, 1997). Transformation in the structure of work, alterations in the economy, the labour force and fundamental changes in gender roles, families and the life course, all mean that conventional views of careers are no longer absolute (Moen & Han, 2001). Also, there is still an underlying expectation by society that women merely supplement household expenses whilst their husbands occupy valued roles as breadwinners in the family, even if the former bring in more money (Hochschild & Machung, 1989; Magezis, 1996; Redelinghuys et al., 1999).

Women feel over-obligated towards their families owing to their traditional upbringing. What worsens the situation for women carrying household responsibilities is the fact that they view these as a personal service to those they care most about and not merely chores (Jackson, 1997). This notion correlates with Dublin’s theory of Central Life Interests, which relates to an individual’s expressed preference for carrying out an activity in a particular domain. It further stipulates that the individual attaches’ emotional significance to the situation since it embodies both physical and intellectual activities. This links to the earlier point that certain roles bestow a social status and recognition which affirms individuals. In line with this discussion, the father’s limited involvement could be explained in terms of patriarchy which advocates constricted gender roles, maternal guilt and family-hostile career structures (Campbell, 2002). The sense of liberty that men exercise concerning the amount of family responsibility with which they can get away is interpreted as such within a patriarchal society. Perhaps, it serves to justify a conscience that seeks to explain societal injustice based on an outdated patriarchal system which is stuck in the hunting and gathering era despite modern socio-economic dynamics.

However, it seems that with socialisation carried out appropriately by the family and other institutions, women enter their adulthood with certain skills in facing the challenges ahead. Instances of female subordination as a result of tradition and culture feature prominently in most African narratives. This concern is buttressed by Ogundipe-Leslie (1994) who identifies traditional structures as one of the mountains on the back of an African woman. It is fostered through the gender socialisation process which connects macho strength and heroism to males and associates the traditional roles of wife and mother to females.

MOTHERHOOD

An important role within the family institution that has been impacted greatly by the changing role of women is the role of motherhood. It is considered as the most valuable contribution a woman can make towards her society. This concept is not unique to Ndebele society. Nigerian societies also embrace this notion. Emecheta (1998) suggests that traditional societies offered numerous opportunities to women that have been denied to them in modern Nigeria, which is also influenced by European ideas that in many cases are detrimental to women. P'Bitek (1986:19) asserts "man is not born free. He cannot be free. He is incapable of being free. ... Man has a bundle of duties which are expected from him by society, as well as a bundle of rights and privileges that society owes him." The term "man" in this context refers to both sexes as human beings and members of a society. Hence motherhood is one of these duties that is expected from an African woman. Tswana societies from Botswana also embrace this role, according to Sibonile Ellece (2012: 89)

"Procreation is constructed as a necessity rather than a choice. ... the choice to have children does not lie with the newly married couple. The couple's own role is to fulfill the social requirement to have children. The compulsory motherhood discourse articulated in the [SeTswana] chant is how patriarchy revises and revitalises itself by compelling women to ensure the continuation of their husband's progeny."

Individuals derive identity from the status they occupy, which they view as descriptive of themselves (Thoits, 1995). Socialisation prescribes the expectations and roles to which individuals should conform.

Insofar as women are concerned, these expectations attempt to answer questions such as whether the sense of being a woman is based on biological traits or is derived from one's culture (Magezis, 1996). Motherhood results in major consequences (Nicolson, 1997) since society views it as one's passage into adulthood. This is in recognition of a woman's biological capacity and socialization into the female role (Magezis, 1996; Nicolson, 1996; Nicolson, 1997).

In most cultures women are defined in terms of their parenting status which represents society's perspective on reaching the peak of femininity (Yoder, 2007). Perhaps this resonates well with Apter (1993) who maintains that femininity is encapsulated by the maternal instinct which is based on the myth that, firstly, all women possess a biological drive towards conceiving and bearing children. Hence women are expected to be available at all times and to care for their young children's needs (Russo, 1979); secondly, that the biological drive is a precursor towards nurturing children; and thirdly, that the skills and capabilities required to care for infants or children emerge or evolve immediately after birth without the need for training.

Reitzes and Mutran (1994) contend that patriarchy accords motherhood a mythological, mysterious and famous status. This role gives women a framework which develops their sense of who they are and of the purpose of their existence. Motherhood demands that women be selfless, defining themselves in relation to others instead of creating a sense of themselves (Magezis, 1996; Nicolson, 1997). Also, since only women are granted this status, it is one to which all women are expected to aspire (Nicolson, 1997).

As Magezis (1996) contends, some feminists maintain that the attitude of culture and society towards women reflects the ecosystem they live in. Consequently, since capitalism dominates, women's reproduction is linked to the production of new labour. Predominantly, mothers are viewed, according to Yoder (2007), as spending their time fully engaged in domestic duties making the family their sole job. She is always there and constitutes the core of the family. The phrase 'pregnant and bare footed' best captures this description and what is expected of a housewife or women in general. However, whilst this offers men time, moral support and comfort in pursuing their careers, the risks are higher for women who are forced

into depending on their partners for financial sustainability, thus risking losing their independence.

However, this line of thought glorifies motherhood. It falls short of locating motherhood as a challenge, although potentially enjoyable, which is also hard work and routinely stressful (Etaugh & Bridges, 2004; Liamputtong, 2007; Magezis, 1996; Richardson, 1993). Nicolson (1997) points out that what women do and social beliefs about what women should do are sometimes at odds with each other. He argues that motherhood and womanhood stand in a complex and contradictory relationship with one another although this situation appears to be changing.

Motherhood, perhaps more than any role in society, has been invested with ideological meaning and cultural significance (Bassin, Honey & Kaplan, 1994; Braverman, 1989; Glenn, 1994; Parker, 1997). The meaning and significance attached to motherhood are not universal. In different contexts, different sets of expectations and preconditions are associated with motherhood (Collins, 1994). In contemporary western society, motherhood has acquired a very special significance. Not only is it regarded as the ultimate goal for all women in this society (Llewelyn & Osborne, 1990), the role itself has been so rigidly circumscribed and bounded that authors frequently refer to "the myth of motherhood" (Braverman, 1989:244; Glenn, 1994:9; Thurer, 1994) and "the fantasy of the perfect mother" (Chodorow & Contratto, 1982; Price, 1988:17) to describe the expectations and requirements that are associated with motherhood. Women are expected to find fulfilment and satisfaction in the role of "ever-bountiful, ever-giving, self-sacrificing mother" (Bassin, Honey & Kaplan, 1994: 2).

Within different traditions of feminism it has been emphasised that although theoretical paradigms can help women to locate individual experiences and to relate these experiences to each other, the danger exists that these paradigms can remove women from individual experiences, instead of illuminating them. It is emphasised therefore that feminist psychologists should continuously explore and understand how women are experiencing motherhood and why. Bassin et al. (1994:2) state that "the mother's subjectivity, her ability to reflect on and speak of her experience, has become an important ingredient in altering myths and changing social reality". The expectation

is that if women's own experiences of motherhood are foregrounded in their own stories of being mothers, it will be found that, contrary to the powerful western myth of motherhood, women very often have intensely ambivalent feelings about motherhood.

Most women in the post-independent Zimbabwe have the "cultural" freedom of fertility. This is to say they are able to decide when they can conceive, or if they want to conceive at all. However this freedom is culturally attained but not freedom of "society". For, society refuses to change even when culture has adapted. While the social implications of women's ability to control their fertility cannot easily be overstated, there are also important implications for women, particularly career women.

Since many women may be delaying the birth of the first child until careers are well established, most of them are likely to return to the labour force very quickly, if they leave it at all. The resulting segment of well-educated and affluent two-worker families may choose to spend as little time as possible on activities that represent merely "custodial care" of the home or the children. Instead, they will try to devote as much time as possible to activities that provide rewarding family interaction.

Women from the various ethnicities living in Bulawayo noted that society expected them to reproduce up to menopause and viewed fertility as the life brand that gives each group its desired existence. According to Rumbidzai (27), "a woman is not a citizen until she has produced to the satisfaction of the society. One gains respect from society by the number of children one has brought into the world. It does not have to be one, two, three or four but (kusvikira nyoka dzazorora) [should last up to menopause]". The value attached to fertility has further been highlighted by Nomsa (40), an Ndebele who observes that, "fertility among the Ndebele is highly revered. It is a duty one cannot shirk."

While motherhood is still central to women's identity, recent demographic changes appear to suggest that motherhood alone no longer dictates the pattern of women's lives and may not be such a popular choice for women as it once was (Church & Sommerfield, 1995). The availability of contraceptives has made it easier for women to take control of their own fertility (Coopers & Lewis, 1993; Ma-

gezis, 1996; Nicolson, 1997) and decisions relating to motherhood. According to Coopers and Lewis (1993) couples who postpone parenthood until they have stable careers are better at handling competing demands and can afford quality childcare. According to Fouche (1994:81)

The myth of the commonality of the motherhood experience is really an attempt to concretise the sisterhood myth. Being a woman is often especially among African women-associated with being a mother and those who aim at uniting women as sisters often appeal to women's common experience as mothers. neither being a woman nor being a mother has the same meaning cross culturally; women of different races and classes usually lack a common aim and have different loyalties and a different concept of motherhood.

Closely related to this is the exploitation of the role of women as mothers as opposed to being individuals in their own right. As a result the woman views child bearing and childrearing as a "duty" and not an individual decision. This is because a woman's personal identity within African Culture is tied to her role within the family. When faced with difficult social and personal choices, such a woman is tacitly trained to obey the rules by making a choice based on others' needs and aspirations over her own. This means that, within the society of family structure, the woman would be expected to sacrifice motherhood to save the economic budget of the family.

Motherhood is presented as having ambiguous rewards by African women writers. Emecheta (1994) traces gender inequality in the Igbo society as hinging on the tenets of the gender socialisation process, customary and traditional practices. In *The Joys of Motherhood*, motherhood is the source of not only Nnu Ego's greatest joys but also her greatest defeats. As a girl, she is taught that her sole functions are to bear and raise children. Her initial struggle to conceive and her utter self-defeat when she is unable to exemplify how strongly she believes in this uniquely female destiny that her culture has prescribed. The idea of motherhood informs her fantasies and her dreams. Yet when Nnu Ego actually becomes a mother and struggles to raise her growing family, her idealism begins to change. Nnu Ego ultimately regrets having so many children and investing so much of her life in them since they seem to have little con-

cern for her well-being. She forces herself to accept a vision of motherhood that has been radically modified from the ideas she once cherished. Instead of an honoured and revered figure, Nnu Ego becomes a sacrificial lamb, one who gave to her family selflessly while receiving little, if not nothing, in return.

The pervasive image of the child in *The Joys of Motherhood* represents the destiny and supposed common goal of Ibo women. Children represent a complement to a woman's identity, and her life is viewed as incomplete or unjustified unless she has had children. The child is consistently and idealistically portrayed as an image of completion and female self-fulfilment. These abstract notions of motherhood and its attendant joys inform Nnu Ego's early years. Her dreams are haunted by visions, including images of babies in peril or children being taken away by her chi. Nnu Ego conjures fantasies of kidnapping Amatokwu's son and running off to raise the child alone in bliss. As the novel progresses, the iconic significance of the child, changes. Children are still viewed as a delight, but they are also a source of agony and deep emotional pain. When Nnu Ego slowly strips away her illusions about motherhood and her unrealized expectations, she is left with the unadorned reality of her life as it is, not as she wants it to be.

The Ndebele writer S.O Mlilo in the novel *Lifile* (1975) presents the roles of women in the colonial era in the light of the changing socio-economic environment. In the novel Mlilo describes in detail how the transition period affected African girls, particularly the protagonist *Lifile*, with the introduction of industrialisation. S.O Mlilo draws apt lines between the tribal social decline and the rise of cities at the time.

In *Lifile*, Mlilo addresses the hardship faced by women in the cities, but she is silent about the root cause of these problems. This silence is probably a result of the then prevailing laws of writing and publishing in Zimbabwe and not an oversight on the part of the writer. Veit Wild (1992: 246) says that the majority of authors writing in the vernacular and published through the literature bureau were prevented from writing about political issues. Although the main cause of the denigration of morality amongst women in the urban cities was a direct result of the oppressive political laws in Zimbabwe, Mlilo could not mention this in her works of art.

As a result the majority of the isiNdebele and Shona writers were constrained and repetitive in theme and style, focusing their fictions mostly around the ever recurring themes of cultural clash and moral decay in the cities. S.Mlilo is sensitive to the precarious nature of the changing Ndebele society. However in as much as the writer reveals her consciousness of the changing society she fails to realise that the change in society creates a shift in gender roles. Therefore her female characters tend to suffer under her rigid fixation on the traditional roles of women. She presents the women in the domestic space, like most African writers, Mlilo's women are concerned with collecting firewood, cooking, cleaning and marriage which puts them in the domestic arena and hardly in the career field. Thus Mlilo uses the rural setting to represent the Ndebele tradition, untainted values and morality.

However, this role is shifting in the contemporary society. Women who have a career are forced to balance motherhood, marriage and work. Pillay (2007) refers to these women as "academic mothers". A survey of the literature on academic mothers shows some familiar and repeated trends. One is that academic mothers live their lives in two separate worlds and many find that they are not doing so as well as they would like to in either. In a study of 22 tenure track mothers Young and Wright (2006:6) wrote of academic mothers:

Balancing professional responsibilities with the care of children is exhausting and overwhelming under the best of circumstances. As one mother put it: "each role absorbs enormous psychological, intellectual, and emotional energy." The academic mothers in this study saw themselves as having distinct roles, each very demanding. The same study found that, the tenure process for mothers was different from that for non-mothers and that mothers were often consumed with guilt that they did not spend enough time with their children, nor were they doing what they should at work. In effect, the problem was articulated as lack of time.

Crittenden's view in Pillay (2007:31) is that the family space is the location of a different form of labour for women; what she calls emotional labour, and it is labour that hovers no matter where she might be. Home is rarely a place where women put their feet up and unwind. It is likely that, while she is in the family space, the academic mother is con-

cerned with her professional work, her emotional labour and her own desires for love and professional success, all of which have to be simultaneously negotiated, and all of which compete for the same emotional and intellectual spaces within her. Mothers with a career find themselves caught up in a web of exhaustion in Ndebele society, as most men refuse to share the household duties load. In an interview with Mary, a matron in charge of a hospital in Bulawayo, it was noted that men believe that the domestic duties were designed for the woman, thus, only she should perform them.

Mary said:

My husband is Ndebele man with a strong rural background. The ones you refer to as S.R.B's, that's right, yiyo indoda yami ke leyo [that is my husband for you]. He believes that taking care of the children or cooking is a woman's job. So even if he gets home before me, he doesn't cook, he waits for me to arrive. Tired as I might be, when I get home at around 7pm I first make sure the children are clean, washed up and all, then I attend to the cooking. Unfortunately we do not have a child minder or maid because my husband believes that it is not a necessary luxury.

In light of Mary's comment it is clear that career women have a double yoke in Ndebele society. Mary's husband has been brought up in a system that defined a good woman as one who cooked and cleaned; he has never known anything else. Hence, in his own right, he believes he cannot be condemned for his actions as he is a product of his culture. However, Hooks (2000:87) says that, like most men, women are taught from childhood that dominating and controlling others is the basic expression of power. Even though women do not yet kill in wars, do not shape government policy equally with men, they, along with male ruling groups and most men, believe in the ideology of the culture. In other words, Ndebele men are able to maintain their domineering ideology because Ndebele women regard them as the dominant figures. This is evident in that Mary does not condemn her husband for being a cultural man. Instead, she condemns him for "not helping round a bit, at home, once in a while. Of course, I do not expect him to cook every day or clean the house, I mean that would be so wrong of me; I was taught better than that." This response was given by Mary when I asked her if she expected the husband to take on some domestic duties since she is now assisting

in the providing role. This response reveals that, women, though assigned different roles to play in society based on sex, are not taught a different value system. It is the woman's overall acceptance of the value system of the culture that leads her to passively absorb sexism and willingly assume pre-determined sex roles (Hooks, 2000:87).

The Ndebele woman needs to learn to create a new value system for herself; one that does not destroy her identity as a woman within her culture but one that is flexible enough to accommodate the change in society and roles. The African womanist according to Ogunyemi (1985), redefines herself within her culture and does not deny the concepts of her culture that make her whole. At the same time she should not allow the culture to hold her hostage to a static belief within a dynamic environment. Culture was not designed to oppress its people but to protect and develop them. Feminist rhetoric pushing the notion of man as enemy and woman as victim enabled woman to avoid doing the work of creating new value systems.

CONCLUSION

Therefore one can conclude that, the presentation of the female gender is mostly sloppy and biased. Women writers who examine women also assist in endorsing an institutionalised and one-sided vision of female heroism in African fiction. Women, though assigned different roles to play in society based on sex, are not taught a different value system. It is woman's overall acceptance of the value system of the culture that leads her to passively absorb sexism and willingly assume a pre-determined sex role. Although women do not have the power ruling groups of men often exert, they do not conceptualise power differently (Hooks, 2000:87). Women's roles in child bearing, their contribution as mothers, particularly in food provisioning and household management has been to say the least, presented paradoxically. Motherhood needs not be the only defining factor of women, it should be an open space for choice as individuals.

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WHAT EVER HAPPEND TO THE SUBJECT?

A critical re-evaluation of power à la Foucault: re-thinking the human subject in today's world

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INTRODUCTION

In recent years interest in the concept of power and theories of identity formation has proliferated in publications and debates. Discourses on human identity and power have been pursued mainly from economic, political and cultural standpoints. This paper, on the contrary, demonstrates the benefits of analysing these issues from a radical philosophical perspective with an interdisciplinary approach. Although power is recognised as a global problem with ramifications in social, cultural, economic and financial issues, this work evaluates power's fundamental intersection with the processes leading to the constitution of the human subject. In re-thinking power in its relation to processes of subject formation, this paper avails itself of Michel Foucault's radical questioning of traditional conceptualizations around this topic. Foucault is the most thought-provoking philosopher in an analysis of this kind: his own work constantly revolves around discourses about power and human identity. Furthermore, as Rella appropriately claims, Foucault is 'undoubtedly the most stimulating thinker in recent years'¹. Any analysis of his ideas, which aim to 're-problematize his discourse', can 'open a series of questions —alongside those already opened by Foucault himself— even there where he has offered answers'².

After an analysis of the modes of objectification through which human beings acquire a social and personal identity, the paper will then focus on re-conceptualizing the notion of power. Power represents a potentially positive element, in so far as it not only subordinates, but also provides, the subject with the material possibility to create himself³. Foucault's

'Why study Power? The Question of the Subject' will be used as an incipit to highlight that, if separated from an analysis of power, an understanding of the problem of the subject is out of the question. Power —especially in the form of assujettissement— is neither something which simply dominates the individual from somewhere outside the self, nor is it something to which human beings submit themselves. Instead it is also a force from within the subject, which participates in this process of the formation of identity. This is in considerable contrast with traditional and mainstream arguments contended by theorists of power and power relations, as well as general public opinion. As Foucault opines, 'individuals are the vehicles of power, not its point of application.'⁴ In this sense, power can be grasped in its double and paradoxical valence, and a glimpse can be had of how subjection can be a moment in the constitution of the subject.

The significance in opening the question of the subject to our scrutiny relies on the fact that it can lead to a reconsideration of other crucial issues, such as that of power, which, as this paper argues, is a crucial component in the process of identity formation. The subject is not something already present, but rather something achieved through a process of identity formation. In other words this paper aims to unfold the processes which bring the subject into being. The main claim of this work is that an understanding of what happened to the subject is a necessary presupposition to clarifying not only what a subject is, but also the nature of power and in its relation to human beings. Any analysis of the nature of power is unsatisfactory if separated from an understanding of how human beings are turned into subjects and vice versa.

1 Franco Rella, *The Myth of the Other: Lacan, Foucault, Deleuze, Bataille*, trans. by Nelson Moe (Washington: Mouton de la Motte Press, 1994), p. 70

2 Ibid

3 For linguistic clarity, the masculine third person subject pronoun, without the feminine counterpart, will be employed when referring to the subject

4 Michel Foucault, 'Two Lectures' in Michel Foucault, *Power/Knowledge, Selected Interviews and Other Writings 1972-77*, ed. by Colin Gordon (New York: Pantheon, 1977), p. 78-108 (98)

PROCESS VERSUS PRODUCT

In his study on the relation between theories of identity and the writing processes during to the modernist period, Fordham argues that the focus of genetic criticism is not the final product (the printed text), but rather the process through which a literary text has been created. 'Favouring the process over the product' has the potential to illuminate crucial aspects of the final product⁵. In the same way as in the case of Fordham's genetic pursuit, in a genetic investigation of the nature of the subject 'ends are likely [...] to be transformed by process, and can appear in that sense subsidiary to them.'⁶ The notion of favouring the process over the product, not only 'may be becoming as intriguing as the product'⁷, but it can also be a non-teleological mode of analysis with which to better understand what happened to the human subject, which is the 'final product'. In other words, a way to understand what happened to the subject could be provided by a sort of genetic criticism, or in Foucault's terminology, a genealogy of the subject. This idea of favouring the process over the product echoes Foucault's critical methodology. In fact, Foucault is also known for his efforts to decentre the subject, in the sense that his analyses do not directly focus on the subject, but on the processes that 'brought it into being'⁸.

According to Foucault, there are 'three modes of objectification which transform human beings into subjects.'⁹ The first mode is elaborated by Foucault principally in *The Birth of the Clinic* (1963), *Madness and Civilization* (1964), *The Order of Things* (1966), *The Archaeology of Knowledge* (1969) and *Discipline and Punish* (1975). This lead him to later concentrate his efforts on how human beings 'have learned to recognize themselves as subjects of "sexuality".'¹⁰ The first mode of objectification of the subject is termed 'dividing practices'¹¹. The subject, as Foucault explains, 'is objectified by a process of division either within himself or from others'¹², and it is through this process that human beings gain a sense

5 Finn Fordham, *I Do, I Undo, I Redo: The Textual Genesis of Modernist Selves in Hopkins, Yeats, Conrad, Forster, Joyce, and Woolf* (Oxford: Oxford University Press, 2010), p. 22

6 Finn Fordham, *Op. cit.*, p. 27

7 Ibid., p. 22

8 Sara Mills, *Michel Foucault* (London: Routledge, 2003), p. 106

9 Michel Foucault, 'The Subject and Power', in Hubert Dreyfus and Paul Rabinow, *Michel Foucault: Beyond Structuralism and Hermeneutics* (Chicago: Chicago University Press, 1982), pp. 208-226 (208)

10 Ibid

11 Ibid

12 Ibid

of both 'social and personal identity.'¹³ Foucault's examples of this are: the insane and the sane, 'the sick and the healthy, the criminals and the "good boys"¹⁴. In this regard Foucault investigates the effects of the adoption of psychiatry in hospitals and other institutions during the nineteenth and twentieth centuries, as a way to render human beings objectified subjects. The spatial confinement of the insane or of criminals, as will be seen in the next section through the example of the Panopticon, is not only a social exclusion, but a way through which human beings are made subjects. In other words, it is a way of controlling the individual, even though it appears to belong to a 'distinctive tradition of humanitarian rhetoric on reform and progress'.¹⁵ This first mode of objectification therefore shows how the final product (the subject) is not something already present, but rather the outcome of a process of formation which turns him into a subject.

The second mode of objectification is what Rabinow calls 'scientific classification'¹⁶. This mode is explored by Foucault mainly in *The Order of Things*, and it emerges from 'the modes of inquiry which try to give themselves the status of sciences'¹⁷. Examples of this mode are 'the objectivizing of the speaking subject in *grammaire générale*, philology, and linguistics', and also 'the objectivizing of the productive subject, the subject who labours, in the analysis of wealth and economics. Or [...] the objectivizing of the sheer fact of being alive in natural history or biology.'¹⁸ According to Foucault, the different disciplines (of life, labour, and language) do not display continuity, but rather 'a conceptual discontinuity from the disciplines that had immediately preceded them.'¹⁹ Through this second mode, human beings undertake a process of objectification and are given a definite identity as a result of the power of social practices and institutions, where discourses of labour, life and language are located, and are reproduced in modern society.

The third mode of objectification, Foucault's 'most original contribution'²⁰, may be termed assujettissement (subjectification) and is the 'way a human being turns him- or herself into a subject.'²¹ As Seigel

13 Paul Rabinow, 'Introduction', to *The Foucault Reader*, ed. by Paul Rabinow (London: Penguin, 1991), pp. 3-29 (8)

14 Michel Foucault, 'The Subject and Power', p. 208

15 Paul Rabinow, 'Introduction', to *The Foucault Reader*, p. 8

16 Ibid

17 Michel Foucault, 'The Subject and Power', p. 208

18 Ibid

19 Paul Rabinow, 'Introduction', to *The Foucault Reader*, p. 9

20 Ibid., pp. 10-11

21 Michel Foucault, 'The Subject and Power', p. 208

explains, the 'traditional sense of subjection' is at the root of the term *assujettissement*, together with the concept of 'subjectivation', that is 'the constitution of individuals as subjects.'²² Moreover, 'subjectification' must be understood in its reflexive, rather than its substantive form, for it designates 'our relation to ourselves'²³. This mode differs from the other two in that it does not deal with an individual to whom social practices of domination are applied. Rather, subjectification deals with 'processes of self-formation in which the person is active.'²⁴ In other words, it is the way individuals inaugurate a process of self-formation on their own and turn into subjects. The 'genealogy of subjectification', as Rose calls it, is far from being straightforward²⁵. It concerns techniques which:

'permit individuals to effect by their own means, or with the help of others, a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality'²⁶. [Emphasis added]

These techniques are called technologies of the self, though there are three other kinds, termed techniques of domination, of production, and signification²⁷. At different moments in history, some of these techniques were perceived as more relevant than others. According to Foucault, interest in the technologies of the self increased after Kant. In his essay 'What is Enlightenment?'²⁸, Foucault argues that Kant is the initiator of the increasing historical attention, from the eighteenth century on, to the way people reflect on themselves. In fact, during antiquity questions about the self were not felt to be as urgent as questions about knowledge or ethics. According to Foucault, Kant is responsible for inaugurating a 'mode of reflective relation to the present' that lead to a 'permanent critique of ourselves'²⁹. In other words,

human beings' tendency to self-scrutiny and self-analysis has its roots in Kant's philosophical works. These writings have had a significant impact on the way human beings changed their attitude to their inclination to read themselves and, consequently, the way they perceive themselves.

However, the way people reflect on themselves in this process of active self-formation can be directed by entities outside one's own self, or as Foucault puts it, 'with the help of others'³⁰. For instance, Foucault sees the confessor and the psychoanalyst as two similar kinds of authority, who possess the capacity to affect the way an individual undertakes this practice of self-reflection. Foucault's analysis of the figure of the confessor in this 'mode of action that an individual exercises upon himself by means of the technologies of the self'³¹ demonstrates this process more fully. In the Christian tradition there was a change in the meaning of the principle of 'Know yourself'³². The words 'Know yourself' gradually obscured the other principle to which the first meaning was related, namely 'Take care of yourself' (*souici de soi*)³³. In the Greek and Roman tradition the 'care of the self' preceded the knowledge of oneself. With the coming of Christian morality there was an inversion in principles: the knowledge of oneself became the necessary presupposition to the care of the self³⁴. Contrary to the Christian tradition, as Foucault points out, in the pre-Christian tradition the focus was on perfecting the way people perceived themselves, something that Foucault calls 'government of the self', which is the 'political relationship between self and self.'³⁵

Therefore 'governing oneself, that is, in exercising upon oneself as exact a mastery as that of a sovereign against whom there would no longer be revolts, is something very important which we will find for centuries —practically until Christianity.'³⁶ The practice of Christian confession, as Bernauer and Mahon argue, 'produced a unique form of subjectification in the human being. The self is constituted as a hermeneutical reality, as an obscure text requiring permanent decipherment.'³⁷ What emerges is that the act of

Christian confession is no longer a private act, for it is directed by an authority figure, the confessor, who guides the confessant in this practice of self-interpretation and, ultimately, of salvation. This differs considerably from the way of governing the process of self-formation in the Greco-Roman tradition: there is no opposition from the individual, who is supposed to be the only person involved in this task of 'knowing himself'. In other words, the third mode of objectification is characterised by a paradox, as exemplified in the reflective practice in the act of Christian confession. In fact, the individuals turn themselves into subjects, only apparently by themselves, but in practice also through the help of others³⁸.

The final product (the subject) is therefore something which comes into being through three main processes, or modes of objectification, which characterise the dialectical process of the formation of the subject: dividing practices, scientific classification and subjectification. All of these modes of constituting the subject reveal how both human beings and the entities outside them turn the individual into a subject. Moreover, it also emerges that the way disciplines, like the social sciences and religious practices, are involved in the process of identity formation in their they are able to 'objectify their objects of inquiry.'³⁹ However, modes of subjectification, as apparent in the instance of confession, are not intrinsically negative, but can be seen as positive in so far as they are productive in participating in the constitution of the subject.

'WE SHOULD TRY TO GRASP SUBJECTION IN ITS MATERIAL INSTANCE AS A CONSTITUTION OF SUBJECTS' - Michel Foucault, 'Two lectures'*

Power is an all-inclusive and pervasive presence and there is no place outside it. Even the processes through which human beings constitute themselves as subjects are caught in this sort of web where power moves throughout. Foucault's decision to focus on power therefore appears to be a natural move as part of his project to understand how human beings become subjects. Power —and one of its forms, subjection— is not only, as many theorists of power ar-

gue, something which dominates the individual from somewhere outside the self, and to which human beings submit themselves. Rather, it is also a force from within the subject, which participates in the process of formation of identity. As Foucault opines, '[i]ndividuals are the vehicles of power, not its point of application.'⁴⁰ This means that power is not simply a negative term, used to designate a somewhat invisible entity which subjugates the subject, but a positive or, for the sake of accuracy, a productive energy from inside the individual which plays a crucial role in the individual's turning into a subject. In this sense it is possible to talk of the double valence of power.

It is helpful to note that the word for power in French, *pouvoir*, does not have exactly the same meaning as in English. As Spivak explains, in French there is 'a sense of "can-do"-ness': in everyday use *pouvoir*, in its different conjugations, can mean 'being able to do something'⁴¹. Therefore power, with its sense of 'can-do'-ness is twofold, for it is not 'merely repressive', but also productive. As Newman explains, Foucault's analysis presents a paradox, which 'is the extent to which one's subjectivity —one's sense of self that resists power— is actually formed by, and dependent upon, one's very subordination to power.'⁴² Therefore, in Butler's words, also 'subordination proves central to the becoming of the subject'⁴³.

As Butler asserts, '[a]s a form of power, subjection is paradoxical.' In fact, 'to be dominated by a power external to oneself is a familiar [...] form power takes'. However, '[t]o find [...] that what "one" is, one's very formation as a subject, is [...] dependent upon that very power is quite another.'⁴⁴ What this means is that power can subordinate the subject from the outside, but it can also provide the individual with the material to turn him- or herself into a subject. Therefore, subjection, as a manifestation of power, is not simply a negative oppressive force, as it is generally conceived, but a crucial element in the emergence of the subject. Power 'is not simply what we oppose but also, in a strong sense, what we depend on for our existence and what we harbour and preserve in the be-

22 Jerrold Seigel, *The Idea of the Self: Thought and Experience in Europe since the Seventeenth Century* (Cambridge: Cambridge University Press, 2005), p. 604

23 Nikolas Rose, 'Identity, Genealogy, History', in *Questions of Cultural Identity*, ed. by Stuart Hall and Paul Du Gay (London: Sage, 2003), pp. 128-151 (131)

24 Paul Rabinow, 'Introduction', to *The Foucault Reader*, p. 11

25 Nikolas Rose, *Op. cit.*, p. 131

26 Michel Foucault, 'Technologies of the Self', in *Ethics: Essential Works of Foucault 1954-1984*, vol. 1, ed. by Paul Rabinow (London: Penguin, 1997), pp. 223-251 (225)

27 Margaret A. McLaren, *Feminism, Foucault, and Embodied Subject* (New York: State University of New York, 2002), p. 147

28 Michel Foucault, 'What is Enlightenment?', in *Ethics: Essential Works of Foucault*, pp. 303-319

29 *Ibid.*, p. 313

30 Michel Foucault, 'Technologies of the Self', p. 225

31 *Ibid.*

32 *Ibid.*, pp. 224-234

33 *Ibid.*, p. 228

34 Michel Foucault, 'On the Genealogy of Ethics: An Overview of Work in Progress', in *The Foucault Reader*, pp. 340-372 (363)

35 *Ibid.*

36 *Ibid.*

37 James W. Bernauer and Michael Mahon, 'Michel Foucault's Ethical Imagination', in *The Cambridge Companion to Foucault*, 2nd edn, ed. by

Gary Gutting (Cambridge: Cambridge University Press, 2005), pp. 149-75 (154)

38 Michel Foucault, 'Technologies of the Self', p. 225

39 Martin Griffiths, and others, 'Michel Foucault', in *Fifty Key Thinkers in International Relations*, 2nd edn (New York: Routledge, 2009), pp. 265-273 (266).

* Michel Foucault, 'Two Lectures' p. 97

40 Michel Foucault, 'Two Lectures', p. 98

41 Gayatri C. Spivak, 'More on Power/Knowledge', in *The Spivak Reader. Selected Works by Gayatri Chakravorty Spivak*, ed. by Donna Landry and Gerald MacLean (New York: Routledge, 1996), pp. 141-174 (151)

42 Saul Newman, *Power and Politics in Poststructuralist Thought: New Theories of the Political* (New York: Routledge, 2005), p. 55

43 Judith Butler, *The Psychic Life of Power: Theories in Subjection* (Stanford: Stanford University Press, 1997), p. 7

44 *Ibid.*, pp. 1-2

ings that we are.⁴⁵ As a result, subjection, and in more general terms power, is far from being simply a form of domination to which the human subject has to submit. On the contrary, without power the turning of the individual into a subject cannot be witnessed. Power is needed to give the subject an identity, not only from the outside, but also from within the self.

Foucault's conceptualisation of power differs from the majority of theories around this topic which fail to see power as both something internal (in the sense of constitutive) and external to the individual. An instance of this is Althusser's influential and frequently cited account of interpellation⁴⁶. Althusser, in his analysis of the intersection of power and the process of becoming a subject, fails to detect the twofold nature of subjection. As Eagleton explains, according to Althusser, 'the repressive institutions of society would seem to be purely negative; it is in ideology alone that we are constructed as [social] subjects.'⁴⁷ In spite of Butler's original attempt to reconcile Althusser and Foucault in theoretical terms, Althusser's theory of interpellation still appears inadequate⁴⁸. The Althusserian scene of the policeman who calls the man in the street who is constituted as a subject through the interpellative power the policeman possesses, fails to take into account the way power functions from within the individual. Power cannot be localised in one single place or person, who in this case is a policeman, and as such, an 'officer of "the Law"'.⁴⁹

In Althusser's 'little theoretical theatre' of the policeman in the street, the 'hailed individual' who turns around in the direction of the policeman 'becomes a subject [...] because he has recognized that the hail was "really" addressed to him.'⁵⁰ For Althusser, the policeman's words 'Hey you there!' make 'the subject's recognition of himself' possible: 'recognizing that "it really is he" who is meant by the hailing'⁵¹. This differs from Foucault's conception of the discursive formation of the subject. Foucault, rejects the Althusserian idea that the individual is "'spoken" into existence' because 'the matrices of power and

discourse that constitute the subject are neither singular nor sovereign in their productive action.'⁵² In other words, the Althusserian model of power seems limiting in comparison to the Foucauldian one; given that the double valence of power, as both subordinating and constitutive, is ignored. Althusser therefore fails to clarify that the process through which individuals achieve an identity is not simply one in which individuals are given an identity by someone external to themselves. The point is that it is also the individuals themselves who enact the interpellation, for they have the power to accept or reject the name they are called by.

An extension of Dolar's critique of Althusser is helpful in regard to the subject's agency to recognise the interpellation, or reject it. In fact, it seems that Althusser implies that the only way a person can come into being and turn into a social subject, is through following and accepting the policeman's authoritative voice which represents sovereign power⁵³. Althusser obviously fails to consider resistance as a fundamental element in the constitution of the human subject. As Butler points out, the Althusserian hailed pedestrian might not realise that the 'Hey you there!' refers to him, or, the hailed man might refuse to recognise the name by which the policeman calls him⁵⁴. For Foucault, all the different forms of resistance can only exist 'in the strategic field of power relations.'⁵⁵ What follows is that, according to Foucault, resistance is 'an effect of the very power that it is said to oppose.'⁵⁶ A person can thus be both 'constituted by the law and an effect of resistance to the law'⁵⁷. In other words, as the opening quotation of this section states, 'we should try to grasp subjection in its material instance as a constitution of subjects.' However, there are different conceptions of power which differ from Foucault's model. Eagleton, among others, rejects the post-modernist argument that 'power is everywhere' and he recognises the origin of this maxim in Foucault's idea of 'discourse'⁵⁸. This standpoint risks remaining entrapped, in the same way as Marx, in the simplified view of power as a negative entity. The problem is, as Butler explains, that '[t]o underscore the abuses of power as real, not the crea-

tion or fantasy of the subject, power is often cast as unequivocally external to the subject, something imposed against the subject's will.'⁵⁹

An example that Foucault employs to depict how power operates in relation to the human subject is the Panopticon, designed by Jeremy Bentham in 1791. The Panopticon does not stand for power, but is an exemplary instance of how power operates: 'a generalized model of functioning; a way of defining power relations in terms of the everyday life of men'⁶⁰ The disciplinary mechanics of the Panopticon are given by its architectural form: 'a large courtyard with a tower in the centre and a set of buildings, divided into levels and cells' with large windows that permit staff to see inside the cells from the tower⁶¹. The cells are watched from the tower, thus they are like 'small theatres, in which each actor is alone, perfectly individualized and constantly visible.'⁶² The people inside the cells cannot see whether anyone is observing them, so they become their own guardians. The Panopticon is therefore a perfect example of how power is constantly present and impersonal⁶³. Foucault goes further by maintaining that even those who exercise power through the act of controlling from the tower are caught in the matrix of the disciplinary technologies of the Panopticon: 'this machine is one in which everyone is caught, those who exercise this power as well as those who are subjected to it.'⁶⁴ This means that power is all-inclusive and not, as often argued, something which is in the hands of a few at the top of the social hierarchy.

The ambiguous nature of power again emerges: the watched (the people inside the cells) are not only under surveillance by someone outside (the watcher), but they become their own guardians —their own Althusserian policemen. This is, in Foucault's words, the 'diabolical' aspect of the idea behind the Panopticon which, although it never actually existed, has led to many different applications in everyday life⁶⁵. Although the Panopticon can be seen principally as an instance where the first mode of objectification is applied, it can be argued that, as in the same

way as in confession, the subject becomes actively engaged in the process of his formation qua subject, to the point of being its main instrument. This element of self-formation of the watched within the Panopticon highlights even more strongly how power does not operate simply from the outside, but infiltrates the subject. Moreover, it should be noted that the Panopticon can be seen as a metaphor through which the functioning of the disciplinary carceral society in general terms can be analysed⁶⁶. The Panopticon thus reflects the way disciplinary power functions in relation to the subject in modern society, also in different institutions (medical and psychiatric in primis), which operate with the same 'mechanism of "panopticism"'.⁶⁷ Thus, although the Panopticon never actually existed, it allows one to observe how the subject and power co-operate in the process of becoming, from a different standpoint.

Another aspect which emerges from an analysis of the Panopticon is what Foucault calls normalisation, which is what the Panopticon as a system is thought to achieve. The term normalisation designates 'a power whose task is to take charge of life needs continuous regulatory and corrective mechanisms [...] Such a power has to qualify, measure, appraise, and hierarchize, rather than display itself in its murderous splendour'⁶⁸. In fact, the Panopticon was apparently created with the 'therapeutic' and utopian idea of improving society in order to bring it closer to perfection, and eliminating violence. This echoes, to some extent, the way the objective of salvation functions as a justification within the mechanisms of confession. In fact, the effects of the Panopticon are clearly disciplinary in nature and aim to normalise both the watched and the watcher, thus involving every single person within Bentham's architectural building. In fact, even the people inside the cell will start to enact the role of the guardians, because they cannot tell whether or not someone is watching them. In other words, such is the efficacy of the Panopticon that the individual acts as an instrument in this normalisation process.

If the double valence of the nature of power, especially in its form of subjection, is acknowledged, then it would be possible to eventually stop 'to describe the effect of power in negative terms: it "excludes",

⁶⁶ Inga Kroener and Daniel Neyland, 'New technologies, security and surveillance', in *Routledge Handbook of Surveillance Studies*, ed. by David Lyon, Kirstie Ball and Kevin Haggerty (London: Routledge, 2012), pp. 141-148 (144)

⁶⁷ Michel Foucault, *Discipline and Punish*, p. 216

⁶⁸ Michel Foucault, *History of Sexuality*, vol. 1, p. 48

⁴⁵ Ibid., p. 2

⁴⁶ Louis Althusser, 'Ideology and Ideological State Apparatuses', in *Literary Theory: An Anthology*, 2nd edn, ed. by Julie Rivkin and Michael Ryan, (Oxford: Blackwell, 2004), pp. 693-702

⁴⁷ Terry Eagleton, *The Ideology of the Aesthetic* (Oxford: Blackwell, 2000), p. 55

⁴⁸ See Judith Butler, *The Psychic Life of Power*, pp. 106-131 and *Excitable Speech: A Politics of the Performative* (London: Routledge, 1997)

⁴⁹ Judith Butler, *The Psychic Life of Power*, p. 106

⁵⁰ Louis Althusser, *Op. cit.*, pp. 699-700

⁵¹ Louis Althusser, *Op. cit.*, pp. 699-701

⁵² Judith Butler, *The Psychic Life of Power*, p. 5

⁵³ Mladen Dolar, 'Beyond Interpellation', *Qui Parle* 6, no. 2 (Spring-Summer 1993), 73-96 (p. 88)

⁵⁴ Judith Butler, *The Psychic Life of Power*, p. 95

⁵⁵ Mladen Dolar, *Op. cit.*, p. 76

⁵⁶ Judith Butler, *The Psychic Life of Power*, p. 98

⁵⁷ Ibid

⁵⁸ Josh M. Beach, *Studies In Ideology: Essays On Culture And Subjectivity* (Lanham, Maryland: University Press of America, 2005), p. 28. See also Terry Eagleton, *Ideology: An Introduction* (London: Verso, 2007), p. 7

⁵⁹ Judith Butler, *The Psychic Life of Power*, p. 20

⁶⁰ Michel Foucault, *Discipline and Punish* (New York: Vintage Books, 1979), p. 205

⁶¹ Hubert L. Dreyfus and Paul Rabinow, *Michel Foucault: Beyond Structuralism and Hermeneutics*, pp. 188- 189

⁶² Michel Foucault, *Discipline and Punish*, p. 200

⁶³ Michel Foucault, 'The Eye of Power', in *Power/Knowledge*, pp. 147-165 (155)

⁶⁴ Ibid., p. 156

⁶⁵ Ibid

it “represses”, it “censors” [...]. In fact, power produces⁶⁹. Power, in its twofold nature, is not simply ‘external’, that is ‘acting on’, but also ‘constitutive of the subject’, that is ‘acted by’⁷⁰. Therefore, subjection designates ‘the process of becoming subordinated by power as well as the process of becoming a subject.’⁷¹ In this sense, power is a fundamental element in understanding the process through which the subject emerges. A direct focus on the subject would not have illuminated neither how the subject engages and constitutes himself within and through power, nor the double valence of power itself.

CONCLUSION

It has been seen how favouring the process over the product is a productive way to demonstrate how the subject is fabricated within a the web of power with which he actively engages. Discussions about the ways the ‘final product’ (the subject) is constructed cannot ignore the concept of power, especially with regard to subjectification. In fact, power does not only appear to be something which subjugates people, but it also produces them. Without it there would be no sense of personal and social identity. In being the result of complex and various forces, the subject is not said either to be immaterial nor to not existing at all. Rather, its existence is the product of various social practices, such as the one described in Bentham’s Panopticon, in which power occupies a crucial role in participating in the formation and emergence of the subject. In other words, the analysis of the different techniques through which human beings constitute themselves as subjects demonstrate that: ‘[i]t is not that the beautiful totality of the individual is amputated, repressed, [or] altered by our social order, it is rather that the individual is carefully fabricated within it’⁷².

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A WHOLE OF COMMUNITY PARTNERSHIP APPROACH TO MEETING THE ECONOMIC AND SOCIAL CHALLENGES OF YOUTH MENTAL HEALTH

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Short description: Improving mental well-being is an important factor in the global picture of economic participation, future leadership and in addressing the social determinants of health for youth. The potential loss to the global economy due to the lack of participation of youth experiencing mental health issues, both socially and financially, is an international issue. The OECD reports that the median age of onset across all disorders is around 14 years of age with 75% of all illnesses being developed by age 24 (OECD, 2012). Left untreated, these problems become chronic, adversely affecting society and individuals. However with early recognition, the majority of mental illnesses can be effectively treated or managed, therefore the importance of evidence based effective programs through a whole of community approach is critical for both early intervention and ongoing management. This is reflected in a Council of Australian Governments recommendation that *"It is imperative that mental health continues to have the direct support of the Prime Minister and Premiers and Chief Ministers. Cross-government oversight is vital. Without links between housing, employment, education, health, family and child support, justice and corrections we will never give people the best chance of recovering and living contributing lives."* (Lourey, 2012)

A new initiative facilitating engagement and commitment from the whole-of-community including Local, State and non-government organisations including mental health professionals, utilises a collaborative partnership model to deliver a Youth Men-

tal Health Forum (YMHF). It originated in North Sydney covering two metropolitan regions and has been replicated across three regional communities (see Table 1), demonstrating that with G20 endorsement, international replication may be possible. The YMHF, focusing on de-stigmatisation, is aimed at empowering young people to make positive changes to their lives through increased access and uptake of services, ultimately improving co-ordination and streamlining services to reduce duplication so that they are more effective and relevant to youth. The YMHF aims to have a positive impact on education systems by building strategies into school strategic plans and creating avenues for systemic change in addressing youth mental health issues. The YMHF demonstrates a whole of community investment to empowering young people with the ability to create positive change to attitudes toward mental health and wellbeing in their school, social life and home life. Provision of broad Mental Health information and communication strategies placed firmly in the hands of our young people, leads to developing a supportive environment which can improve existing services and help to overcome this significant barrier to employment and education.

INTRODUCTION

Youth empowerment takes many forms, including that of mental resilience. Mental well-being is an important factor in the global picture of economic participation, future leadership and in addressing

the social determinants of health for young people. A new evidence-based partnership initiative, the Youth Mental Health Forum (YMHF) is presented in this article as a way to help young people achieve their full potential as contributors to society, even when confronted with mental health challenges. The YMHF demonstrates a whole of community investment to empowering young people with the ability to create positive change to attitudes toward mental health and wellbeing in their school, social life and home life.

The YMHF model developed strong collaborative working relationships between service providers operating in the youth and mental health landscape and other entities from education, health, government, non-government organisations, community organisations and volunteers, all with the common goal of supporting and improving young people's mental health and wellbeing. These forums have overcome many operational barriers through breaking down pre-existing 'silos' within communities, building greater understanding of existing and prospective processes between sectors, and effectively making better use of resources and securing a strong united approach.

The paper begins with describing the background challenges of mental illness faced by young people today. It goes on to discuss the YMHF initiative, the outcomes achieved, how the model has been replicated within Australia, and how it can be replicated elsewhere.

EMPOWERING YOUTH TO CONTRIBUTE TO THEIR COMMUNITY

A decade ago it was estimated that over 1.2 billion young people would transition into adulthood. As a result governments and communities across the globe increasingly demanded a voice for youth and their involvement in the processes that affect their lives (UNFPA, 2004). Whilst this period is a critical time particularly in the development of good habits and skills it is also a vulnerable time for emotional development and mental health in a period when risk taking tendencies are amplified (World Bank, 2006).

Youth empowerment programs and resources that improve developmental outcomes and positive transitions to adulthood are required. This empowerment should be based on rights (WHO, 2005) and Article Twelve in the United Nations Convention on

the Rights of the Child which assures children and adolescents the right to be heard and form their own views. This 'rights approach' is the redistribution of power back to young people so that they can have a say in their world and the matters that affect them. Other approaches are more instrumental, seeing youth empowerment not as a right to be protected but as a process or way towards improving young people's developmental outcomes and strengthening institutions and communities through the way in which young people make contributions (Morton and Montgomery, 2011). The YMHF model empowered young people by giving them a voice, allowing them to drive change in their own environment with peer group determined action plans, ensuring relevance by sharing youth related experiences, and by encouraging networking.

THE CHALLENGE OF YOUTH MENTAL HEALTH

Youth mental health challenges are faced by nations all over the world, exemplified in this article through the situation in Australia. Nearly a quarter of all Australian young people aged 12–25 have anxiety, affective or substance use disorders and a variety of other mental illnesses, with less than one quarter (24%) receiving any treatment and only 15% of all males receiving treatment at all (ABS, 2008). At this scale, this is not only a significant impact on the economic and social wellbeing of our current generation of young people, but it sets the wheels in motion for exponential impact over coming decades. In 2009 the total economic (financial) cost of mental illness for young Australians aged 12–25 was estimated at AUD \$10.5 billion (Access Economics, 2009). In this figure, AUD \$7.5 billion or 70% was attributed to lost productivity due to lower employment, absenteeism and premature death, a further AUD \$2 billion was considered to be 'deadweight value' in welfare payments and lost taxation revenue. The direct costs to the public health system were AUD \$1.4 billion with a further AUD \$65.5 million being associated with the indirect costs of care giving. However, if one adds the additional social value of lost wellbeing through disability and premature death this figure spirals close to AUD \$31.1 billion (Access Economics, 2009).

Therefore it can be surmised that the early intervention and management of youth mental wellbeing is an important factor in the global picture of economic participation, future leadership and in ad-

ressing the social determinants of health. The potential loss to the global economy due to the lack of participation of youth experiencing mental health issues, both socially and financially, is an issue of international and national importance. This is reflected in the following quotations:

It is imperative that mental health continues to have the direct support of the Prime Minister and Premiers and Chief Ministers. Cross-government oversight is vital. Without links between housing, employment, education, health, family and child support, justice and corrections we will never give people the best chance of recovering and living contributing lives. (Lourey, 2012)

Mental ill health impacts on young people's ability to study, work, contribute to community, live independently and maintain relationships. All these things contribute directly or indirectly to the economy and the prosperity of this nation. Headspace CEO Chris Tanti (OYH, 2009).

Mental disorders are characterised by an early onset, with the median age at onset across all types of mental disorders being around 14 years of age and 75% of all illnesses having developed by age 24. (OECD, 2012, p 12)

Since 75% of mental health disorders emerge before the age of 25, preventative or early interventions targeted to young people have the capacity to generate greater personal, social and economic benefits than intervention at any other time in the lifespan. Headspace Centre of Excellence Coordinator, Associate Professor Rosemary Purcell (OYH, 2009).

Stigma and discrimination against young people who experience mental health issues can impact on their current and future study, ability to work, financial situation and their personal relationships. However, youth mental health is not the only challenge. In addition there are the challenges associated with providing a coordinated response to supporting a young person.

CHALLENGES OF INTER-AGENCY SUPPORT WITHIN COMMUNITIES

In 2009, the Australian, State and Territory Governments entered into the 'National Partnership on Youth Attainment and Transitions' agreement in order to support the Council of Australian Governments (COAG) goals to lift the Year 12 or equivalent attainment rate to 90 percent of all young people by 2015. This led to the establishment of two programs in 2010. Firstly, the School Business Community Partnership Brokers (Partnership Brokers) program based on the principle that support for young people is a collective responsibility of governments, education and training providers, business and industry as well as parents and family, and the broader community. Partnership Brokers create and support partnerships between key stakeholders with the aim to improve education and transition outcomes and support all young people to achieve their full potential (DEEWR, 2013a). Secondly, the Youth Connections program provides a safety net for young people who have disconnected or are at risk of disconnecting from education, and offers flexible case managed support and services that recognise the role that family and community play in a young person's wellbeing and development (DEEWR, 2013b).

In southern NSW, Partnership Brokers (COMPACT, Get-Set Inc and MICEEP) and Youth Connections providers (Campbell Page and YES) identified that mental health issues and their directly related social effects, were the most significant barriers to education and employment for the young people of the Riverina. This information was gathered through a series of discussions held with regional stakeholders, and supported by a study on factors affecting youth disengagement in the southern NSW region. Through the impartial role of the Partnership Broker, robust discussion was facilitated that enabled mental health service providers and education sector representatives to discuss local issues and concerns regarding youth mental health and existing service provision. Anecdotally, school representatives identified that the number of students with issues related to mental health had significantly increased and their capacity to respond to the number of students in need was diminishing. Mental health providers also indicated the need to establish stronger links with the education sector to provide additional responsive services. There were significant challenges in the

provision of an appropriate level of service to meet demand, particularly due to financial constraints, as well as the issue of distance and isolation.

The NSW/ACT Partnership Broker State Network identified that mental health and associated issues were a common barrier affecting Youth Attainment and Transition across the entire state and so the NSW Mental Health Working Group was established. This group, representative of Partnership Brokers and Youth Connections providers, aimed to identify evidence-based practice that could be implemented at the local level and form the basis of a model that could be used across the state and nationally. This model would through encouraging streamlined services and better access to information, reduce duplication, make services more effective and relevant to youth, and thus increase the overall coordination and outcomes expected (COMPACT Incorporated, 2012).

THE YOUTH MENTAL HEALTH FORUM

This article proposes that the YMHF is a way to address all of the above mentioned challenges. Next the background, structure and outcomes of the YMHF model are discussed.

CROSS SECTORAL PARTNERSHIPS

The cross sectoral partnership approach has gained an increasing profile internationally since its genesis at the World Economic Forum in 1999 to 'embrace and enact' a set of universal principles in the areas of human rights, labour standards and the environment (Jorgensen, 2006). The resulting Global Compact encouraged business to engage in cross-sector partnerships with the public sector and community in order to promote development (UNGC 2000). This was further strengthened by the Johannesburg Declaration (2002) with more than 300 partnerships being formed over the life of the World Summit on Sustainable Development held in Johannesburg and commitment to action by 2015 by 193 United Nation member states as part of the Millennium Development Goals (United Nations Millennium Declaration, 2000).

As a result, reference is increasingly made in the context of corporate social responsibility where social and environmental performance is measured beyond the traditional economic paradigm, also known as the triple bottom line (Elkington, 1997). These collabo-

rative relationships are seen as win-win partnerships capable of making positive contributions to societal development especially in relation to the context of the complexity of many of the social, environmental and economic issues facing society today such as poverty reduction (Miller and Ahmad, 2000, p 16). For the public sector, partnerships with non-government organisations (NGOs) and the private sector can result in capacity building through which the design and implementation of policies can be improved and the legitimacy of the public sector enhanced (Miller and Ahmad, 2000, p 19; Jones, 2002, p 3).

For NGOs, partnerships may involve organisational development, the provision of additional and much needed resources, and not least, increased recognition and status whereby the organisations' political influence can be strengthened (Jones, 2002 p 3; Miller and Ahmad, 2000, pp 16-17). Corporate community involvement may lead to business benefits like improved reputation and brand value, license to operate, development of local markets, improved risk management, and greater ability to attract, motivate and retain employees (Rochlin and Christoffer, 2000, p 11; Nelson, 2004, p 14; Emerson, 2003, p 30).

Through the YMHF initiative these partnerships forged engagement, assisted by the NSW Partnership Brokers, HillsIP, COMPACT Inc, Get-Set Inc and MICEEP. This approach drew on the Building Effective Community Partnerships model, illustrated in Figure 1 (Dixon, 2008).

In the case of the Riverina YMHF model, engagement was introduced and achieved through the facilitation of a key stakeholder meeting aimed at showcasing the successful North Sydney forum pilot model. Partnership Brokers and Youth Connections providers covering the Riverina education region identified and invited key players to this event from Wagga Wagga, Griffith and Albury, in order to scope the interest and capacity of each community to replicate this unique forum model. Partnership Brokers facilitated the engagement, leading to the commitment (buy-in) stage, involving various mental health service providers, education, and other community groups. After the initial key stakeholder meeting, a Steering Committee was formed in each town, comprising representatives from mental health service providers, education, police, and other community groups.

The Steering Committee (Step 1, Figure 1) involved a wide range of stakeholders. In Wagga Wagga these included local police, Charles Sturt University, each education sector and various government and non-government service providers, both clinical and community.

As depicted in the Step 2 Figure 1, the development of the steering committee enabled the partnership process to progress from engagement to commitment. Key mental health service providers, cross-sector education providers, local government, volunteer organisations, police and others, ensuring that Steering committees were reflective of their community.

The Ownership stage (Step 3 Figure 1) is the natural progression after the commitment stage. At this stage, Steering Committee members leveraged existing business networks and partnerships to ensure inclusive ownership of the forum and its success. This involved the sharing of expertise, contribution of resources, both financial and in-kind, as well as a role in direct delivery to ensure management of the event was smooth and effective.

The final step (Step 4 Figure 1) was the end action that achieved the common goal. In the YMHF, this involved the delivery and evaluation of the forum to ensure best practice capable of achieving both long term sustainability and service sector support. For example, through collaboration with Batyr, a social enterprise aimed at 'giving a voice to the elephant in the room', the importance of young people sharing their stories of lived experiences of mental health was incorporated into the YMHF. Through the sharing of a personal testimony, mental health was de-stigmatised and seen as less isolating, creating a platform for others to start a discussion around mental health in young people. Ultimately, the Steering Committee and broader community partners aimed to see improved outcomes for mental health and wellbeing of young people within their communities, which in turn builds community capacity.



Figure 1: Building effective community partnerships (adapted from Dixon, 2008, p 5)

REPLICATING THE YMHF THROUGH A STATE-BASED MODEL

The concept of a state-based model using a forum approach arose as an outcome of the local level strategic planning processes undertaken by Riverina Partnership Brokers, COMPACT Incorporated, Get-Set Inc and MICEEP. This included an environmental scan which could be analysed to ensure that programming aligned with community needs and issues. This scan identified mental health as one of the most significant barriers to education and employment in the Riverina. This information was supported at the NSW Partnership Broker network level through environmental scans developed across the state. That data however was linked to a similar problem at the national level, with evidence that one in four young people between the age of 12–25 suffered or would suffer mental health issues at some time in their transition to adulthood, many unsupported and undiagnosed. Despite best efforts, this cohort was growing and the capacity of both health and education to respond was diminishing.

In order to facilitate outcomes that would benefit the whole Partnership Broker network, a State-based NSW Mental Health Working Group was established. This committee would identify evidence based strategies and work with regional decision makers to develop a model that could align with cross sectoral strategic and business plans, flexible enough to be used across the State, using a whole of community approach.

The aims of the NSW Mental Health Working Group was to increase youth attainment and transition to further education and employment by improving access to mental health information, services and support for young people. In order to achieve that goal, a scoping exercise to source existing best practice programmes addressing mental health and wellbeing from across the state was undertaken, to identify successful, flexible models which could be replicated easily in a variety of settings.

The NSW Mental Health Working Group identified the Hornsby-Ku-ring-gai (North Sydney) Youth Mental Health forum model as a replication possibility. Partnership Brokers from the Riverina agreed that this model suited their strategy to address Mental Health in a regional setting. It was agreed that the forums needed to have a positive impact on education systems by building strategies into school strategic plans and creating avenues for systemic change. In addition, avenues for systemic change would have to be created and young people empowered to have a voice on how to approach the topic of mental health. Finally, resilience would have to be built through youth networking. This would require a strong collaborative approach between education, community service providers and business through development of a partnership to achieve positive community outcomes and break down silos to avoid duplication and make more effective use of resources and community expertise. These factors would aim to normalise the topic of mental health across all sectors and build in sustainability with meaningful and measurable outcomes. The NSW Mental Health Working group is currently working strategically with Headspace Australia to replicate this model nationally.

In combating mental illness there are two central issues. The first is that mental illness is negatively perceived within schools and the second is that the 'adult' method of seeking help is ineffective with young people. This was compounded by the fact that resources for young people were focused on severe mental health episodes rather than early warning signs or intervention that may prevent or reduce the severity of these episodes. Providers felt isolated and underfunded despite the depth of services working across the area.

THE INAUGURAL YMHF

During 2012 an early intervention model was developed on Sydney's north shore with a range of partners including the KYDS Youth Development Service (KYDS), Hills Schools Industry Partnership Inc (HILLSIP), The Black Dog Institute and the Hornsby-Ku-ring-gai Youth Network. Northern Sydney, despite being an affluent area by comparison to its regional counterparts, had a significant need for mental health support and very limited mental health services which were compounded by the absence of a Headspace facility. The concept of an interactive forum was supported by the NSW Member for Hornsby, Matt Kean MP, who facilitated and built upon existing relationships across business and community including partners such as Bendigo Bank, Hornsby Council, Rotary, the Hornsby Ku-ring-gai Youth Network and a specialist organisation, Rising Generations. A key driver of the committee was the Chair of the Northern Sydney Mental Health Working Group, David Citer, whose roles as the Manager of KYDS and Chair of the Hornsby Ku-ring-gai Youth Network, was fundamental to the cross sectoral collaboration, identified as critical for success.

As a result of this partnership an inaugural Youth Forum was held in April 2012 with the specific aim of developing increased pathways to help young people understand and cope with mental illness. The critical elements of the forum concentrated on the Collaboration Life-cycle formula and drew upon youth empowerment literature (Gotta, 2005, Morton and Montgomery, 2011). Interactivity and relevance were key elements, meaning the selection of speakers, including those willing to share personal testimonies and those able to speak directly to the needs of young people was imperative. The attendance of counsellors and health professionals allowed provision of specialist support if required as part of that process.

The attendance model was designed so that 10 students, representative of their school profile, from each school in the region would be invited to attend. This ensured broad engagement and supplied skills for young people to return to their respective school communities to start a dialogue with school officials in reference to developing school-based programmes targeting mental health issues. This design emphasises the importance of addressing mental health with a school-based approach whilst providing appropriate skills that aim to decrease the stigma surrounding mental health.

The forum resulted in over 200 students, accompanied by 23 teachers, counsellors and educators from 22 schools in the Hornsby and Ku-ring-gai local government areas attending the day-long forum. The forum objectives were aimed at generating the interest and engagement of young people to problem solve, brainstorm and open up discussion about the ways in which young people could cope with issues such as anxiety and depression and how support could be offered. The focus was to help young people take personal responsibility for their own mental health, gain insight and feedback into gaps in service provision, both for the school and community systems, and find ways in which they could be improved, whilst reducing the stigma associated with these issues. An important action coming out of the day was the formation of a youth advisory committee which could be called upon as a consultative group for the network.

The forum discussion revealed particular insights about gaps in service provision and the attitudes and knowledge of young people about access to help. The evaluation highlighted several significant issues of particular concern. These were that most students (over 70%) did not know the name of their school counsellor, nor where their office was located; most students (over 60%) would not approach a 'stranger' (the school counsellor) without reassurance of confidentiality, or simply as a result of not knowing them; if a friend were experiencing mental health problems, students would not 'dob in' that friend to a psychologist or their friend's parents as they felt it was a breach of trust. 80% of all students surveyed stated that they would not report a mental illness even to their parents as they felt it was both embarrassing and potentially awkward for their participation as part of the school community. This feedback highlighted that resources were irrelevant, focusing more on illness than early intervention and that there was a need for a strategic approach in partnership with education around the de-stigmatisation of counselling services and the importance of education for the whole of the school community, including teachers, about early warning signs and how to access help for early intervention.

REGIONAL REPLICATION

The NSW Mental Health Working Group, some of whose members had been involved in the formation of the North Sydney pilot model, agreed to broadening access to information for young people

utilising a replica of the model across the three Riverina towns located at Albury, Griffith and Wagga Wagga. A key stakeholder planning meeting was held in Wagga Wagga in August, 2012, where mental health service providers, education, government and non-government organisations were invited. This meeting showcased the North Sydney model to the providers from across all three rural and regional areas. Representatives were inspired by Sharon Grocott (Partnership Broker - HILLSIP), David Citer (KYDS) and Steve Lacy (Rising Generations), who demonstrated their successful Hornsby-Ku-ring-gai youth forum model.

The outcomes from this key stakeholder meeting included regional discussions and a workshop which investigated the possibility of running similar forums in the Riverina. Three local steering committees were established, in Wagga Wagga, Griffith and Albury, and each created a youth mental health forum held in October 2012, aligning with the State's mental health focus in Mental Health month, committing to a short ten week lead time.

The regional model as a basis for the State model proved replicable, however, there were a range of critical factors that were essential for success. These factors drew upon the North Sydney pilot model and were supported by a range of theory and conventions, not least the 1986 Ottawa Charter, collaboration life-cycle theory and youth empowerment and early intervention theory (Morton and Montgomery, 2011). As a collaborative model for early intervention, the scale of the problem meant that it would require a whole of community response to be effective. A recurring theme in the literature is the need for young people to take care of young people, this creates a recurring currency and supportive environment that can align systems and address a holistic view of the problem through shared commitment, ownership, vision and goals.

It was also important to have strong support by the education sector as the visioning needed to be embedded as part of their strategic planning process and decision makers needed to be engaged at the steering committee level. The whole of community approach provides the opportunity to provide equity and inclusivity and the ability to scale financial and in-kind resources across multiple sites.

The model design meant that over time current Year 9-11 students (aged 14-17), would become ambassadors and change-agents. All four YMHF events are illustrated in Table 1, below. Each cohort had their own perspective, thus allowing continuing currency and the ability through evaluation and review for providers and all stakeholders to gain a current and realistic picture of the mental health issues facing young people in place. It would also allow a broader discussion at a national level to ensure a better working relationship between service providers and schools as well as the potential to investigate the replication of the model.

Table 1: Replicating Youth Mental Health Forums, for age groups 14 to 17, from metropolitan Australia to regional centres

	SYDNEY April 2012 213 students from 22 schools
	WAGGA WAGGA October 2012 115 students from 15 schools
	GRIFFITH October 2012 115 students from 16 schools
	ALBURY October 2012 120 students from 15 schools

REGIONAL YMHF OUTCOMES

Across all three sites mental health services indicated a direct response to the forum, with increases across the cohort (young people) accessing General Practice about mental health issues. From a clinical and programme perspective, providers had a current and realistic picture of the barriers of mental health and the issues facing young people in the region.

At each forum, students created action plans that could be taken back to the school environment to commence dialogue about relevant programming and education. This included the development of identified add-on projects for young people by external service providers, as well as additional mental health resources and programs that could be immediately customised for each school community.

The findings across students, education professionals and service providers have been extremely positive. Students identified that seeking assistance, forming a support crew or network in their school or community, and developing awareness of mental health around the school was important and would benefit overall well being. Students also indicated that encouraging open communication and speaking to others about mental health was important; it validated student's feelings and empowered their responses to mental health issues, leading to an increased sense of personal responsibility. One example of a comment posted by a student during the event included 'I am going to ask my parents to check on my brother more often'. One of the strengths of the forum, highlighted by students, was the presence of a peer willing to share their own story of experiencing a mental health issue and how they were able to access and use mental health support services. Students commented on the fact that this made them feel more comfortable discussing mental health freely and made the advice they were receiving feel more relevant. Since the event, Batyr, the organisation who train young people to share their positive stories of lived experiences of mental ill health, has been directly contacted by two different students from different schools requesting for this lived experience to be shared with the rest of their peers at their school. The students stated that the requests were because of the value they personally saw in the sharing of a lived experience by a peer in reducing stigma and increasing help seeking behaviours.

Education providers identified that the forum was a positive way to address mental health issues, to build positive action plans for their school and to support young people. The forums were also a great professional development tool with the ability to increase school staff development into the medium term. The forum demonstrated that young people could be encouraged and inspired to develop programs within peer groups back in a school setting with the potential to be incorporated into curricula.

For service providers, improved relationships and communication meant that resources could be used more effectively and decision making was more responsive. Direct engagement with young people in a neutral, fun, interactive setting, meant that providers could witness firsthand the needs and responses from students which would allow a response to ultimately shape services that were more relevant. The clinical support provided a professional development opportunity and a greater understanding of how to work and engage with young people around mental health. The diversity of the stakeholders allowed a greater understanding of what services existed and the role that each played in creating a positive environment.

CONCLUSION

The YMHF design emphasises the importance of addressing mental health with a school-based approach, whilst providing appropriate skills that aim to decrease the stigma surrounding mental health. There is a negative stigma attached to mental illness, and mental wellbeing is rarely discussed in society, also a low awareness of early warning signs which means signs are often missed by the young person, their friends or their family. Many young people are reluctant to seek help for mental health issues. Young people do not want to admit that something is different or changed; they can be fearful of the unknown, do not understand the nature of the mental illness or fear being labelled. These pressures mean that young people may not seek help as early as they should.

The key to encouraging young people to seek help is the development of trust. Young people are far more willing to seek help from service providers who they have developed a trusting and respectful relationship with. Participation in a whole of community YMHF is one approach to building trust. Respect, dignity and a non-judgemental manner are regarded very highly by young people.

Assisting young people to gain confidence, self-determination, skills and education serves to increase social connectedness and create a sense of belonging within supportive peer networks. Through a YMHF a young person experiences positive adult and peer role models, where previously they may only have experienced negative influences from adults and peers. A YMHF empowers young people to build personal resilience and improved help-seeking behaviour through increased knowledge of available support, and the development of positive coping strategies and the development of skills needed to access help. It also increases confidence and helps to enhance communication and social skills.

It is important to understand that the YMHF is an early intervention format targeting transition and successful planning for school communities. The forum engaged young people in a fun, relevant and interactive way, promoted a positive approach and supplied skills for young people to return to their respective school community and start a dialogue with school officials about developing school based programmes targeting mental health issues.

A key element in design was that attendance models targeted youth in the Year 9-11 range, just prior to transition to adulthood. The cohort was selected to be reflective of their school profile rather than the 'best students' from their Student Representative Councils. This enabled awareness and understanding by young people from different walks of life to spread the message across a wide slice of the school community. The incorporation of an actioning plan component as part of the forum, aimed at age groups rather than schools, meant that actions could be relevant and appropriate to each age group with the capacity to stay contemporary as part of future forums. The design and approach emphasise the critical presence of education as part of ongoing change and how a school-based approach is fundamental to addressing early intervention, education and awareness in order to decrease the stigma surrounding mental health.

The YMHF model can be easily replicated around the world. The model encapsulates the utilisation of exciting and engaging activities, the sharing of first-hand lived mental ill-health experience by peers and professional clinical guidance, which has proved successful as an education and information strategy for young people. It provides a safe and open environ-

ment for discussion which aids the reduction in stigma about these issues across the whole of society not just their peers. Its key aspect of replication is that the YMHF encourages young people and schools to develop internal policies to aid in the care of young people and their mental health, and promote resilience and leadership within the school community. The YMHF aims to change the culture within schools as to how mental health is addressed. Once embedded, formats such as a youth led forum on a recurrent basis can provide a way in which this topic can remain contemporary and relevant for youth as each year the forums will be adapted to address key issues that are happening at the local level. This has the potential to remediate and prevent the onset of issues and at a minimum increase reporting and dialogue.

WHERE TO FROM HERE

Currently the NSW Mental Health Working Group is working with key stakeholders at a national, state and local level to further develop strategies aimed at assisting and improving the education sector's ability to meet the needs of an ever increasing number of young people requiring support. These strategies include the encouragement of systemic change in the education sector so that young people can engage and utilise the resources provided. This includes gaining support from politicians at the State and Federal Government level to support the need for Youth Mental Health Forums across the country, to raise the profile of these issues to and for young people. Other strategies highlighted include the need to bring together key decision makers from the education sector with mental health research leaders, to raise the profile and need for broader change and development of a collaborative approach to addressing the needs of young people.

An unintentional element to both the North Sydney and regional forums was that all the forums have had very little planning lead time in order to quickly respond to issues on the ground. As a result the model has already proved robust and capable of being adapted quite cheaply for many regions; hence the recommendation that this be replicated with the endorsement of G20, around the globe. The key ingredients of youth listening to youth where someone of their own age can share experiences and quality information that educates about destigmatisation for both teachers and students can be duplicated any-

where. Additional resources supported by clinical providers can be developed through a generic toolkit to ensure that relevant information about early warning signs and contemporary practice is passed on.

Finally, another critical element is the steering committee and its ability to influence the format and content of the forum agenda beyond the generic elements. It is critical that the forum content is responsive to the most prevalent needs on the ground, in others words those issues and illnesses most likely to affect the young people attending the forum, both directly and indirectly. In the post YMHF evaluations, the comment arose that although each forum was generically the same, some forums emphasised mental health illnesses rather than mental health issues. Therefore, there may be value in ensuring that content scope for future model delivery has a focus on typical mental health and wellbeing issues most prevalent or likely to be encountered by adolescents (e.g. anxiety, depression, self-harm, substance abuse, suicide ideation, and body image issues), rather than focus on illnesses that tend to present as a chronic condition such as schizophrenia. A slightly narrower scope has the potential to allow more rigorous evaluation of the model thus providing more potential for evidence.

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INDIGENOUS AUSTRALIAN HEALTH HARDWARE

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LOCATION

Physically the work is located in the Northern Territory (NT) of Australia. Both survey locations are indicated on the map below. One in Central Australia the other off the coast of Arnhem Land. According to the 2006 Census Indigenous Australian People make up 32.5% of the NT population. The NT has the youngest population in the country with 23.2% under 15 years of age which represents the largest proportion in the country. It also has the smallest proportion with 5.7% aged 65 and over (Australian Bureau of Statistics 2008). According to the Territory Health Service (Territory Health Service 2001) the life expectancy of Indigenous Australians is some 15-20 years below that of 'mainstream' Australians, which might perhaps explain in part why the NT has such a low percentage of older people.

Therefore health is of prime importance, if we are not healthy little else really matters. Sickness is expensive, it drains resources and finances while those affected are hindered in their economic, social, cultural and personal activities to varying degrees.

8.20 ACCESSIBLE AND REMOTE AREAS OF AUSTRALIA

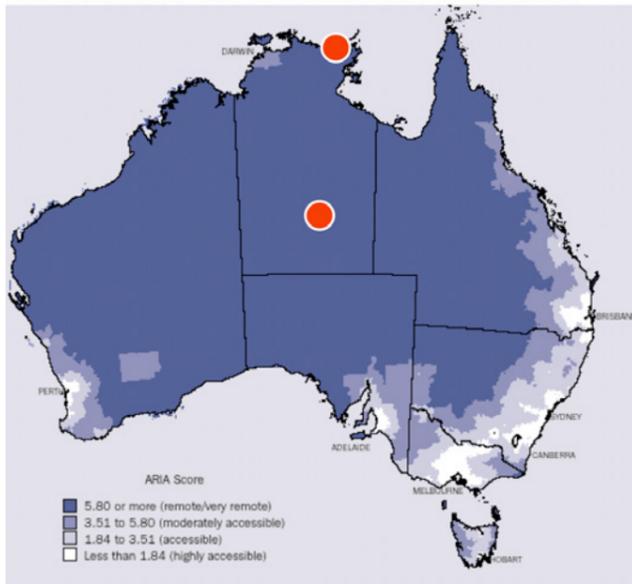


Image 1 Map of Australian Remote Areas indicating survey locations

BACKGROUND

Healthabitat (HH), a not for profit company is about improving environmental health in order to provide a healthier living environment. HH's focus offers a unique approach to design through their nine health related healthy living practices, these Nine Healthy Living Practices are illustrated below.

The Healthy Living Practices



Image 2 Nine Healthy Living Practices

They are in order of priority: (top left to bottom right)

1. Washing Facilities for Children under 5 years. A disease a child contracts under the age of five is most likely to stay with it for the rest of its life. Washing is recognised as being a very effective method of reducing the likelihood of contracting communicable diseases. The ability wash young children increases their life expectancy and reduces the ongoing health cost throughout their lives for the community.

2. Washing Clothes and Bedding, follows on from washing people and also contributes towards reducing the spread of communicable diseases by helping reduce ongoing reinfection.

3. Waste Removal. Being able to remove waste water away from bathrooms and toilets ensures that the facilities can remain clean and hygienic. Solid waste removal follow the same basic principle.

4. Improving Nutrition. Access to working food preparation, cooking and storage facilities increases the ability to eat well, which impacts on health issues such as diabetes and obesity.

5. Reduce Crowding. Communicable disease spread more easily in crowded conditions. Crowding also increases the wear and tear of appliances, fixtures and fittings which are commonly provided to only an average domestic standard. Crowding also has a number of social factors that it affects such as privacy, control over one's own environment and safety.

6. Separation of Children and Dogs. Dogs can be a carrier of disease and their presence around the house and yard area can lead to disease transfer during play between children and dogs. A dripping taps provides water for the dog to drink and a puddle for kids to play in. Dogs defecate in the yard and kids might end up coming into contact with dog droppings.

7. Dust Control. Fine dust carries bacteria and contributes towards respiratory and eye diseases. Dust is the result of unsealed roadways and the increased car traffic over them.

8. Temperature Control. House insulation becomes critical in high temperature living environments. Uninsulated houses might have higher temperatures inside than outside, this makes the usability of the house very limited and therefore impacts on its ability to provide a healthy and safe environment.

9. Reduce Trauma. Due to malpractice during the construction process, inadequate specification of fixtures and fittings injuries and health hazards can be present in a house after only a short period of use.

The second feature of the HH methodology is the survey-fix activity in which the house function of remote community houses is evaluated. This process requires community members to participate in a survey and immediate fix of the not performing health supporting fixtures and fitting within the house. Items that get checked are for example taps, drains, power points, light fittings etc. If they are not per-

forming as intended then, depending on the severity of the problem, they get either fixed on the spot, i.e. reseating the tap or are entered into a database which then generates a job list for trades people to fix either that afternoon or the next day. The survey results generated in this way are then collected in a national database.

The applied Method "No Survey Without Service" = survey + fix



Image 3 The Applied Method

Australia is no. 2 on the Human Development Index (United Nations Development Programme 2011). Improving Nutrition is the 4th most important Healthy Living Practice and a central point of this report.

The relatively recent conversion to a modern sedentary diet that is nutrient dense, high in energy, fat and refined sugars, from a traditionally more diverse nutrient rich diet typical of a hunter-gatherer lifestyle is seen as a major contributor towards the declining health of Aboriginal Australians. This leads to what is commonly described as nutrition related lifestyle diseases like: obesity, hyperlipidaemia, vascular disease and diabetes, with epidemic numbers progressing to end-stage renal disease. As early as 2002 these numbers were reported as increasing and seen as part of a range of chronic illnesses on the Anangu Pitjantjatjara Yankunytjatjara Lands. The dramatic increase in obesity over the last 30 years is described by Nganampa Health Council's medical director as the single most important factor in all the above conditions. To help adults and children to reach and keep up a healthy weight is therefore a highly important aim that can be partly addresses by a better, healthier and more balanced diet (Bierbaum 2002).

This then provides the avenue on one hand for existing nutrition strategies for example like the National Aboriginal and Torres Strait Islander Nutrition Action Plan (NATSINSAP), Mai Wiru Regional Stores Policy, National Heart Foundation Tick Campaign and a range of Home management programs to tackle the problem.

However besides policy, education and strategies working cooking equipment, an important set of Health Hardware components, are also required. Stoves and other cooking equipment are commonly expected to be present in most households and therefore make the preparation of meals at home possible. Yet it is precisely this physical equipment that has to be in place and in working order for the preparation at home to be possible.

Prof. Fred Hollow's, an internationally acclaimed Australian Eye surgeon who pioneered cheap cataract surgery in Eritrea, coined the term Health Hardware to describe the physical equipment that is required to support these simple health supporting activities. For washing hands, an important practice to reduce the risk of communicable diseases, the required health hardware is: a suitable water supply, working water pipes, a working tap, a sink, a soap, a soap dish to store the soap, a towel hook to hang a dry towel on, a sink plug, a working waste draining into a connected waste water supply. It is about all the links in the chain that are required to be present and working in order to be able to enact this health living practice (Pholeros and Phibbs 2012).

THE STUDY

The Australian Prime minister's 2011 report 'Closing the Gap' (Commonwealth and Australia 2011) highlights that Indigenous Australians in remote communities suffer bad health, not only because access to critical medical equipment such as Renal Dialysis machines is difficult, but also because of poor nutrition. A national survey of over 6,600 Indigenous houses showed that only about five % have all the required facilities to prepare, cook and store their food.

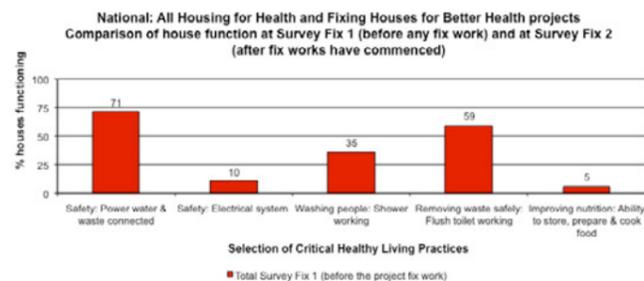


Image 4 Table of House Performance

To cook we need a stove - it is a piece of health hardware. 71% of surveyed households use electric stoves, six out of ten of these stoves last between six months to two years only (Department of Families 2007).

In other public housing the same stoves last between 10 - 15 years (NT Housing Services 2007). Why is that so?



Image 5 Sample Stove

This indicates that while a stove might well be present in remote community housing there is no guarantee that it is working. If it is not working it can't be used for cooking meals.

METHOD

A common approach towards design in a cross cultural context is user consultation and user participation. Typically this happens through interviews in the problem definition and problem solving process (IDEO, IDE et al. 2012). In this example this might include to consult with the people/users about the stove, about the types of utensils they cook with, what they cook, and so on. This at first glance appears a very ethical and suitable approach.

But how to implement it? The answer to this question is the difficult part. It is difficult for the following reasons.

1. The location of the stove and its users is remote therefore from a purely geographic perspective it is difficult and costly to get to; once there communities are long distances apart.

2. The appliance is located in an Indigenous community which means that the householders using the stove might speak English as their second, third or fourth language, there are significant cultural issues to consider in terms of time, words and their meanings, whom to tell what and so on (Miller and Rainow 1997).

3. There is documented chronic crowding of houses (Department of Families 2007), sometimes up to 30 people use one house, the question then becomes whom to ask? How to know who is there and when? How to know who is doing the cooking? How to know how many people are cooking?

4. This population in Australia is already heavily 'interrogated' or consulted. One study documents a community where about 142 scheduled meetings took place over a three months period (Miller and Rainow 1997). This is at the very least 2 hours per day for every working day of the week for 3 months. Just going to meetings becomes like a part time job. This makes the consultation and collaboration not an easy thing to implement, as one would have to 'cut through' the meeting and project fatigue (Campbell and Christie 2008, Maar, Seymour et al. 2010) and how to establish this as a different and more worthwhile project form others?

As demonstrated in this brief overview the 'how' is difficult. Of course it is possible to engage translators and anthropologists to start building enduring relationships and to eventually construct some sort of a picture of what is going on. Considering that remote locations are difficult to get to, accommodation might not always be available and of course the time required and the fact that we are now building a larger team cost are increasing in an environment where funding is competitive. Therefore how can we find out why electric stoves, critical pieces of health hardware are not working?

Another way would be to focus on the operating environment. This however requires an awareness of

the environmental performance parameters. What quality is the electricity provided? What are the temperatures in which this appliance has to operate? Is there dust, humidity? What service and maintenance provisions are there? What quality are the transport and road infrastructure? These are tangible questions that could be established with relative ease and they might contribute towards a better understanding of the stoves operating conditions. But are they all we need to know? The short answer is no.

What if the designer instead of talking to the people would interview the stove? Instead of focusing on the user the designer would focus on the use? To get the thing to tell us a story about its use.

For my research I interviewed 16 stoves in two remote communities for one year by recording their power use with data loggers in the meter-box. This was an unobtrusive and non invasive way to go about it. Every 3 minutes the stoves were asked - what are you doing?

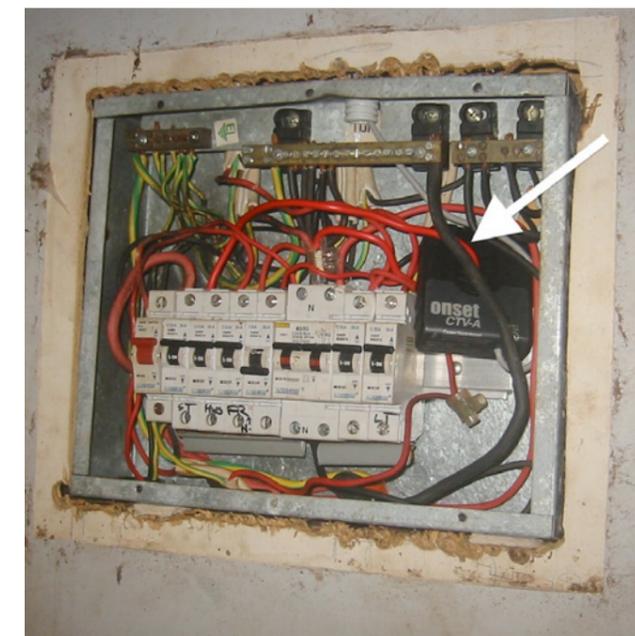


Image 6 Current Sensor in Meter box

THE RESULTS

What did they tell? The scientifically tabulated data showed daily average use is 3.5 hours up to 6 hours per day in some instances. Graphs show a pattern of typical morning, midday and evening peaks and the average duration of use is 15 minutes or less (Tietz 2009).



Image 7 Average Stove Use

Therefore the stove is not used to heat the house or for kids to play with, but to cook, boil water for tea and reheat food. 47% of surveyed households don't have extra cooking appliances - microwaves, kettles, or toasters (Tietz and Norman 2008). The manufacturer states that the stoves are built to be used for only 5 hours per week (Tietz 2008). After 1 to 1.5 days these stoves have exceeded their weekly performance and in their short life they've worked the equivalent of 10-15 years. The common suggestions that 'they' need education and training to use appliances is not fair. To blame the user if a product malfunctions would not occur in a more 'mainstream' design setting. Designers would accept that the design is not well resolved if there is ongoing and prolonged ill performance. Yet in this setting housing managers and providers simply reordered the same ill performing stove. A stove in Australia is a fixture, a capital item it has to be hard wired into the house and can't be simply unplugged and taken away. In order to reduce installation costs and in an acknowledgement of their high turn over suggestions have been made to fit stoves with plugs instead of the costly and somewhat lengthy procedure of hard wiring them in each time they need to be replaced. This demonstrates that the dominant thinking accepted the rapid breakdown and as a coping mechanism turned a capital item into a consumable item. This is not a sustainable approach, neither environmentally nor economically. It acknowledges the obvious failure of the stoves and not attributing this failing to the thing but to the users.

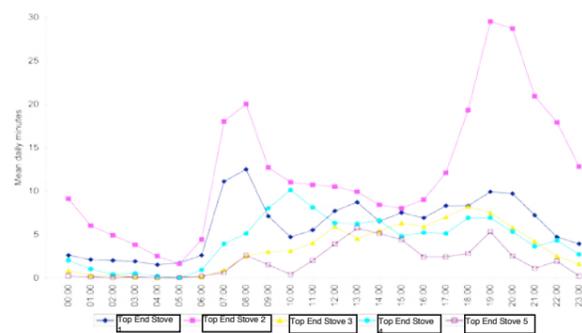


Image 8 Typical Stove Use Time Graph

This research exposed the users as innocent bystanders who simply want to cook their food but due to the technical means in place can not do so.

It established that one contributing factor of why programs to Improve Nutrition are not making much progress is not due to the lack of education, training and policy but due to the quality of the technical means required to implement the actual carrying out of the recommended practices. The average 6.4 householder per stove in this survey contrast with the 2.4 (Australian Bureau Statistics 2001) average for the Australian mainstream by a factor of about 2.7.

The fault in this case is clearly with the stove - it is not fit for purpose. The solution is a purpose designed stove, a reliable piece of health hardware that lasts long and supports healthy cooking.

DISCUSSION

When a commercial stove manufacturer was approached about this issue they provided information about appliances that meet those higher performance requirements right off the shelf. After all that is what they do, they provide commercial kitchens and restaurants with the means cook to reliably for prolonged periods of time on a daily basis. Commercial kitchens are high pressure environments where it is of utmost importance that a team of skilled professionals work together to get their meals out reliably and on time. According to anecdotal evidence provided, cooks close the oven door with a kick of their feet, stand on oven doors to reach shelves above and in general demand rigorous performance from their 'machines' (Davidson 2010). Matching the operating hours of the stove with their designed for 'use load' revealed that there was an obvious mismatch. It had nothing to do with education, training nor culture. It was simply the wrong tool for the job, but no one thought to check this.

What this example shows is that common product performance assumptions can have a more severe effect in a remote setting than in the more common service rich urban environment.

A survey carried out by the National Technology Resource Centre in 1996 about washing machine performance in remote communities (Lloyd 1998) came to a similar conclusion. Lloyd stated that "The

obvious conclusion from this analysis is that the more robust 'commercial' type of machines are the only reasonable option for remote Aboriginal communities. These machines are designed for around 20 years operation in commercial laundries with low down time."



Image 9 Commercial Stove

Interestingly Lloyd also arrived at this insight not through consultation with users about their clothes washing practices, but through the data logging of a number of washing machines in the field.

The point that emerges here is that health supporting equipment such as washing machines, stoves and other items need to be designed, made and provided of a quality that so far is not represented in these remote households. Instead of the provision of standard domestic appliances, a quality that is suitable for commercial use is required. As the National Indigenous Housing Guide (Department of Families 2007) shows this is not due to abuse or vandalism but due to high levels of use. These high levels of use are a direct indication that this population is urgently trying to implement healthy living practices but the levels of performance offered by the appliances in place repeatedly fail them.

Points to consider from this investigation for the Australian context are:

1. Consultation is not always best, nor always appreciated, nor might it deliver the critical insight required to fix the problem.

2. The best solution is not always 'Appropriate' as in simple and basic, but can be more sophisticated, technologically more advanced than common suburban consumer technology and therefore initially more costly but significantly cheaper in the long run. A NSW Health Department study has shown that

communities who participated in the HH methodology had a 40% reduction in Hospital separations (NSW Department of Health 2010).

3. These results challenge that the best solutions are those that the user can easily repair and replace or maintain themselves. Products do not require local materials, local labour or local skills, however the process does. Both main tenets of Appropriate Technology.

4. Users are usually not at fault but things are.

Therefore it is important to consider the physical aspects of a health strategy. It is both the soft (education, training, policy) and the health hardware (the fit for purpose technological means in place) that are required to ensure the success of a program.

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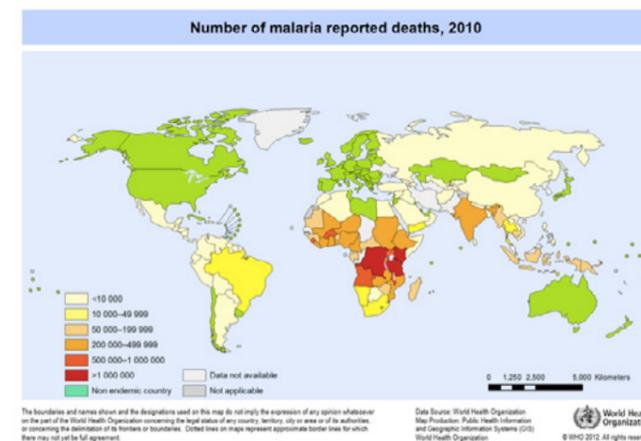
NEW STRATEGIES IN THE FIGHT AGAINST MALARIA: Teaching an Old Drug New Tricks

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INTRODUCTION

Malaria is a parasitic disease of global importance, claiming between half a million to 1 million lives annually and with about 50% of the world's population at risk of infection¹. Most malaria deaths occur in Sub-Saharan Africa and Southeast Asia (Fig. 1). In recent decades, the global malaria situation has seen overall improvement due to concerted efforts by the World Health Organization (WHO), United Nations (UN) and other organizations (Medicines for Malaria Venture, Roll Back Malaria Partnership etc), and funding agencies (Bill and Melinda Gates Foundation etc) in reducing the malaria burden. Although WHO has reported improvement in the global malaria situation, these gains are considered fragile, because past experience has shown that reduction in malaria incidence can be achieved but is difficult to sustain. A significant roadblock to complete malaria eradication is the fact that the malaria parasite has become resistant to almost all the drugs that are currently deployed for treatment. Even the frontline artemisinins has, in recent years, been losing their potency in Cambodia, Thailand, Burma and Vietnam². Figure 1. Global map of malaria showing majority of malaria deaths arising from Africa and Southeast Asia, predominantly



India. Reproduced with permission from WHO
(Source: Number of Malaria Reported Deaths, 2010 http://gamapserv.who.int/mapLibrary/Files/Maps/Global_Malaria_ReportedDeaths_2010.png)

1 WHO (2011) World Malaria Report
2 WHO (2012) Update on artemisinin resistance—April 2012

The UN has committed to ending malaria deaths by 2015. In order to achieve this, new and better drugs are urgently needed. Bringing a drug to market is fraught with failure and can be an extremely lengthy and expensive (approx. 10 years and USD 1 billion) process even if successful³. In light of these limitations, there is a growing interest in re-looking and redesigning old therapies, as these can be implemented rapidly⁴. An attractive candidate for repositioning is chloroquine (CQ), a 4-aminoquinoline antimalarial that has been rendered virtually useless for the treatment of malignant malaria due to drug resistance⁵.

THE MALARIA PARASITE

Malaria is a potentially fatal disease caused by single-cell parasites of the genus *Plasmodium*⁶. The disease begins when an infected Anopheles mosquito injects parasites into the bloodstream of an unsuspecting human host. The parasite is rapidly cleared from circulation and infects liver cells. Each infected liver cell provides resources for the parasite to divide into numerous (over 10,000) red blood cell (RBC)-infective forms. These are liberated from the liver cell and go on to invade RBCs, whereby the parasite consumes hemoglobin for its growth and development (Fig. 2). The parasite replicates within the RBC, produces progeny, destroys the RBC and goes on to infect other RBCs. This cycle of growth, destruction and invasion manifests as signs and symptoms (fever, chills, and anemia) associated with the clinical disease malaria. During the course of the disease, some parasites develop into sexual stages and are picked up by mosquitoes. These stages develop within the mosquito mid-gut and eventually migrate to the mosquito salivary glands as liver-infective forms.

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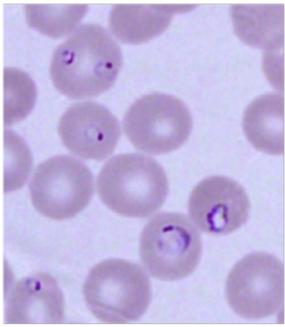


Figure 2. Malaria parasites developing within human red blood cells

CHLOROQUINE: OLD AND NEW MODES OF ACTION

CQ, originally named “resoquin”, was first synthesized in Germany in 1934 but it was not until 1946 that CQ was deployed for treatment of malaria⁶. From the late 1950s, reports of chloroquine resistance (CQR) in Southeast Asia and South America began emerging. Today, CQR is observed in almost every region that is endemic for malaria. While CQ and its related drugs had saved millions of lives in the earlier part of the last half-century, drug resistance would go on to claim millions of lives in the subsequent years. CQ works by accumulating within the parasite digestive vacuole (DV), a protease laden subcellular compartment involved in parasite metabolism and detoxification of hemoglobin. CQ is thought to prevent heme polymerization, and the resultant toxic heme molecules kill the parasite by destroying its membranes. CQR arises when mutations in an essential transporter of the DV membrane, PfCRT, allow CQ to be effluxed out (pumped out) of the DV. This decreases the amount of CQ within the DV and limits CQ inhibition of heme detoxification⁵.

Research in our laboratory on malaria-infected RBCs has shown that while low concentrations of CQ induce cell death by the classical heme detoxification model, higher concentrations of CQ elicit a novel cell death pathway which involved the direct disruption of the parasite DV membrane. DV disruption leads to release of parasite proteases (enzymes that cleave proteins) that result in parasite death via ‘autodigestion’^{7,8}. A key factor in the elucidation of

this new pathway was the use of a novel tool developed in collaboration with our Chemistry counterparts; a fluorescent-tagged analogue of CQ⁷, possessing localization and functional properties (see Breakthrough #2 below). Interestingly, this hitherto unappreciated killing mechanism was effective against drug resistant isolates of malaria, suggesting that the mutant PfCRT was not able to cope with the higher levels of CQ administered. Because such higher levels of CQ are found in the blood of treated individuals, we and others propose that a new dosing regimen which maintains micromolar (μM) levels of CQ in blood would be an effective means of treating both CQ-sensitive (CQS) and CQR strains of malaria parasites^{5,9}.

In the current report, I will discuss three research breakthroughs that I believe will provide the malaria community with new tools and cost effective strategies for combating drug resistant malaria.

BREAKTHROUGH #1: BURSTING THE BELLY OF THE BEAST

Exposure of malaria parasites to high dose CQ led to the disruption of the parasite DV, a subcellular compartment akin to a microbial stomach⁸. Like a stomach, rupture of protective DV membrane which normally sequesters toxic enzymes away from the rest of the cell, leads to the release of these substances and resultant destruction of vital cell organelles including mitochondria and nucleus. Although μM levels of CQ can be sustained in blood with the aim of disruption the parasite DV, a potential problem with this strategy is the toxicity of CQ⁹. Side effects of CQ include stomach aches, itching, headaches, dizziness, nightmares and blurred vision. In order to identify safer alternatives, we developed a cell-based screening assay for compounds that rupture the parasite DV. The basis for the assay is simple and exploits the fact that the parasite DV is also a repository for calcium ions. Using calcium sensing fluorescent molecules, each healthy parasite reveals a small focus of intense green fluorescence indicating accumulation within an intact DV. A disrupted DV allows calcium to leak out and occupy the surrounding parasite cytoplasm, resulting in a weaker fluorescing, larger-stained area. A change in area stained by the fluorescent reporter was observed to be a useful surrogate readout for DV disruption (Fig. 3). We

adapted this feature into a high-end device (high-content flow cytometry) which allows for thousands of cells to be analyzed, and fluorescing areas measured, within short spans of time. Exposure of malaria-infected RBCs to a panel of antimalarials with unknown modes of action, revealed two compounds with superior abilities to disrupt parasite DV. Interestingly, one of the candidates, quinacrine (QC), is also structurally related to chloroquine. However, it was shown to be effective at disrupting the parasite DV at much lower concentrations than CQ. Detailed cytochemical studies on the cellular effects of QC on the malaria parasite revealed that the drug elicited cell death features similar to CQ-mediated DV breach-associated cell death. These included mitochondrial dysregulation and nuclear fragmentation. Thus, CQ’s new mechanism of killing has positioned the parasite DV as an attractive drug target. In mammalian cells, lysosomes, organelles closely related to the malaria DV, are similarly targeted and disrupted by CQ and other weak bases. Such lysosomotropic compounds are the basis of our current search for novel DV-disruptive molecules. The model for DV membrane disruption is via osmotic lysis due to the concentrated lysosomotropic compound, or via the detergent-like properties of the molecule, which disrupt the lipid DV membrane. In either model, the biophysical nature of the disruption is likely to be a rapid and irreversible process. Such non-specific perturbations are unlikely to generate resistance, adding to the attractiveness of the current strategy.

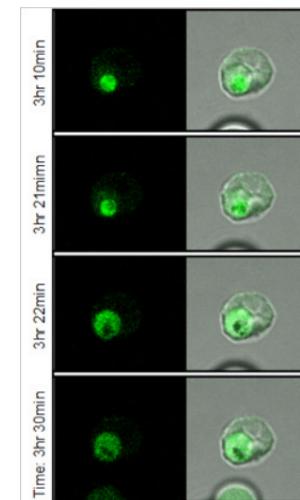


Figure 3. Malaria parasites exposed to high dose chloroquine induce calcium relocation from digestive vacuole to cytoplasm
Timings refer to times post chloroquine exposure

BREAKTHROUGH #2: ILLUMINATING DRUG RESISTANCE USING FLUORESCENT DRUGS

The application of fluorescent-tagged CQ to malaria parasites showed that the drug accumulated to high concentrations in the parasite DV, in agreement with previous reports⁷. It is known that CQR parasites accumulate four to ten times less CQ in their DV than CQS parasites¹⁰. Expectedly, the fluorescent compound also exhibited significantly lower fluorescent levels in CQR than in CQS parasites. Importantly, we observed that the level of fluorescence was proportional to the sensitivity of the parasite to CQ. That is, the more sensitive the parasite to CQ, the higher the fluorescence and by extension, the greater the accumulation of CQ. The assay is simple to perform and takes about 2-4 hours from drug addition to reading of results. Because conventional drug resistance determination assays are laborious and time consuming (24-48 hrs), the present fluorescent uptake assay is an attractive new alternative to current approaches.

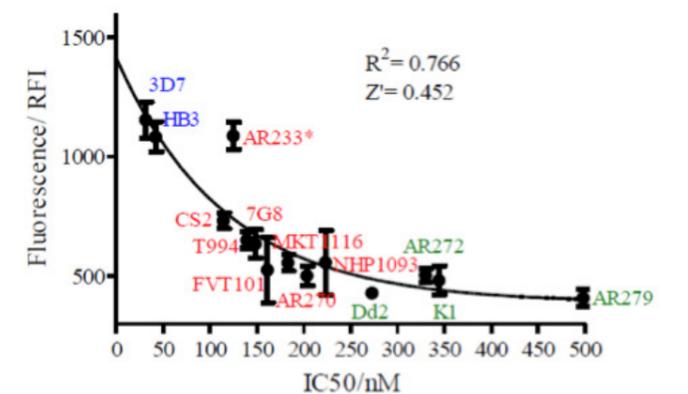


Figure 4. Rapid fluorescent-CQ uptake assay
Fluorescence levels were inversely proportional to parasite resistance to CQ, measured by inhibitory concentration 50% (IC50) values. Blue: CQ sensitive; Red: CQ intermediate resistance; Green: CQ high resistance

Our assay was validated against 14 malaria isolates comprising laboratory and field isolates of varying sensitivities to CQ. We show that there was excellent correlation between drug uptake and sensitivity to CQ (Fig. 4). Molecular studies are underway to catalogue mutations associated with CQR in these isolates to understand how these may influence drug uptake, as a step towards a mechanistic understanding of the observed uptake phenotype.

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BREAKTHROUGH #3: MAKING RESISTANT PARASITES SENSITIVE AGAIN

CQR parasites accumulate less CQ due to an efflux pump mechanism conferred by mutations in the CQ resistance transporter (PfCRT). Interestingly, compounds that either compete with CQ for binding or block PfCRT allow CQ to accumulate to wild type levels and restore parasite sensitivity to CQ. Such chemoreversal or chemosensitizing compounds are potentially effective partner drugs that can be co-administered with CQ⁵. Verapamil was the first CQ-chemoreverser to be described and in the 25 years since, over 40 resistance-reversers have been reported. To date, none have been successfully deployed in the clinical setting due to potency and toxicity issues. A major hurdle to the identification of chemoreversal compounds are the laborious and time consuming assays that are required for their identification. Such assays rely on long incubation times and numerous data points (drug dilutions) to determine the effectiveness of a particular combination. Exploiting our observations that CQR parasites accumulate less fluorescent-CQ than CQS parasites, we show that fluorescent-CQ fluorescence, and hence CQ levels, is restored when a panel of known chemoreversal agents is co-administered with fluorescent-CQ. When expanded to a large library of compounds, this simple readout was shown to be a very rapid screen for potential chemoreversal candidates (Fig. 5). From a library of 1,280 pharmacologically active compounds (LOPAC), we observe 40 that were potential chemoreversers. That is, while it took 25 years to identify 40 compounds, our assay could detect 40 potential compounds in a few days!



Figure 5. High throughput fluorescent-CQ chemoreversal screening assay. This simple assay requires only three components: culture containing CQ resistant malaria, drug candidate and fluorescent-CQ. Drug candidates that reverse resistance will restore CQ accumulation within malaria parasites and hence increase fluorescent levels, which can be readily read using a conventional fluorescence plate reader.

From the list of 40, seven of the most potent chemoreversers were selected. When compared against a three-dimensional molecular (QSAR) model for chemoreversal agents, all seven possessed the required two aromatic rings and a nitrogen atom as a hydrogen bond acceptor.¹¹ Of these seven, two novel compounds, L703606 and mibefradil were observed to be considerably more potent than classical chemoreversal agents. L703606 is a potent and selective non-peptide neurokinin-1 (NK1) tachykinin receptor antagonist but little is known about its pharmacokinetics or toxicity profile. Mibefradil is a long acting calcium antagonist used in the treatment of hypertension and chronic stable angina pectoris. The chemoreversal properties of L703606 and mibefradil were further validated against a panel of laboratory and field isolates of multi-drug resistant malaria and were observed to be effective in restoring CQ sensitivity to these parasites.

The screening process was found to be rapid (each screen of the LOPAC library was accomplished within 15 hrs) and simple to perform (three steps: staining, washing and taking readings). This straightforward method will be applied to larger and more complex libraries in the hope that the identification of chemoreversers with suitable efficacy and safety profiles can be greatly accelerated. Arguably, in combination with CQ, this straightforward screening method has the potential to return CQ to the arsenal of effective antimalarial treatments in the clinic.

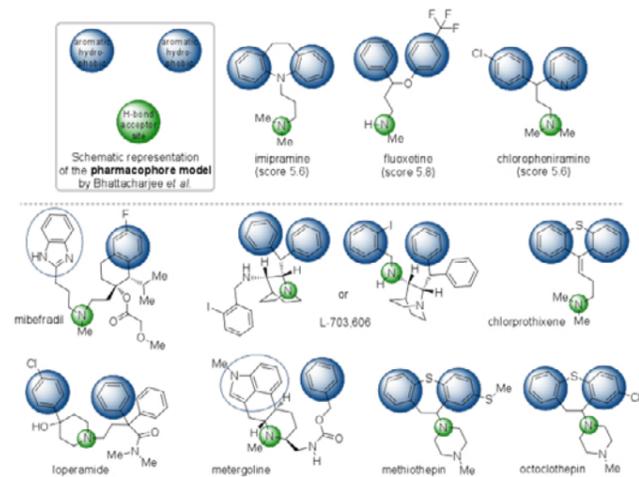


Figure 6. Schematic representation of the pharmacophore model developed by Bhattacharjee et al¹¹ and three CQ-resistance reversal agents with their "Best-Fit" Scores (top); chemical structure of the seven novel chemosensitizers presented in this report (bottom)

Can the Battle be Won with CQ?

CQ served as a frontline antimalarial from the mid-1940s to the 1990s before resistance rendered it ineffective in most endemic regions. The long duration by which resistance arose to CQ and its related compounds suggests that the resistance-conferring mutations in PfCRT are counterproductive to parasite survival. Indeed, PfCRT is essential for parasite viability⁵. The use of chemoreversal agents in combination with CQ may therefore prove clinically valuable since the chemoreversal agent may serve two functions, to increase the levels of CQ to therapeutic levels within the parasite DV, and to disrupt PfCRT function. Although there is a possibility that resistance may arise from a CQ-chemoreverser regimen, the odds are against this if the drug combination cripples multiple targets. It is perhaps unwise to suggest that a repositioned CQ will be the awaited elixir for malaria treatment. However, the strategies proposed in this report can be integrated into current malaria research and eradication programmes. Indeed, attacking the disease on multiple fronts with new and repositioned drugs, novel tools and strategies, will ultimately help win the battle over malaria.

PSYCHONEUROIMMUNOLOGY AND A NEW WAY FORWARD FOR BIOLOGICAL PSYCHIATRY

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Despite an abundance of evidence from biochemistry and neuroscience in support of the field of biological psychiatry, social critics question the legitimacy of the field (Valenstein, 1988; Wyatt & Midkiff, 2006). Psychiatrists of the early twentieth century remain infamous for performing unnecessary operations on patients, and for widely varying standards of care (Crossley, 2006). Social critics maintain that psychiatric treatment diminishes the authenticity of their patients (Degrazia, 2000). In the past few decades, a very strong backlash against psychiatric medication has weakened public confidence in treatments for mental illness (Sartorius et. al, 2010). Biological psychiatry may be controversial because of its overlap between the material biological sciences, and the non-material psychological sciences. Differences in philosophy drive the controversy in biological psychiatry, and these differences cannot be overcome without new approaches in research. The burgeoning field of psychoneuroimmunology (PNI) offers a new hypothesis to explain the increased prevalence of mental illness in industrialized nations, which conflicts with accounts from social critics and evolutionary psychologists. New developments in PNI offer strong evidence that the broad attacks that question the necessity of research into the biological mechanisms of mental illness are unjustified.

THE DEVELOPMENT OF PSYCHONEUROIMMUNOLOGY

In 1974, Experimental Psychologist Robert Ader surprised researchers with experiments at the University of Rochester, where he succeeded in killing rats with a mere sugar substitute. He gave the rats saccharin at the same time as an immunosuppressive drug was administered. He repeated this simple coadministration several times to induce Pavlovian conditioning; that is to create an association between saccharin and immunosuppression. Ader was shocked to discover that when he then gave a single administration of saccharin alone to these same rats, a portion of them died as their immune systems shut down. This research provided evidence for a mecha-

nism by which the mind can manipulate the immune system. What had not been widely acknowledged in the United States was the work Sergey Metalnikov. Metalnikov was a student of Pavlov, who pioneered research into the connections between the brain and the immune system. While the dogma in American physiology held that the brain and the immune system were isolated, Soviet researchers were using conditioned stimuli to evoke immune responses in animals (Fokin, 2008). The Soviet Union had a 50-year head-start on psychoneuroimmunology research, while their American counterparts struggled for mainstream acceptance

While the evidence of the ability to condition the immune system was compelling, the impact of PNI among immunologists in the United States was undermined by the fact that this approach was recruited by supporters of New Age philosophy as scientific support for their beliefs. The concept that the mind could change the physical reality of the body greatly appealed to pseudoscientists who practice 'visualization' and to hucksters who sell products that 'heal your chakras' or "ward off disease and promote vibrant health" (Cohen 2005). In the 1970s and 1980s PNI researchers struggled to gain acceptance from the mainstream scientific community. The turning point for PNI occurred around the same time that cognitive neuroscience was popularized with the development of functional magnetic resonance imaging (fMRI) in the early 1990s. Researchers in the basic biological sciences became more familiar with relationships between the brain and behavior unveiled by cognitive neuroscience. Around this same time, PNI researchers established their own research society and launched a peer-reviewed journal, *Brain, Behavior & Immunity* that is now in the top third of both neuroscience journals and immunology journals. The acceptance of interdisciplinary endeavors by the scientific community was critical for the field's future growth and success.

PNI distinguishes itself as a field that has successfully integrated disparate fields of inquiry. As the name suggests, the fields of psychology, neuroscience, and immunology are the three most important fields contributing to PNI research. Biochemistry, sociology, and political science have also made contributions to PNI, revealing PNI as a diffuse discipline that fosters inquiry into phenomena that one chauvinistic approach cannot dissect. There is no archetypal PNI experiment, but it is common to investigate correlations among psychological events (e.g. a depressive episode), the neural underpinnings, and the immune response. Ader and his colleagues began to pay more attention to the periphery, outside the central nervous system that until then had been completely ignored by American psychologists and neuroscientists. The field has exploded with new findings. For example, PNI researchers have found systematic differences in DNA methylation patterns between children raised in families compared to those who were raised in orphanages (Naumova et. al 2011). There is a wealth of evidence supporting the contribution of immune dysregulation to the development of depression (Blume, Douglas, Evans 2010). There are even links between psychosocial stress and exacerbation or quickened progression of HIV and cancer (Kiecolt-Glaser, Glaser 1995).

Perhaps the most important hypothesis borne of PNI research is the "hygiene hypothesis." The hypothesis holds that allergic, autoimmune, and perhaps even mental illnesses are more prevalent in industrialized countries because inhabitants are not exposed to bacteria and parasites with which we co-evolved (Raison, 2010). These bacteria and parasites provoke an immune response in humans since they are foreign material. Before industrialization, the human immune system would have been under near constant challenge from foreign organisms. Some organisms, such as gut bacteria, benefit humans because they help digest otherwise undigestible food. Now that these immune challenges no longer exist for humans in the industrialized world, the immune system becomes over-activated when exposed to nonhazardous allergens or even to tissue from the same human. This theory derives directly from early experiments that demonstrated the immune system could be conditioned. The hygiene hypothesis suggests that these parasites and bacteria conditioned the immune system not to overreact.

PSYCHONEUROIMMUNOLOGY AND EVOLUTIONARY PSYCHOLOGY

Even though western industrialized countries enjoy a higher standard of living and better health care, they also have a higher prevalence of mental illnesses such as a depression and schizophrenia (Centers for Disease Control). This epidemiological discovery contradicts assumptions that mental illness prevalence ought to be similar to infectious disease prevalence because wealthier nations are healthier. Evolutionary psychologists have formulated their own theories for the increased prevalence rate in contradiction with theories from PNI researchers or social critics.

While there is no overarching theory among evolutionary psychologists to explain mental illness in general, there are hypotheses specific to different illnesses. Abbed and Abbas (2011) have proposed that increased prevalence of schizophrenia in urban populations and among new immigrants is related to a mismatch between the Neolithic social environment and the contemporary social environment. One of the universal traits of humans is the ability to identify those who belong to one's own group and those who belong to an out-group. Keeping with the symptoms of social incompetence and paranoia in schizophrenia, Abbed and Abbas hypothesize that the high density of out-group individuals in urban environments causes the brain to inappropriately process the social milieu. That is, the abundance of new people in urban environment precipitates the paranoia and social dysfunction of schizophrenia. Other evolutionary psychologists (Andrews & Thomson 2009) believe that depression is an adaptive response to the modern environment. According to them, modern society creates complex problems for humans to overcome, and the constant rumination of major depression is an adaptive way to solve difficult social problems.

The weakness in evolutionary psychology's explanations for mental illness lies on the assumption that humans have a Neolithic brain in a contemporary environment. Evolutionary psychologists assume that the brain has changed very little in the last 10,000 years. But DNA methylation experiments suggest that alterations in brain and behavior can take place over a single generation. Michael Meaney (Kaffman & Meaney, 2007) has shown that rat offspring that received more maternal care went on to develop less inhibited and anxious-like behavior in adulthood.

The discoveries in epigenetics suggest that evolutionary psychology has underestimated the rapidity of the changes within the brain across just a few generations.

THE MISGUIDED BROAD ATTACK ON PSYCHIATRY

The broad attack on psychiatry claims that Americans are over-medicated and that mental illness ought not be described in physiological terms. This broad attack has seriously weakened public confidence in the psychiatric profession and even challenged the utility of psychiatric medication. The predominant hypothesis among social scientists is that the increased prevalence in industrialized countries is simple over-diagnosis. The Diagnostic and Statistical Manual of Mental Disorders IV is the national standard for diagnosis. A committee of eminent psychiatrists writes the DSM, and the inclusion of an illness is put to a vote. Because these psychiatrists take large salaries from pharmaceutical companies, they are vulnerable to critics who claim that the psychiatrists make the criteria very broad allowing pharmaceutical companies will sell more drugs.

The most specific and effective attack on biological psychiatry is that it is essentially anti-reductionist. Reductionism as defined by its critics is an overreliance on analyzing a phenomenon based on its component parts; that the biological component parts together cannot account for the psychological phenomenon as a whole. To be against the reductionism of biological psychiatry, is to reject the need to study the physiological underpinnings of mental illness. Marcia Angell, as a former AMA president, is the most credible standard-bearer of anti-reductionist criticism. She describes her arguments against the necessity of psychotropic medication to treat mental illness in a New York Times Review of Books article (2011), the crux of which is elaborated in the following quotation:

Nowadays treatment by medical doctors nearly always means psychoactive drugs, that is, drugs that affect the mental state... The shift from “talk therapy” to drugs as the dominant mode of treatment coincides with the emergence over the past four decades of the theory that mental illness is caused primarily by chemical imbalances in the brain that can be corrected by specific drugs.

Angell prescribes talk therapy, and later in her article, more training for family members of the mentally ill. Angell does not deny that mental illness exists, but she implicitly suggests that the only appropriate way to treat a mental illness is with non-material therapy. There have been many books written on the topic of medication for mental illness, and a common theme is their contempt for the ‘chemical imbalance’ theory of depression. According to Angell, psychiatrists still cling to the chemical imbalance theory of depression even though biological researchers have ceased to take it seriously.

Pharmaceutical companies were quick to embrace the chemical imbalance theory in their marketing campaigns. Drugs could then be sold as a cure for a biological illness for which the sufferer cannot be faulted. The theory was used to teach the public that those with mental illness were not simply weak of character and that those afflicted with depression could not simply “snap out of it” if they willed so. Psychiatrists participating in the new edition of the DSM have described the chemical imbalance theory as a “useful metaphor” for depression. That is, mental illness is a biological disorder. That the chemical imbalance theory is out of date and horrifyingly simplistic in the eyes of basic researchers is beside the point. Chemical imbalance theory is an easy target for those who do not believe mental illnesses can be reduced to brain pathophysiology.

One of the strongest arguments in Angell’s article is her characterization of anti-depressant medication as an ineffective and dangerous. Anti-depressants produce mild symptomatic improvement and have side effects as benign as dry mouth or as insidious as increased risk of suicide. But Angell does not mention the success of anti-anxiety drugs. Beta-blockers and benzodiazepines work quickly to reduce symptoms of anxiety with minimal side effects, and low risk of addiction. Angell exploits the weak points in contemporary psychiatric practice to implicitly draw a wider philosophical point.

It seems that Americans are in the midst of a raging epidemic of mental illness, at least as judged by the increase in the numbers treated for it... A large survey... found that an astonishing 46 percent met criteria... for having had at least one mental illness within four broad categories at some time in their lives (Angell, 2011).

Op-Ed columns across the nation undermine the credibility of medical authorities with the accusation that mental illness is over-diagnosed citing such statistics. But there is no reason to doubt the high prevalence of mental illness over the human lifespan. The common cold and other viral infections approach 100% prevalence over the human lifespan, but pharmaceutical companies and physicians are not attacked for producing and prescribing the ineffective anti-flu medication, tamiflu (Kresge, 2012). No one calls upon the National Institutes of Health to overhaul diagnosis guidelines for influenza because it is too common. A more salient example may be the increased prevalence of metabolic disorder brought on by the consumption of fatty foods and low amounts of exercise. Epidemiologists are still searching for all of the causes of the increased prevalence of metabolic disorder. But unlike for researchers of mental illness, the failure of metabolism researchers to find a cure is not held up as evidence against the existence of metabolic syndrome:

But the main problem with (chemical imbalance) theory is that after decades of trying to demonstrate it, researchers have still come up empty-handed. All three authors document the failure of scientists to find good evidence in its favor. Neurotransmitter function seems to be normal in people with mental illness before treatment (Angell, 2011).

Angell unfortunately mischaracterizes the criteria for the diagnosis of a mental illness. While Angell does not directly accuse the medical community of over-diagnosing ADHD, she does minimize debilitating symptoms of ADHD: “one would be hard pressed to find a two-year-old who is not sometimes irritable, a boy in fifth grade who is not sometimes inattentive” (Angell, 2011). According to the DSM-IV, 6 specific inattentive and 6 specific hyperactive behaviors must occur frequently in the space of 6 months to merit ADHD diagnosis. In the specific case of ADHD, two studies (Jensen et. al 1999; Sciotto & Eisenberg 2007) found that there is no over-diagnosis. Those two studies simply compared ADHD cases to the DSM criteria, so they cannot directly rebut the fundamental criticisms of the biopsychiatric model of mental illness.

In her zeal to point out the shortcomings of contemporary psychiatry and biological research, Angell

has not kept the sufferers of mental illness and their families in mind. Angell and allied social critics claim to hold the high ground as humanists, but they push aside well-substantiated biological evidence that supports the involvement of brain pathology in mental illness. Psychotropic medications improve the symptoms of debilitating mental illnesses, and to withhold these medications from sufferers, serves no one well.

PSYCHONEUROIMMUNOLOGY’S NEW WAY FORWARD

Fortunately, there is a way out of the conflict over biological psychiatry. While the name psychoneuroimmunology implies integration of only three fields, in fact many more fields including political science, biochemistry, and sociology fall under its umbrella. The only methodology typical of a PNI experiment is to find a correlation between a material, biological factor and a non-material psychological factor. PNI researchers recognize that humans live within a complicated environment that is often best analyzed by sociologists or political scientists, and that this environment ought not be ignored as an excuse to study a system in an unnaturally pure state.

The revolution of sanitation extended human life by decades, but it came with unforeseen consequences. Humans lost their exposure to the neoplasms that are needed to modulate the immune system, to prevent an overactive immune response. Contemporary humans now have immune systems that overreact to benign allergens, and are further activated by modern social stress. Social stress can be precipitated by rapid changes in politics, economic uncertainty, or by the demands of national culture. The hygiene hypothesis relies on a diachronic perspective that takes into account rapid epigenetic changes. If the hygiene hypothesis is found to be valid, we will have discovered an important mechanism of self-directed evolution.

Our theoretical and philosophical approach to the study of mental illness determines its diagnosis and treatment. While epidemiological data do not conclusively favor any of the theories put forward by anti-reductionist critics, PNI researchers, or evolutionary psychologists, the hygiene hypothesis stands on the strongest theoretical foundation. PNI’s theory for increased prevalence avoids overreliance on reductionist inquiry by accounting for relations between non-material psychological events and biological systems. With their emphasis on the non-physical nature of

mental illness, the anti-reductionists react against the unpleasant ambiguity of mental illness. In the future, researchers must take on this inscrutability, mindful that their research relies on the fragile victories of interdisciplinary inquiry.

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A CROSS-COUNTRY COMPARISON OF INTELLECTUAL PROPERTY RIGHTS PROTECTION ON PHARMACEUTICAL INNOVATIONS

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Abstract: Building on the seminal work of Ginarte and Park (1997), this paper develops and calculates a new measure of property rights in pharmaceutical innovations, the Pharmaceutical Intellectual Property Protection (PIPP) Index. The PIPP Index is calculated annually from 1960 to 2005 for 154 countries. It measures whether a country has established six types of intellectual property rights in pharmaceuticals; seven statutory measures of enforcement; and three measures of the extent to which foreigners can establish and enforce intellectual property rights in pharmaceuticals. We find that the PIPP Index varies systematically over time and across countries. Over the entire sample period, it trends upwards for both developed and developing countries. Most countries did not establish property rights in pharmaceutical innovations until they were pressured to do so or had become high-income countries. The 1995 TRIPS Agreement dramatically increased the extent of intellectual property protection for pharmaceutical products for countries at all levels of development. After 1995 the ratio of the average PIPP value for developed countries over the average PIPP value for developing countries fell due to strong increases in protection among developing countries.

INTRODUCTION

Cross-country studies of the impact of intellectual property rights on innovation have usually relied upon country-wide measures of the strength and scope of a country's patent system (Gadbaw and Richards, 1988; Rapp and Rozek, 1990; Ginarte and Park, 1997). Such measures may, however, be inappropriate for studying the effects of IPR protection on innovation in a specific industry, as IPR coverage often varies substantially across industries due to differences in the scope, term, and strength of IPR instruments available to protect innovations in a particular industry. The development of industry-specific measures of IPR protection would facilitate industry studies of the impact of IPRs on innovation, trade, foreign investment, product variety, and a host of other issues. An industry-specific measure

becomes more important for empirical research as the industry's IPR coverage deviates from overall IPR coverage and is recognized as being important for stimulating innovation in the industry.

The pharmaceutical industry seemingly meets these criteria. Numerous studies have established the importance of intellectual property rights for the development of new pharmaceutical innovations, as new drugs or improvements to existing drugs can usually be imitated within a short time at relatively low cost (Mansfield, et al., 1981; Cockburn, et al., 2007). In addition, many countries with strong patent protection for other industrial products and processes have not always provided strong protection for pharmaceutical innovations. For example, in 1970 all 22 OECD countries had functioning industrial patent systems, but only four of them allowed new pharmaceutical products to be patented. Over the last four decades, the extent of IPR protection for pharmaceutical innovations has increased dramatically, as more than 90 percent of the world's countries now offer pharmaceutical product patents to both resident and foreign innovators. At the same time, the types of intellectual property available to protect new drugs and improvements to existing drugs have also expanded rapidly, with countries protecting innovations via product patents, process patents, formulation patents, new medical indication patents, and data exclusivity measures. The proliferation of new types of IPRs has made it more difficult to compare IPR protection of pharmaceuticals across countries and has increased the need for an index summarizing each country's property rights in pharmaceutical innovations.

In this paper, we develop an annual index, the Pharmaceutical Intellectual Property Protection (PIPP) Index, summarizing the presence, term, and strength of various intellectual property rights that can be claimed for pharmaceutical innovations in 154 countries over the period 1960 to 2005. The PIPP Index has many potential applications, as pharmaceutical IPRs affect a pharmaceutical company's choice of R&D expen-

ditures, investment, geographic location, and corporate strategies. At the industry level, these data can also help address questions regarding the relationship between IPR protection and pharmaceutical production, trade, and foreign direct investment flows.

LITERATURE REVIEW

Quantification of the strength and scope of IPRs protecting inventions is important, as these measures contribute to the characterization of the overall set of rules that affect the legal operation of business enterprises. Other measures characterizing the legal environment faced by business firms include indexes of economic freedom, environmental policies, and competition policies (Maskus, 2000). Such indices are used to summarize a multitude of policy indicators in each of these general areas, thereby providing analysts and decision makers with a more integrated and informative overview than would otherwise be attainable (Hammond et al., 1995; Niemeijer, 2002). The main task of developers of such indices is to identify critical policy indicators and to aggregate them using a methodology that produces a single summary measure of their scope and strength. Most indices are constructed as an application of Keeney and Raifa's (1976, 1993) multi-attribute utility via a four-step procedure.

First, general categories of interest are specified, and variables that provide information about important attributes of each general category are identified. For example, the Index of Economic Freedom (2001) assigns 50 variables to ten categories; the IMF's business environmental index in the World Competitiveness Yearbook (WCY, 2002) assigns (unevenly) 243 variables to 20 categories; Ginarte and Park (1997)'s patent index assigns 17 variables to five categories; and Knack and Kiefer (1995 and 1997) selected 5 questions from the World Value Survey and created a measure of the strength of norms of civic cooperation. Researchers typically must balance two factors when they select the number of variables for each category: Index accuracy, which increases as the number of variables increases, and country coverage, which decreases due to missing observations as the number of variables increases.

Once the categories and component variables have been identified, the second step is to determine weights to aggregate variables within a category as well

as to aggregate categories. When possible, weights should reflect the importance of each variable for the particular category and each category for the overall index. Researchers have used a variety of weighting methodologies to generate indexes. Commonly used methods include equal weights; weights determined by experts or public surveys; and weights based on the revealed importance of the variable or category.

For indexes that incorporate time series data, a third step is to determine whether to use fixed or time-varying weights. Time-varying weights allow for the specification of a more accurate index but are more costly to calculate than fixed weights and are less likely to be available for any given set of countries. Time-varying weights are mainly applied in fiscal, financial policy, and price indexes (Bhandari and Hanson 1986; Lalonde and Parent 2006).

A final and fourth step is to conduct a sensitivity test to determine whether the index's ordinal and cardinal rankings of country IPRs change substantially when there are small changes in category and variable weights. Ginarte and Park (1997) used the Spearman correlation test to test whether changes in weights produced statistically significant changes in the ordinal ranking of their patent index.

Gadbaw and Richards (1988) investigated IP protections for seven developing countries: Argentina, Brazil, India, Mexico, South Korea, Singapore and Taiwan for the period from 1984 to 1988. They found that during this period, the level of IP protection in developing countries was lower than the minimum IP standards provided by developed countries and the developing countries vary significantly in their level of IP protection.

Rapp and Rozek (1990) measured the extent and strength of patent protection across countries. Their index was constructed based on each country's adherence to the minimum standards for patent laws proposed by the U.S. Chamber of Commerce Intellectual Property Task Force. Their index covered 159 countries in 1984 scaled from zero to five. Countries with patent laws consistent with the minimum standards established by the U.S. Chamber of Commerce Intellectual Property Task Force received a score of 5; countries with less adequate patents laws received scores of 2, 3, or 4; and countries without a body of patent law received a score of zero. Rapp and Rozek (1990)'s in-

dex is highly correlated with per capita income. High-income countries (above US\$7,000 in 1985) have an average index value of 4.14, middle-income countries (US\$2,500-\$7,000) have an average value of 2.62, and low-income countries (below US\$2,500) have an average value of 2.46 (Richards 2004).

Seyoum (1996) used survey methods to generate new measures of the strength of IPRs in developing countries. The data on the level of intellectual property protection were obtained from a questionnaire that was administered to intellectual property experts and practitioners in these countries. The survey was conducted in 1995 and it was primarily based on guidelines for minimum standards for the protection and enforcement of intellectual property developed by the U.S. Chamber of Commerce Intellectual Property Task Force in 1987. The questions are based on a scale of zero to three, with zero representing the lowest level and three representing the highest level of protection and enforcement. The survey results are collected from IPR practitioners for 30 countries. After aggregating the results regarding attributes of various IPRs, Seyoum constructed four variables measuring the extent and strength of protection provided by each country for patents, copyrights, trademarks, and trade secrets.

Sherwood (1997) combined his own observations and experience with professional interviews and generated indices for 18 countries, mostly from Latin American. His IPR protection score theoretically ranges from 0 to 103 and is an aggregate of nine components: enforceability (25 points), administration (10 points), copyright (12 points), patents (17 points), trademarks (9 points), trade secrets (15 points), life forms (6 points), treaties (6 points), and general public commitment (3 points). Interviews were conducted in all countries and the score measures the state of IPRs at the end of 1996. A verbal justification is given for deducting points in each component, but the overall allocation of points to each component is not discussed. Since Sherwood's score is not easily verifiable by an outside observer, this limits its usefulness and extensions to other countries (Lesser, 2001).

Ginarte and Park (1997) constructed an index of patent rights that covers 110 countries over the 1960 to 1990 time period. They later extended its coverage through 2005 (Park, 2002, 2006). Ginarte and

Park identified five general categories of statutory attributes that affect the extent and strength of national patent laws: (1) extent of coverage; (2) membership in international patent agreements; (3) restrictions or limitations on the use of patent rights; (4) enforcement mechanisms; and (5) the patent's term. For each of the five categories, a country is awarded a score ranging from zero to one. To aggregate the five measures, they experimented with a range of possible weights. Results indicated that ordinal rankings across countries were not very sensitive to the choice of weights. Given these findings, they decided to weight each category equally and to add them together to form their index. Thus, their index has a scale of zero to five.

The Ginarte-Park Patent Index is superior in many respects to previous IPR measures, as it incorporates more detailed measures of index components while including enough components to span virtually all features relevant to patent rights and their enforcement (Kanwar, 2003). Their index has been widely used and cited in the rapidly expanding empirical literature analyzing the impact of stronger patent rights on a wide range of aggregate variables, including innovation, exports, foreign direct investment, and output growth.

Ginarte and Park's Index provides a good measure of overall patent protection for a national economy but may be less informative regarding the extent and strength of intellectual property protection for innovations in specific industries. IPR coverage can vary substantially across industries due to differences in the availability, scope, term, and strength of IPR instruments available to protect innovations in a particular industry. As we argued in the introduction, the pharmaceutical industry should receive special attention due to the importance of patent protection for pharmaceutical innovation and features of the patent law designed for the industry. Development of a patent index covering pharmaceutical innovations would facilitate empirical research on the impact of patent rights in this industry on innovation, trade, and foreign direct investment, among other topics.

CONSTRUCTION OF AN INDEX OF PROPERTY RIGHTS IN PHARMACEUTICAL INNOVATIONS

Our index of property rights in pharmaceutical innovations uses a general methodology that is similar to the methodology used to construct the

Ginarte-Park Patent Index and that differs from it in two key respects. First, the Ginarte-Park Patent Index measures the strength of a country's overall patent protection, while our index measures the presence and importance of several different types of patent rights—process patents, new product patents, second use patents, and formulation patents—that are used to establish property rights in pharmaceutical innovations.

Second, the Ginarte-Park Index weights each of the five categories comprising the index equally and aggregates them by adding them together. The variables within each category also aggregate with equal weights. Our index is a composite of three component sub-indices: Pharmaceutical Patent Rent Appropriation (PPRA) index, Pharmaceutical Patent International Agreements (PPIA) index and Pharmaceutical Patent Enforcement (PPE) index. We aggregate them multiplicatively. Within each sub-index, we use different weighting methods to aggregate their components. The PPRA index aggregates different types of protection on pharmaceutical innovations weighted by appropriate rents of each type of intellectual property. The PPIA index aggregates the international agreements with equal weights. The PPE index aggregates the enforcement and restriction variables with equal weights.

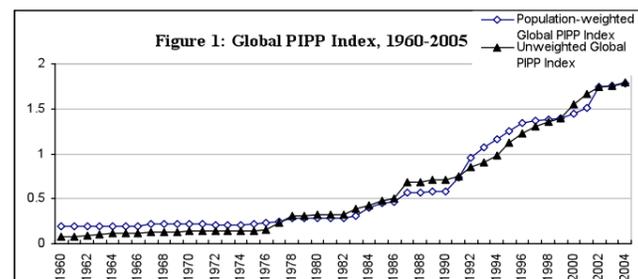
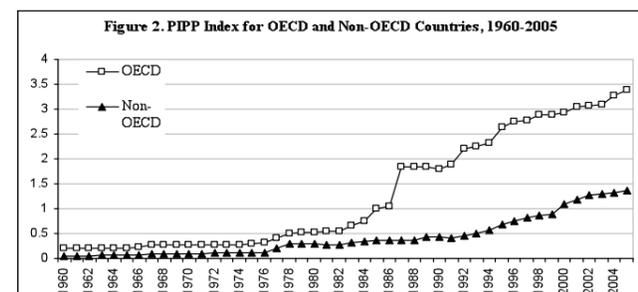


Figure 1 displays the unweighted and population-weighted annual Global PIPP Index for the 154 countries in our sample. The unweighted and population-weighted Global PIPP Indexes generally coincide, with the population-weighted Global PIPP Index slightly exceeding the global PIPP Index after 1992. The differences arose when two countries with around one-third of global population—India and China—increased the strength and scope of their pharmaceutical patent laws. Given the close correspondence between the two indexes, we confine our analysis to the unweighted Global PIPP Index.

In 1960, the Global PIPP Index registered at just 0.08. Over the next 15 years, it increased very slowly, registering at just .36 in 1975. The annual growth rate of the index increased appreciably between 1976 and 1983, as a growing number of developed countries (e.g. Japan, the Netherlands, Switzerland, Sweden, and Belgium) introduced product patents for pharmaceuticals. In addition, members of OAPI, one of the two intellectual property associations in Africa also begin to recognize and award pharmaceutical product patents. The index began to grow faster after 1983 as more developed and developing countries began to recognize and award pharmaceutical product patents. From 0.72 in 1983, the Global PIPP Index increased to 1.68 in 1995 and to 2.54 in 2005.

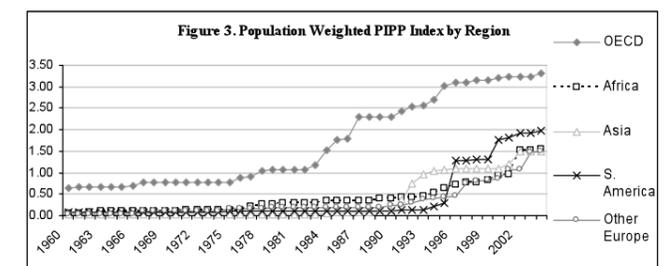
To check the difference between developed countries and developing countries, we grouped the sample according to the development and geographic regions. The unweighted PIPP Indices OECD countries and Non-OECD countries are displayed in Figure 2 and the unweighted PIPP Indices for five regions are displayed in Figure 3.



Overall, the PIPP Index for OECD countries was higher and increased much faster than other countries. Particularly, the PIPP Index of OECD countries increased rapidly between 1983 and 2005 and the absolute value of the gap increases between OECD and Non-OECD countries.

After 1995 the ratio of the average PIPP value for developed countries over the average PIPP value for developing countries fell due to strong increases in protection among developing countries. During this same period China's index value increased from 2.56 to 4.27 and Estonia's score increased from 1.97 to 3.93. These two countries registered the highest PIPP values in 2005 among the non-OECD developing countries in our sample. Several other non-OECD countries such as Guatemala (3.43) and Thailand (3.34) also have high PIPP Index values.

For OECD countries, we observe three distinct periods in which the PIPP Index increases after 1980 (Figure 2). The first surge came in the 1984-1988 period when the value of the PIPP Index for OECD countries increased more than 50 percent, rising from 1.28 to 1.96. The main triggers for the increase in the OECD PIPP Index were the decisions—initiated from 1987—by European countries to provide data exclusivity. The second surge came in the 1990-1993 period, when the value of PIPP Index increased more than 35 percent, rising from 2.14 to 2.94. This was primarily due to the decision of some European countries, e.g. Spain and Portugal, to grant pharmaceutical product patents. The third surge came in the 1994-2005 period, when the OECD PIPP Index increased from 2.94 in 1994 to 3.36 in 1995 and to 3.94 in 2005. The increase was primarily due to the upgrades in patent law required by the TRIPS agreement which came into force in 1995.



African countries registered higher average PIPP scores than Asian and South American countries between 1966 and 1995. Most African countries were members of one of the two African intellectual property associations, ARIPO and OAPI, which requires their member countries to provide pharmaceutical product patents well before they were established by most OECD countries. From 1960 to 1981, the Africa PIPP Index tracked the OECD PIPP Index very closely (Figure 1.8). Many African countries were, however, not prepared to implement the upgrades in patent law required by the 1994 TRIPS agreement and applied for extensions as least-developed countries. As a result, the Africa PIPP Index increased less than the PIPP Index for other regions with fewer least-developed countries, e.g. South America and Eastern Europe.

The Asia PIPP Index (which does not include Japan and Korea) was lower than other regions until 1991. This is because Asia has a higher percentage of countries that have never provided patent protection on pharmaceutical innovations than any other region. They include such least developed coun-

tries as Bangladesh, Cambodia, Lebanon, Nepal, and Laos and such developing countries as Mongolia. In the early-mid 1990s, some Asian countries—China, Indonesia, the Philippines, Thailand and Vietnam—established pharmaceutical product patents, which temporarily pushed the Asia PIPP Index above indices for other regions with developing countries. However, the Asia region did not make as many changes to their pharmaceutical patent laws after the 1994 TRIPS agreement as other regions. In 2005, the Asia PIPP Index registered at just 1.83, exceeding only the Middle East PIPP Index.

The Other Europe PIPP Index (composed of Eastern European countries, newly independent countries from the former Soviet Union, and Israel) registers low PIPP scores in the early-mid 1990s and rapidly increasing scores during the 1995-2005 period. Many of these countries only established a formal patent system in the early 1990s and registered low scores on the PIPP Index until their governments decided to change their laws to facilitate trade with or membership in the European Union.

The South America PIPP Index increased rapidly from 1990. The decision by the Andean countries—Colombia, Ecuador, Peru, Bolivia and Chile—to protect pharmaceutical product patents raised the index from .27 in 1990 to .70 in 1991. Decisions by Brazil, Guatemala, Argentina, Honduras, and Nicaragua to establish product patents, to upgrade patent laws to correspond with TRIPS mandates, and to prepare for negotiation of the Central America Free Trade Agreement with the United States pushed the South America PIPP Index to 1.85 in 1996 and 2.81 in 2000.

CONCLUSION

We draw four central conclusions from our analysis of the PIPP Index. First, the use of patents to protect pharmaceutical innovations increased dramatically from 1960 to 2005. In 1965, only 3 of the 154 countries in our sample granted pharmaceutical product patents and only 58 granted pharmaceutical process patents. Just 40 years later, 127 of the 154 countries granted product patents and 131 granted process patents.

Second, most developing countries (with the exception of members of the two African intellectual property associations, ARIPO and OAPI) did not

grant pharmaceutical product patents until they were pressured to do so by the United States between 1980 and 1994 or were compelled to do so by the 1995 TRIPS Agreement. Since 1995, pressure from the United States and the European Union to include “TRIPS-plus” provisions in regional and bilateral free trade area agreements has been a major factor behind developing country adoption of data exclusivity measures.

Third, the 1995 TRIPS Agreement dramatically increased the extent of patent protection for pharmaceutical products even among the least-developed countries. Some of the least developed countries have, however, taken advantage of TRIPS provisions that allowed them not protect pharmaceutical product patent. The Doha Round negotiation extended the time to 2016 for these least-developed countries to implement the TRIPS requirements.

Finally, there remains considerable variation across countries and within groups of countries with respect to the type of pharmaceutical innovations eligible for protection as intellectual property. The gap between the PIPP Indices of developed countries and developing countries is likely to persist until developing these countries are subject to renewed bilateral or multilateral pressure to strengthen their patent law or until income convergence increases the demand in developing countries for stronger patent laws.

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BUILDING YOUTH CAPACITY FOR HEALTH PROMOTION: Listening to the Voices of Youth

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Young people represent 27% of the world population and 100% of the world's future¹. Supporting their health from birth is a responsibility and a tremendous opportunity to promote generations of healthy youth worldwide². However, many young people in less developed countries suffer from poor health¹. Additionally, although Canada is among the most prosperous nations in the world, its standing when it comes to the health and wellness of children and youth is remarkably poor³, ranking 12th out of 21 in a United Nations' report of child well-being in wealthy countries⁴. Worldwide, more must be done to help young people become healthy and stay healthy. Promotion of health is a major priority in all youth considering the rising prevalence of obesity, and the consequences of other risk factors that affect them^{2,3}. Especially warranting our attention is the growing number of youth with complex health needs, including those living with cancer, other chronic physical and mental illnesses, and disability^{2,3}. Fundamental to fostering the health of youth are investments in best practice services and targeted initiatives to improve and shape the lives of youth in Canada and worldwide³. To be successful, such investments must be made in the right services and policies. To ensure meaningful health services and policies, the Canadian Paediatric Society stresses the need to develop and sustain innovative research programs - specifically those focused on the unique needs of young people and families². I have developed a strong foundation of research on youth's perspectives and experiences of health and illness that has contributed to advancing the improvement of health service delivery for Canada's youth. My research program is significant as it provides youth the opportunity to articulate a broader vision of their health needs and care in the health care system. Additionally, my research supports one of the guiding principles of the Convention on the Rights of the Child: the right to participation. The principle affirms that young people are full-fledged persons who have the right to express their views in all matters affecting them and requires that those views be heard and given due weight in accordance with the child's

age and maturity (United Nations' Convention on the Rights of the Child, Article 12, 1989)⁵.

Findings emerging from my research program may be used to leverage strategies to promote health equity and reduce health disparities. The focus of my paper is to examine how we can build youth capacity for health promotion and health maintenance even in the face of illness and health challenges. The discussion is grounded on select findings from my research program that describes youth's perspectives and experiences of illness and health. I emphasize the importance to ensuring the voices of youth are heard and respected. Future directions that support how we can build youth capacity for both promoting and maintaining health are presented.

Youth's Perspectives and Experiences of Illness: Research that involves youth who are experiencing illness and/or disability is challenging and demands both scientific rigor and humanistic sensitivity. A natural inclination is to protect them, but in protection, one may neglect to ask the questions that will empower young people to understand and explain their illness and health experience and their needs to caregivers. However, conducting research "with" youth and not "on" youth is fundamental to understanding their perspectives and experiences. Effective interventions and initiatives that are meant to improve youth's health and health care services must be grounded within and responsive to their life-situations. The information emerging from my work challenges existing notions of how youth experience chronic illness and/or disability and has contributed to improving the care experiences of families and children/youth within the health care system. Learning about what it is like to be a youth living with a chronic illness and/or disability is of value for those health professionals striving to provide more sensitive and comprehensive care to them. For example, through a series of studies involving young people with a variety of chronic illnesses and/or disabilities (e.g., cancer, depression, diabetes, cystic fibrosis,

asthma, HIV and so on)⁶⁻¹⁴, youth have spoken to the challenges they encounter and the difficulty of managing their treatment regimens on a daily basis. Overall, youth summarized the difficulties or hardships that come with having a chronic illness as "It's Hard"⁷⁻¹². Extra effort or additional energy to manage the challenges, restrictions or limitations on aspects of daily life, physical and psychological pain, and extra worrying all contributed to the experience of living with a chronic illness. Not only must youth deal with events specific to the illness and its treatment, but they must also deal with the challenges related to everyday life (e.g., education and employment, family relationships, peer relationships) as well as major developmental changes and demands. A multitude of feelings such as anxiety, fear, sadness, and hopelessness may engulf the youth as they try to manage their chronic illness and/or disability while trying to get on with their daily lives⁹.

However, despite the challenges faced, my research shows that youth clearly have ways to cope or help them deal with their illness and/or disability. They endeavour to deal with their illness diagnosis and treatment, while at the same time, resume their daily lives. Strategies that youth report using include: (1) hoping for the best; (2) having the right attitude; (3) knowing what to expect; (4) making some sense out of a bad situation; (5) taking one day at a time; (6) taking time for yourself; and (7) staying connected^{10,11,12}. While caring for youth, health care and other professionals including practitioners and service providers, need to be not only aware of youth's coping strategies but also when deemed appropriate, encourage and support their use of coping strategies. The resilient nature in youth experiencing chronic illness reinforces the need to approach youth not from a deficit-centered model, but from a resilient-centered one that focuses on strengths such as coping, competence, adjustment, and adaptation^{15,16}.

My work has also given the opportunity for youth to share their perspectives of how health care and other professionals can best support youth living with a chronic illness and/or disability. Supportive behaviors identified by youth include: (1) treat me like a person; (2) try to understand; (3) respond to me like I am the same person, but treat me special at times; (4) give me hope; (5) give me options; (6) have a sense of humour; (7) do not give up on me; and (8) know what you are doing^{10,11,12}. Youth reinforce that it is im-

portant to them that professionals showed that they valued them as human beings. Youth derive much comfort and strength from those professionals who not only make an effort to try to understand them, but also respect them and are sincere in their interactions⁷. However, lack of respect or understanding can result in youth not wanting to continue with their treatment. It is important to youth that health care professionals recognize that there is much more to them than their illness and/or disability. In trying to understand what it was like to be a youth with a chronic illness, youth stress that instead of asking the question, "How do you feel?" professionals should ask the question, "What does it feel like to have 'name of the illness'?" Youth stress that professionals need to listen to their stories of what it is like to live with an illness instead of just relying on information from medical and health textbooks⁷. Youth feel especially devalued when professionals are quick to judge them without taking the time to really get to know them. Adopting a flexible approach in the care of youth reinforce to youth that professionals acknowledge that they are unique individuals with their own special needs. In being flexible, a caring professional is someone who when necessary will suggest and try different treatment plans and options. Finally, youth value healthcare professionals who are focused on getting them better and, despite set-backs, would never give up on them.

Another example comes from work on advancing our understanding of young people's perceptions of their cancer symptoms. Within the last three decades there have been many scientific and technological advances made in the treatment of cancer in young people¹⁷. Numerous childhood cancers once regarded as fatal are now curable¹⁷⁻²⁰. Therapy, however, can be quite intense and difficult to endure. Youth with cancer experience short- and long-term symptoms that, in turn, can escalate the experience of suffering that adversely impacts their quality of life^{9,10,21-24}. My dissertation study resulted in new discoveries about cancer and cancer symptoms as experienced by young people, and gave a "voice" to young people with cancer and their families²⁴. Findings from this research revealed that many young people are unable to communicate their feelings about the illness. Although the majority of young people with cancer "get better", the process and treatment can create significant short- and long-term psychological burdens. Many were also unable to effectively communicate their feelings and symptoms through standardized reporting scales being used in clinical cancer care practice.

Follow-up work to my dissertation work made possible through funding from the Canadian Institutes of Health Research (CIHR) enabled me to develop a new and innovative therapeutic online tool referred to as the EMÜD (pronounced e-mood) Universe. EMÜD is an online game and non-invasively ask them about their current physical and emotional condition, expressed in the form of feeling states. The key to the development of EMÜD was the adoption of a participatory approach where young people with and without cancer participated throughout the conceptualization of the feeling state model and the development phase of the tool. They provided feedback through a series of focus group and individual interviews related to the appearance and structure of the online tool²⁵⁻³⁵.

In addition to expressing their own feeling states through words, young people will be able to share their experiences through other outlets provided by the EMÜD world, including writing journal entries and stories, drawing images, creating music, and many other outlets. EMÜD also provides a fun and safe virtual environment for young people to explore, where they can speak with exotic characters and solve challenging puzzles to progress through a sweeping storyline that spans over four fantastic imaginary lands. EMÜD encourages young people to communicate and help each other through the various challenges set throughout its virtual world, creating a positive environment of sharing, supporting and understanding during this very difficult time. The EMÜD Universe, as a unique and innovative psychosocial intervention, has the potential to benefit young people experiencing cancer by: 1) educating young people and helping them understand the things that are contributing to their feeling states; 2) affording young people the opportunity to cope with their feeling states in an environment that promotes creativity, control, and a sense of accomplishment; and 3) helping health professionals and families better understand what young people are experiencing which, in turn, will help them to devise more effectual, complete, and sensitive care plans that will improve quality of life and reduce health care visits for mismanaged symptoms. EMÜD is significant and of value to improving the mental health and well-being of young people, as it will afford them the opportunity to communicate and cope with their different ways of feeling in an environment that promotes creativity, control, and a sense of accomplishment. While EMÜD was

created for young people with cancer, EMÜD is developed so that it could be used by children experiencing other challenging and stressful life events.

Youth's Perspectives and Experiences of Health: In recognition of the World Health Organization definition of health as "a complete state of physical, mental and social wellbeing, not merely the absence of disease or infirmity" (as cited in Wass, 2000, p. 7)³⁶, another important area of my research program is concerned with how youth understand and experience health and health promotion. With the changing emphasis to prevent ill-health and enhance well-being, there is an increasing demand for health promotion programs that encourage youth to practice healthy behaviours that extend into adulthood³⁷. Successful health promotion and prevention programming must be based on a solid understanding of the life-worlds of the target audience. Nonetheless, much health education for youth is based on what they do and less on what they believe, feel, know, or want to know^{38,39}. Lacking is an understanding of youth's meanings about how their life situations facilitate or hinder their ability to practice behaviors directed at healthy lifestyles. Accordingly, I have conducted two studies focused on capturing youth's perspectives on promoting health and preventing disease. The first, "Youth speaking for themselves about health within their own life-situations" (Social Sciences and Humanities Research Council funded study), focused on detailing how 71 youth conceptualize health and health promotion^{40,41}. The second study, "An ethnographic study of adolescents' conceptualization of cancer and cancer prevention" (CIHR funded)^{42,43} detailed 75 youth's perspectives of cancer and cancer prevention. Both studies used the qualitative research design of ethnography with multiple data methods including in-depth interviews and photovoice. Photovoice is a participatory method that involves individuals taking photographic images to document and reflect on issues significant to them and how they view themselves and others⁴⁴⁻⁴⁶. Although the two studies yielded unique findings, a consistent finding emerging from both was that youth had an understanding of the broad public health messages of healthy lifestyle behaviours. The youth's focus on lifestyle conditions is not a surprise considering recent work by the Canadian Institute for Health Information (CIHI; 2005), which revealed that Canadian adults, for the most part, focus on making lifestyle changes to improve health, rather than considering broader social determinants of health

like education and income⁴⁷. In addition, the United Nations Association in Canada's Healthy Children, Healthy Communities (HC₂) project⁴⁸ identified that young people primarily link self-reported health and general health perceptions to healthy eating and active living⁴⁹. This heavy emphasis on lifestyle factors might not be the result of a limitation of youth's ability to understand the broader determinants of health, but rather might result from how concepts of health and health promotion are portrayed to them in their daily life situations^{40,41}. Youth were also limited with respect to how best to speak out and take action on their own health priorities. Additionally, the studies revealed that not all youth had an equal opportunity to expand their health capacity due their families' lack of access to certain social determinants (e.g., food security, housing conditions)⁴⁰⁻⁴³. In order to ensure the efforts directed at youth are sustainable, primary prevention initiatives need to focus on building capacity. Essential to building youth capacity for health promotion are initiatives that are youth-led. Youth-led health promotion encourages a sense of ownership and control for the process, and promotes the social and political engagement of the youth^{50,51}. The findings from these two studies provide grounding for a current research study that I am working on with youth.

I am currently conducting a two-year school-based feasibility study to show that it is possible to build youth's capacity for heart health promotion through a low cost research intervention. The research intervention which is being implemented in a middle school (junior high school) in Winnipeg (Canada), moves beyond merely the "absence of bad behaviours" to include identifying and enhancing youth assets and youth capacity. Specifically, the intervention, in the form of education (e.g., social marketing, advocacy as a means to effect change), empowerment, and support, is structured to build youth's knowledge and skills for primary disease prevention and to enable them to identify, initiate, lead, and monitor heart health promotion activities in three areas: smoking, physical inactivity, and obesity. Using a mixed-methods case study design, the study is guided by the Five Cs model of Positive Youth Development (PYD). The five Cs (i.e., confidence, competence, character, connection, and caring) is the most empirically supported model of PYD⁵² and emphasizes that all youth have strengths and when provided with appropriate resources, these strengths

are enhanced⁵³. The expected outcomes of this study are that youth participating in the study will experience an increased capacity for heart health promotion and that youth and their school will experience increased heart health promotion awareness, actions, and policy development and/or changes. This study is innovative as it evaluates a new approach to primary prevention that focuses on building youth's capacity for heart health promotion. It supports youth-led heart health promotion which involves youth playing central roles in decision-making throughout all facets of health promotion undertaking⁵⁴.

Ongoing Directions towards Building Youth Capacity for Health Promotion: My work with youth has shown that youth demonstrate intelligence and respect when talking about health and illness and their life situations. However, more needs to be done in strengthening environments where youth can grow and flourish, and build capacity for health promotion and maintaining their health even in the face of illness or health challenges. While research that gives youth a voice with respect to their perspectives on health and illness is increasing, there are many areas that have received minimal attention. I will only highlight a couple including research that details the perspectives of youth experiencing mental health challenges. For example, there is no work that provides youth the opportunity to reflect more deeply on their personal experiences about what it is like to live with an anxiety disorder and how, in their own words, anxiety disorders shape aspects of their everyday lives, including social interactions, family and peer relationships, school, and extracurricular and leisure activities. Research that situates the lived experiences of youth with anxiety disorders at the centre of inquiry is essential to understanding the ways anxiety disorders shape everyday life for youth. Accordingly, I am currently conducting a study that seeks to understand from the perspectives of youth what it is like to live with anxiety disorders and what is needed to help them manage and minimize their anxiety disorder so they can live satisfying, hopeful, and productive lives⁵⁵. Understanding the health and illness perspectives of youth who reside in developing countries is also lacking. Researchers from developed nations need to help to improve local research capacity in developing countries. For example, I am supervising a PhD student from Kenya who plans to build on my youth cancer prevention work by undertaking a study that focuses on Kenyan youth's perspectives.

Youth need to be considered throughout the entire research process from project conceptualization as was the case for the development of the EMÜD universe, to dissemination of the findings. Engaging youth as co-investigators and/or as part as a youth advisory committee is critical to ensuring that youth voices are accounted for throughout the study. Youth can work with the other research team members to ensure that the findings are translated in a meaningful way by developing appropriate messages, materials, and means of sharing results with other youth. For example, in my research study that explored how youth conceptualized health⁴⁰, I involved youth in Knowledge Translation and Exchange (KTE) activities that included the development of two YouTube videos on two of the study's themes^{56,57}. Engaging youth throughout the research process supports my philosophy that the voices of youth should be at the centre of the investigation and will help ensure that their views are taken into account.

Finally, to date much emphasis in the area of health promotion and illness prevention for youth has been directed at the communication of health messages that emphasize healthy eating and physical activity and other lifestyle practices. However, health promotion programs and policies that are meaningful and relevant to youth must be created that not only focus on teaching youth about healthy lifestyle practices, but include creating conditions in which youth's health flourishes. Overall, there needs to be more emphasis on the sociocultural context of health in the life situations of youth. More emphasis on the economic and social conditions (e.g., housing and food security, community conditions, quality of health and social services) that youth and their families are exposed to be warranted.⁵⁸ In keeping with the belief that health promotion is a political activity⁵⁹, youth also need to be educated about the power of politics and groups to make change. This would include helping youth to develop advocacy skills. Youth also should be involved in identifying solutions on how to reduce health disparities and health inequities.

Likewise, health and social service providers, policy makers, and key government leaders need to be educated about youth's perspectives and experiences of illness and health, and about the importance of involving youth in decisions that affect them directly. In addition to being informed of the research involv-

ing youth, health and social service providers, policy makers, and key government leaders need to include youth on advisory boards and consult with them about their health needs. If youth are truly to have a meaningful voice in the process of addressing their health needs and concerns, there must be a genuine desire to see them empowered, in conjunction with environments conducive to their involvement⁶⁰.

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CAPTURING THE EFFECT OF ETHNIC DIVERSITY ON ECONOMIC GROWTH

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INTRODUCTION

The way to deal with ethnic differences is one of the crucial themes in this modern society. Economists have investigated the effect of ethnic diversity on economic growth which is a key factor in indicating the stability of a society. In this paper, I would like to point out the shortage of the former research, and discuss how the ethnic diversity affects the economic growth.

Intuitively, ethnic diversity may have a negative effect on the economic growth. Politicians in the countries which have a high level of ethnic diversity may only treat their own ethnic group well, and may not consider the benefits of the society as a whole. In terms of productivity, ethnic diversity may cost more to a society to overcome cultural and communication differences than homogenous society. Conversely, ethnic diversity may have positive effect as well. Different ethnicities and different cultures may bring innovative ideas, and this may increase productivity.

This paper will provide the framework to capture the key concepts of researching the effect of ethnic diversity on the economic growth. In the second section, I would like to present research regarding this topic. I also would like to consider the problem of that research, calling into account the recent economic trends. The third section presents my own research and briefly summarizes the results, which were obtained by econometrics analysis. In the fourth section, I would like to discuss the implications of my own research. While my research is still ongoing, I would like to show the possible explanations of how ethnic diversity affects economic growth. The last chapter concludes this paper.

FORMER RESEARCH AND THE PROBLEMS

Academically, it has been said that negative effect of ethnic diversity¹ on economic growth is stronger

¹ Ethnic diversity was indexed by Miklukho-Maklai Ethnological Institution in Soviet Union in 1964, which was defined by the possibility to choose people who have different ethnic identities when you randomly pick

than positive effect. William Easterly and Ross Levine provided the first empirical research about this relationship in 1997 in "African Growth Tragedy". From the 1960's to the 1980's, even though African Countries were emancipated from colonial dominance, most of those African countries could not achieve any economic growth, and some even had negative growth. Easterly and Levine (1997) did an econometrical, cross-country analysis to determinate the factor which contributed to this low growth rate, and pointed out that ethnic diversity is a crucial factor to explain the different speed of growth. They also suggested that the indirect effect of ethnic diversity through policy factors is stronger than direct effect. This means that ethnic diversity does not do harm to economic growth directly, but has significant effects on some political factors such as schooling year and financial situation which can have a negative effect on the economic growth. They concluded that ethnic diversity can explain 20 to 40% of the growth difference between East Asia and Sub-Saharan Africa.

The argument made by those two scholars had a huge impact on the field of development economics, and many scholars have deliberated about this topic. Collier (1998) accepted Easterly and Levine's argument, and suggested that the negative effect of the ethnic diversity in political sector could be eradicated if a country has a democracy. Sachs and Warner (1997) also accepted that the ethnic diversity had a negative effect on growth, but they found that the colonial experience of a country had a closer negative relationship with political factors, in their case, the openness of a country, than ethnic diversity. Collier and Gunning (1999) explained that ethnic diversity caused a large portion of the problem of lack of social capital and productivity in a society. Alesina and La

up 2 people from a country. The equation is follow, where ELF is ethnolinguistic fractionalization and "s" is the share of the group i.

$$ELF = 1 - \sum_i s_i^2$$

A lot of researchers adopt this index because this index contains much more information than other index. The problem of this index has been largely discussed as well, but in this paper, I treat ethnic diversity as a given condition. If you are interested in discussing the definition of ethnic diversity, see Alesina et al (2003), Fearon(2003), and Posner (2004)

Ferarra (2005) wrote a survey about the overall issue in a paper titled "Ethnic Diversity and Economic Performance". They essentially confirmed the result of Easterly and Levine (1997) in terms of cross-section model to capture the effect to national growth, and they also summarized the previous research about the effect of ethnic diversity in both city and community level. Overall, in terms of cross section analysis, Easterly and Levine's discussion was widely accepted to argue that ethnic diversity has a negative effect, especially indirectly, on economic growth.

However, it seems that matters have changed after 2000. Many African countries that have high ethnic diversity achieved rapid growth in 2000's. For instance, Tanzania, which has the highest ethnic diversity level in the world, achieved 3.9% growth on the average in this decade. Liberia, which also has a high ethnic diversity level, achieved more than 6% growth on average. It is worthwhile to research whether or not ethnic diversity still has a negative effect on economic growth in respects to recent data.

Indeed, there were so many differences especially after 1990. Because of the end of the cold war, the client-patron relationship between Western and Eastern countries and developing countries shifted dramatically, and dictatorships supported by superpower were weakened. This caused democratization in many developing countries, even though some were "pseudo-democracy" with numerous corruptions, briberies, and injustices (Thomson 2010). Moreover, in 2000's, huge shocks such as terrorism and financial shock occurred, and this caused worldwide soar of the price of natural resources. Africa, one of the economically poorest places in the world also with the high ethnic diversity rate, is now one of the most focused places to break the frontier to invest, as Vijay Mahajan (2008) argued from the perspective of business and marketing.

Considering these trends, is it still possible to say that ethnic diversity affect economic growth in negative way, using same framework as Easterly and Levine(1997) did with the data from 1960's to 1980's? It is interesting to deepen this question. If the answer is yes, we can acquire the stronger evidence of negative effect of ethnic diversity. Otherwise, it is also interesting to discover what reversed the negative effect of ethnic diversity. In the next section, I would like to report the results of my research using the latest dataset.

ANALYSIS

The Framework

To measure the relationship between ethnic diversity and recent economic growth, I used the framework which was used by Easterly and Levine (1997). I would like to briefly introduce this framework and data I used.

For the model of analysis, I used the econometrics technique which is called seemingly unrelated regressions. I used economic growth in each decade (1960's to 2000's) in each country as a dependant variable, and for the independent variables, I used the indicator of ethnic diversity and some other variables, which are as same condition as Easterly and Levine (1997) collected² their datasets. This means that I collected the data from 1990's to 2000's with the same condition as Easterly and Levine³. Each variable is categorized in two ways, the initial conditions and policy conditions. In this sense, initial condition is the country's feature or the initial status, such as the dummy for Sab-Saharan Africa. Each policy in each country affects the policy conditions, such as schooling year and financial depth.

The Result

Using the framework of Easterly and Levine (1997), I acquired three important results⁴. The econometrical results can be found at the end of this paper, in Table 1. For the comparison, I also showed the results of regression from 1960's to 1980's⁵. Here, I would like to discuss the important fact which can be observed from the results of growth regressions.

First, I observed that it is difficult to confirm the effect of ethnic diversity on economic growth with the recent data. This result can be found when I did

² For the independent variable, I used dummy of each decade (80, 90, 00), the dummy of Sub-Saharan Africa, the dummy of Latin America, log of initial income and its squared, log of schooling, financial depth, and log of telephones per worker. I collected the data as same condition as Easterly and Levine (1997) did. Moreover, I omitted 3 variables which Easterly and Levine used. "Assassination" was omitted because it was hard to access to the dataset. Financial surplus was also omitted while the dataset I could achieve was not a large amount. I also omitted Black Market Premium because after 90's, only a few country had a gap between the real exchange rate and the exchange rate in the black market

³ If you want to refer to the data and its source, please contact to s1010403@u.tsukuba.ac.jp. Date are from World Bank and IMF

⁴ Before doing my new research, I confirmed that I can observe the same result as Easterly and Levine (1997) by using their data and the same regression framework

⁵ The result of this regression has a little difference from Easterly and Levine (1997)'s, because I omitted some of the variables

the regression analysis using the data from 1980's to 2000's. Statistically, I could not reject the hypothesis that the effect of ethnic diversity on economic growth is zero. This means I could not deny the possibility that the ethnic diversity has no effect on economic growth. Moreover, the number of coefficient of ethnic diversity became much smaller when I saw the result. In my analysis, countries that have complete diversity grow 2% slower than countries with single ethnicity from the 1960's to the 1980's. However, in the 1980's to the 2000's, ethnic diversity only slows 0.5% of the growth. Because the index of ethnic diversity is constant in every decade, the effect of ethnic diversity should also be constant in each decade. Thus, it is noteworthy to compare the coefficient and the significant difference.

Second, I found that the relationships between ethnic diversity and policy factors such as "schooling", "financial depth", and "telephone per worker" became even stronger in 1980's to 2000's. While Easterly and Levine (1997) estimated the relationships between ethnic diversity and policy factors by using single linier regression, and I also enforced the same analysis. I found that the coefficients of each policy variable have not changed significantly from the result from the 60's to the 80's. This result is interesting that even though the relationship between ethnic diversity and economic growth became weaker, the relationship between policy factors and ethnic diversity remains strong.

Third, the effect of ethnic diversity cannot be seen when I only focused on 2000's, and moreover, if you focus only on the coefficient, it seemed to have a positive effect on economic growth. This is only a possibility while I could not accept the result statistically. However, interestingly, this possibility shows the fact that countries which have high ethnic diversity rate could grow even faster than countries with less diversity. This means there exist a major shock or structural change in this decade, and it is worth researching into factors which lead to this growth in this decade.

Even though some of the results could not have strong statistical evidence, some provide interesting implications and hypothesis for the further research. In the next section, I would like to show the key implication of my research and then some clues for the further research.

IMPLICATIONS

These new results show that the former framework of Easterly and Levine (1997) cannot explain the recent economic growth in countries with high ethnic diversity. The result of the regression showed that the coefficient of ethnic diversity went through a noteworthy change, and the number became statistically insignificant. However, this does not mean the analysis of Easterly and Levine (1997) was totally wrong and ethnic diversity does not have any effect on economic growth.

According to my newly calculated results, it can be said that the results of the regression analysis about ethnic diversity strongly depends on the econometric model. Although Easterly and Levine (1997) and Collier and Gunning (1999)'s framework could explain the relationship between ethnic diversity and economic growth with significant variables, my new research showed the results were not significant. The analysis by Sachs and Warner (1997), as shown on the second section, also discussed the result depends on the model of regression framework. This means that the results of macro econometric approach can be easily manipulated by changing the explanatory variables. Easterly and Levine (1997) might have been able to capture the effect of ethnic diversity in accordance with the trends at that age. In the same way, I needed to analyze the recent trend more and incorporate into the framework.

According to this finding, I suggest two ways to capture the relationship between ethnic diversity and economic growth.

First, I suggest that there are some factors which mitigate the negative effect of ethnic diversity on the economic growth, and this unknown factor pushed up growth rate in some of the countries which have high ethnic diversity rate. As I discussed in section two, Collier (1998) suggested the existence of democracy might be the key factor, and as Sachs and Warner (1997) suggested, colonial experience might be the key for mitigating the negative effect of ethnic diversity. In addition to these, there might be some other factors such as trading conditions and industrial structure to explain recent economic growth. While the policy indicators such as schooling year still have strong relationships with ethnic diversity, it is needed to find out some other factors which can

also negate those variables. I am considering attempting to analyze new variables which can be widely observed in developing world, such as dependence on the natural resources, the speed of urbanizations, and so on. The research is ongoing to collect and attempt new variables.

Second, it seems that the cross-country analysis has a limitation, and is not enough to measure the relationship between ethnic diversity and economic growth. As I mentioned, this relationship strongly depends on the model, and the result became significantly different by using different variables. Even though cross-country analysis is crucial to measure the factors of economic growth in each country, it is also important to analyze the effect of ethnic diversity in micro level. For instance, does ethnic diversity have some effect on productivity? Does ethnic diversity affect political choice and policy? Actually, these research have done in 2000's, such as La Ferrara (2002)'s research on the Tanzanian local productivity and Collier (2001)'s research on the political choice. However, this empirical research also has some limitation. It is comparatively easier to research micro level research in education and production section, but it might be difficult to estimate the effect in some section such as trading and industrial structure.

Thus, combination of micro and macro level research is needed. Empirical researches about the effect of ethnicity in microeconomic level are still ongoing by some researchers, and those results are useful to reconsider about the framework of macroeconomic analysis.

CONCLUSION

Because many countries which have high ethnic diversity rate achieved high economic growth in 2000's, it is not easy to accept the former research suggestion that ethnic diversity had a negative effect on the economic growth in the previous framework. The keys to avoid negative effect of ethnic diversity are to elucidate two ways to capture the relationship which I suggested in section four. If I could find the factors which negate the negative effect of ethnic diversity on economic growth, I could contribute to the global problem from the perspective of economics by showing how to deal with multiethnic society. Moreover, by applying the researches on the microeconomic level, I could show what an actual prob-

lem of the ethnic diversity is and what is not. This can provide strong evidence through cross-section econometrics analysis as well. Capturing the effect of ethnic diversity is still ongoing topic, and my new research just showed the possible routes to capture the actual effect of ethnic diversity. I am convinced that showing the actual effect of ethnic diversity can contribute to the multi ethnicity coexistence in this modern society from the perspective of economics.

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TABLE 1
Growth Regressions Pooled Decade
Dependent Variable: Real per Capita GDP Growth per decade

Variable	1 60's-80's	2 80's-2000's	3 2000's
Dummy for the 1960's	0.010 (2.405)	---	---
Dummy for the 1970's	0.014 (3.957)	---	---
Dummy for the 1980's	---	---	---
Dummy for the 1990's	---	0.003 (1.100)	---
Dummy for the 2000's	---	0.006 (1.636)	---
Dummy for Sub Saharan Africa	-0.007 (-1.157)	-0.012 (-2.948)	-0.009 (-0.435)
Dummy for Latin America	-0.022 (-5.737)	-0.015 (-4.357)	-0.005 (-0.812)
Log of Initial Income	0.149 (-4.83)	0.018 (1.757)	0.015 (1.078)
Log of Initial Income Squared	-0.010 (-5.191)	-0.002 (1.757)	-0.001 (-1.353)
Log of Schooling	0.013 (2.51)	0.007 (1.423)	-0.005 (-0.435)
Financial Depth	0.013 (1.96)	0.004 (1.008)	0.003 (0.569)
Log of Telephone per worker	-0.001 (-0.361)	0.007 (1.794)	0.001 (0.256)
ETHNIC	-0.020 (-2.598)	-0.005 (-0.860)	0.007 (0.866)
No of observations (by each decade)	43, 69, 78	78, 89, 94	94

t-statistics are in parentheses

If you are interested in the detailed data and its source, please contact to s1010403@u.tsukuba.ac.jp

CULTURE AND CREATIVITY AS REMEDY FOR THE ECONOMIC CRISIS

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Abstract: Since 2008 the world is facing an economic crisis with consequences for all sectors, including the cultural sector. Mainly art museums experience the consequences of the financial crisis.

The economic crisis did not start within the cultural sector, and neither the solution of the economic crisis lies within culture. However, culture can contribute to the repair of trust in the economy. Culture can bring positive support for local and national development in terms of integration in economic potential, employment, innovation, knowledge based society, and social development and cohesion.

Although culture is never a top priority in policy plans of governments, governments should be convinced not to save budget on the cultural sector. It has namely been proven that culture brings a stimulating feeling of integration for society. These advantages cannot be ignored in the discussion of how to solve the economic crisis and cannot be left out in boosting sustainable, inclusive and balanced growth and in creating jobs around the world.

Cultural ministers of all countries should make sure that governments include culture in their national development strategies. Programmes should be supported that make the economic impact of culture and creativity measurable.

INTRODUCTION

In 2009 the auction of the art collection of the deceased Yves Saint Laurent and his partner resulted in a record amount of money. 16 pieces of art were sold for over 5 million euros, 61 pieces were sold for over 1 million euro. A painting by Henri Matisse was even sold for 35.9 million euro. The final end result of the auction was nearly 374 million euros.

In the same year auction house Christie's booked records with the sale of works from David Hockney (7.9 million euros for a four meter long portrait of Beverly Hills Housewife) and works from Claes Oldenburg (over 2.2 million US dollars for Typewriter eraser).



Figure: 'Beverly House Wife' by David Hockney, 1966



Figure: 'Typewriter eraser' by Claes Oldenburg, 1999

However, these records cannot dissemble that the cultural sector is having a hard time because of the economic crisis. Auction house Sotheby's and Christie's had to fire lots of personnel and had to go back in the number of auctions per year. Where auction houses Christie's and Sotheby's used to earn hundreds of millions, they now have to be satisfied with relatively low revenues of 50 to 90 million dollar.

Art museums in the United States and Europe can be considered a victim of the 2008 global recession as well. The declining of donations from wealthy patrons forced some museums to make difficult and controversial decisions. This meant either deaccession artwork from the collections to gain funds, or in the case of the Rose Art Museum -Massachusetts, USA- closing the institution and selling the entire collection.

THE ECONOMIC CRISIS

What we call the 'economic crisis' started back in 2008. Analysts of the present economic crisis concluded that the "detonator" was the crisis of the US financial system. The financial crisis had moved to the real sector of the economy of all developed countries in early 2009. Production began to decline, more and more signs of recession occurred, the GDP diminished in real terms so that the signs of economic crisis became visible in all components of the social system, including the culture subsystem (Moldoveanu, 2011).

In light of the rising global economic crisis it was inevitable to establish an international cooperation to find adequate answers to the present global crisis. This led to the formulation of principles referring to concrete means of improving the financial institutions and stimulating the economy of all countries. The measures that were formulated, intended to have several common targets. Diminishing the mistrust still prevailing in the USA and the EU countries is an example of these measures.

These days, the economic crisis still has grasped a lot of countries and the unemployability in many states is unprecedented high, mainly under the youth.

EFFECTS OF THE ECONOMIC CRISIS ON THE CULTURAL SECTOR

The economic crisis might have started in 2008 with the banking crisis, but most of the consequences were visible in a later period. These consequences were strengthened because of the fact that many governments saved a part of their budget on art and culture. Speaking of the cultural sector one has to think of different sub-sectors: cinemas, museums, podiums, theaters, and art organizations.

EU Commissioner for Education, Culture, Multilingualism and Youth, Andrulla Vassiliou, stated in 2011 that "Culture and the creative sectors, belong to the most dynamic industries in Europe. The EU competitiveness report of 2010 showed that culture and the related creative sector account for 3.3 percent of the European Union's total GDP, and 3 percent of jobs. These figures explain why the cultural sector belongs to the most dynamic industries in the EU.

Private money is the most important source of income for the cultural sector. The economic crisis has consequences for the subsidized part of the cultural sector, but also for the non-subsidized part.

The impact of the economic crises on the cultural system has a broad range. All its components and functions are affected: from infrastructure to the funding of cultural institutions and activities, from access to symbolic goods and services to the culture consumption and the evolution of the culture market, from the cultural environment to the mentalities and behaviour of the managers in the field, including those ones working in the field of the creative industries (Moldoveanu, 2011).

The effects of the economic crisis on the cultural sector are reflected by data of the Council of Europe. These data show that the crisis has affected theatres, symphony orchestras and dance groups at a few places in Europe as cruelly as their American counterparts. The majority of festivals, however, did not back down, and quite a few scored better than in prior years. Probably no other area of culture has undergone so basic a transformation in the past ten-twenty years as museums. Temporary closures and reduced opening times are on the increase (Inkei, 2010).

Another aspect of the cultural sector that has to be considered is the salary of the artists themselves. Most artists live in relative poverty. Artists use to earn 30 to 100 percent less than in comparable professions. Even Rembrandt and Van Gogh were particular paupers.

The most important reason to –despite the low salary– go into art, is the fact that artists give priority to personal work satisfaction, acknowledgement and status. They consider this to be more important than their salary.

It is the vocation that makes that the cultural sector cannot be understood by hand of the traditional economic theory. In arts there is no commonly shortage. There is even an oversupply, resulting from the desire of the performers: the artists. Many artists consider their work not to be a way to fulfill their consumption need, but they consider their work to be a goal itself. This may apply to more people on an individual level, but for an entire sector this is special.

This special character of the cultural sector does not mean that this sector is not sensitive for the economic crisis. In the end the cultural sector needs revenue and the area of generous government subsidies is in the past. Private money is the most important source of income. However, it is private money that is cyclically sensitive.

Where every other sector can follow a general recipe to survive in times of economic crisis, saving in the cultural sector is problematic.

Saving on costs for example is rather difficult. One could say that the Law of Baumol is applicable in this area (Last, 2010). The public sector is becoming more expensive than the private sector. Where production processes can be merchandised, this is not possible for sectors like health care, education and making art. Work in the private sector remains human work. One could compensate for the difference in price ratios between private and public sector by paying less salary to the people working in the public sector. The consequence however is that at a certain point nobody wants to work in the public sector anymore, which would be injurious for society.

Shortening of working hours neither seems to be a solution for saving money in the cultural sector. The economic crisis might result for example in reducing the number of performances, but most of the time is spent on repetition hours. One can imagine that reducing the hours of repetition does not result in a favorable outcome.

THE CULTURAL SECTOR AS REMEDY FOR THE ECONOMIC CRISIS

The economic crisis did not start within the cultural sector, and neither the solution of the economic crisis lies within culture. However, culture can contribute to the repair of trust in the economy. Although culture often is not a top priority in policy plans of governments, it is worth it convincing governments not to save budget on the cultural sector. It has namely been proven that culture brings lots of positive things for society. These advantages cannot be ignored in the discussion of how to solve the economic crisis and cannot be left out in boosting sustainable, inclusive and balanced growth and in creating jobs around the world.

The first advantage of culture is that it can bring positive support for local and national development. Culture contributes to integration in different fields, and does so both directly and indirectly. Fields of integration one can think of are economic potential, employment, innovation, knowledge based society, and social development and cohesion.

A second advantage of culture is that it does not only cost money, but it produces money as well. The presence of culture in a city has a positive influence on the hotel and catering industry and tourism. Furthermore, culture attracts companies. The quality of cultural presence contributes to the location climate.

Thirdly, companies can benefit from art and cultural activities as well. The presence of art at a working place creates a stimulating working environment, which contributes to a decrease in work related stress (Lin BY, 2013).

At the same time, art can reflect the image and the goals of a company. A company does not have to possess expensive and famous international collections, like some banks do. Also decoration of a company with works of art created by less famous artists can have a positive, stimulating effect.

THE 'CULTURE CRISIS'

The economic crisis that has unfolded since 2008 is not merely economic, but is structural and multi-dimensional. The events that resulted from the crisis show that we entered an area with different social and economic conditions, compared to those that characterized the rise of global, informational capitalism in the preceding three decades (Castells, 2012).

In the aftermath of the start of the crisis of global capitalism, it became clear that art and culture also seemed to face a crisis. This is particular the case for the Western culture. Since the first decade of the twenty-first century there seems to be a climate of uncertainty, dissatisfaction and intolerance. There was uncertainty about the future with declining sovereignty on local and national scale. There was uncertainty about the future for elder generations, which became less predictable. There was uncertainty about the future for the younger generation, which has never been predictable. This uncertainty led to dissatisfaction about the inability of governments to

reduce this uncertain future. Intolerance and incivility were the reasons to put more pressure on governments and promoted disharmony.

Although we are now a couple of years later, nowadays the dissatisfaction is still visible in political public opinion polls. Apparently the underlying dissatisfaction is still present, and the intolerance as outlet as well.

For a part this uncertainty has to do with the economic crisis, which has resulted in damage of matters of trust. Banks do not trust other banks anymore, companies do not trust banks anymore and more and more people start to worry about the savings on their bank account.

Another explanation of the feeling of people's dissatisfaction and uncertainty has to do with the fear that all the power has been given away to the powers of Brussels and Beijing. In times of economic crisis one can hear the scream for protection, and civilians want that protection from their own government, not from other powers.

It is not being said that countries cannot support their own citizens in times of economic crisis. For an important part the economic decisions of a country are being made within the European playing rules of Brussels or the worldwide playing rules of the WTO. However, these rules leave space for each country to plot its own course and to stick to its own identity.

At the background of the latter, it is important to realize that how global the world might seem to become, a re-appreciation will take place of the meaning of one's country, one's local environment and one's culture. The daily activities, the job one has, the children and the visits to theaters are still strongly influenced by the local environment. In that sense, it is so important to incubate local culture.

SUPPORT FOR THE CULTURAL SECTOR

It might be clear that in these times of economic crisis the cultural sector can use some support. Lots of governments however, lack the financial needs to do so. Reserving a part of the budget for the cultural sector is less attractive than spending the budget on other things like healthcare.

Besides support of culture on the short term, culture is also aided by a substantial social-economic policy on the long term. It is a challenge to prevent that the economic slump will result in a period of economic stagnation. A deterrent example is Japan, where a financial crisis in the early 90's led to a decade of economic stagnation. Stagnation slows innovation, with all its consequences. Stagnation makes it impossible to realize the ambition for enlargement of employment participation. Stagnation threatens investments in knowledge and research. Stagnation makes it extra hard to moderate the costs following from ageing. Stagnation is in the end bad for culture.

Against the background of the economic crisis it is important to give content to something what could be a new Golden Century. A Golden Century in which economy and culture experience a flowering period.

The relation between economic growth and cultural bloom has been described before by American political scientist Ronald Inglehart. He argues that prosperity can lead to an increase of values of self-expression. At the same time he states that culture changes because of economic development. Inglehart adds to this statement that this process of cultural changes is depending on a certain path, so that there is no tendency to a monoculture (Inglehart, 2005).

Cultural ministers of all countries should make sure that governments include culture in their national development strategies. Programmes should be supported that make the economic impact of culture and creativity measurable.

CONCLUSION

Since 2008 we are facing an economic crisis with consequences for all areas, including the cultural sector. Mainly art museums can be considered as victims of the economic crisis.

The economic crisis did not start within the cultural sector, and neither the solution of the economic crisis lies within culture. However, culture can contribute to the repair of trust in the economy. Culture can bring positive support for local and national development in terms of integration in economic potential, employment, innovation and knowledge

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Cultural ministers of all countries should make sure that governments include culture in their national development strategies. Programmes should be supported that make the economic impact of culture and creativity measurable.

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HIV SURVEILLANCE IN RUSSIA POSITIVES AND NEGATIVES AND THEIR IMPACTS ON EPIDEMIOLOGY OF HIV INFECTION

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INTRODUCTION

(a) Epidemiology of HIV infection is improving globally. According to UNAIDS 'World AIDS Day Report 2011', at the end of 2010 an estimated:

- 34 million [31.6 million – 35.2 million] people globally living with HIV, about 17% increase from 2001. This reflects the continued large number of new HIV infections and a significant expansion of access to antiretroviral therapy, which has helped reduce AIDS-related deaths, especially in more recent years

- 2.7 million [2.4 million – 2.9 million] new HIV infections in 2010, annual new HIV infections fell 21% between 1997 and 2010

- 1.8 million [1.6 million – 1.9 million] people died of AIDS-related illnesses in 2010, down from a peak of 2.2 million [2.1million–2.5 million] in the mid-2000s

- The number of people becoming infected with HIV is continuing to fall, in some countries more rapidly than others. HIV incidence has fallen in 33 countries, 22 of them in sub-Saharan Africa, the region most affected by the AIDS epidemic.

(b) Since 2001, HIV prevalence in Russia, Eastern Europe and Central Asia has increased by 250 percent, making the region home to the world's most rapidly expanding epidemic. Unlike most other regions, AIDS-related deaths continue to rise in Eastern Europe and Central Asia*

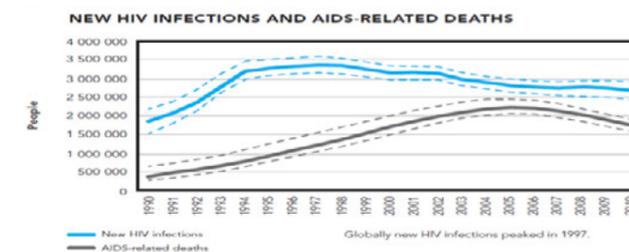
(c) The Russian Federation and Ukraine account for almost 90% of the Eastern Europe and Central Asia region's epidemic*. (*originated from UNAIDS World AIDS Report 2011)

(d) Around 160,000 became infected in 2010 and 90,000 died from AIDS.**

(e) Injecting drug use remains the leading cause of HIV infection in this region, although considerable transmission also occurs to the sexual partners of people who inject drugs**

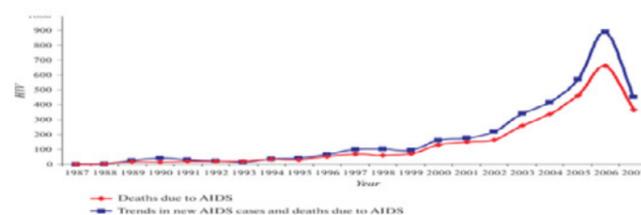
(f) There is little indication that the epidemic has stabilized in the region, with new HIV infections and AIDS-related deaths continuing to increase. After slowing in the early 2000s, HIV incidence in Eastern Europe and Central Asia has been accelerating again since 2008.** (**originated from HIV/AIDS Europe Surveillance Report 2010 by WHO Europe)

Table 1: New hiv infections and aids related death, compiled from unaids 2011



Picture 1: Extracted from: HIV/AIDS Surveillance in Europe 2010 by Center for Disease Prevention and Control and WHO Regional Europe Office

Table 2: Death due to aids and trends in new aids cases from 1987 to 2007 (by unaids Russia)



BACKGROUND

(a) It has been widely discussed in National and International Infectious Disease meetings in the Russian Federation that the surveillance system of HIV in this country sometimes is not sufficient and has some disadvantages

(b) Surveillance system is a system of collection, analysis, dissemination of all data needed for control and management of disease

(c) In accordance with Russian Scientific Epidemiological School, it consists of:

- i. Subsystem of information
- ii. Subsystem of epidemiological diagnosis
- iii. Subsystem of management

OBJECTIVES

(a) To distinguish possible advantages and disadvantages of HIV surveillance system in the Russian Federation

(b) To determine the effects of insufficient surveillance system on changes in incidence rates, prevalence rate, modes of transmission and distribution by sex of HIV infection in Nizhny Novgorod Region, Russia from 2006-2010/12

(c) To compare changes in incidence and prevalence rates of HIV infection between Nizhny Novgorod Region (city), Volga Federal Region (district) and Russian Federation (country)

MATERIALS AND METHODS

(a) Peer-reviewed articles (searched using yandex.ru, PubMed), conference proceedings (Journal of European Congress of Clinical Microbiology and Infectious Disease and Journal International Congress of Infectious Disease) and technical reports

(obtained from regional hospitals) published from 2006-2012 were reviewed for information regarding surveillance system in Russian Federation

(b) Information regarding incidence and prevalence rate (per 100000 population), modes of transmission (percentage,%) and distribution by sex (percentage,%) of HIV infection from 2006-2010/12 for Nizhny Novgorod Region (NNR), Volga Federal Region (VFR) and Russian Federation (RF) is obtained from Centers for Disease Control and Prevention of Nizhny Novgorod Region

(c) Comparative statistical analysis is made using Programs EpiInfo 7 and Microsoft Excel 2007

RESULTS

(a) Possible advantages of HIV surveillance system in Russian Federation:

- System of notification and reporting of cases. As a matter of fact, both cases of AIDS and cases of asymptomatic status must be reported to the federal service for surveillance, Reference: Data on statistics of Ministry of Health of Russia (Russian:Rospotrebnadzor)

(b) Improved clinical services among HIV-infected women giving birth, such as earlier initiation of prenatal care, fewer unintended pregnancies, higher uptake of immunologic and virologic monitoring, earlier initiation and more complete antiretroviral prophylaxis in certain regions of Russian Federation resulted in decreased perinatal HIV transmission. Reference: Kissin et al. BMC Infectious Diseases 2011, 11:292 <http://www.biomedcentral.com/1471-2334/11/29>

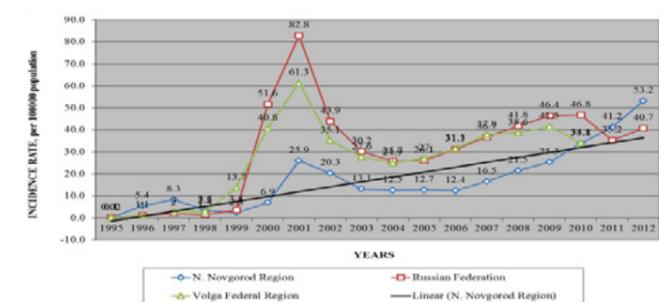
(c) Possible disadvantages of HIV surveillance system in the Russian Federation:

- sentinel serosurveillance and behavioral surveillance are not carried out regularly;
- HIV counseling and testing coverage in sex workers, MSM, drug users is rather low;
- monitoring of HIV treatment and adverse reactions is not appropriate in each Russian region;
- monitoring of antiretroviral resistance of the HIV strains is not sufficient in all territories;
- absence of monitoring the financial costs for epidemiological HIV surveillance. It does not allow to estimate economic effectiveness of the epidemiological surveillance system
- the system has not appropriate flexibility for a

timely transforming of the surveillance in accordance with features of epidemic

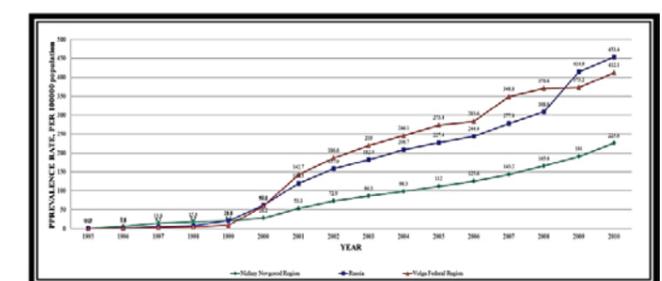
(c) Incidence rate is number of new cases per population in a given time period. It reflects changes and risks in HIV transmission and the effects of prevention programs including the effect of antiretroviral treatment programs. From 2006-2012, incidence rates of HIV infection in NNR increased from 12.4 to 53.2 per 100000 population ($p < 0.001$). In RF, from 2006-2010, incidence rate increased from 31.1 to 46.8 per 100000 population ($p < 0.001$) but decreased to 40.7 in 2012. In VFR, incidence rate during 2006-2009 increased from 31.5-41.5 ($p < 0.001$) but decreased to 34.1 in 2010.

TABLE 3: Incidence rates of hiv infection per 100000 population



(d) Prevalence rate is a measure of the total number of cases of disease in a population. It is influenced by both the incidence of disease and duration of illness. It measures the cumulative toll of an epidemic including the number of people who have been infected in past years and the effect that antiretroviral therapy has by keeping people living with HIV alive for longer. From 2006-2010, prevalence rates of HIV infection in NNR increased from 125.6 to 225.8 per 100000 population ($p < 0.001$), in RF from 244.4 to 453.4 ($p < 0.001$) and in Volga FR from 283.6 to 412.1 ($p < 0.001$)

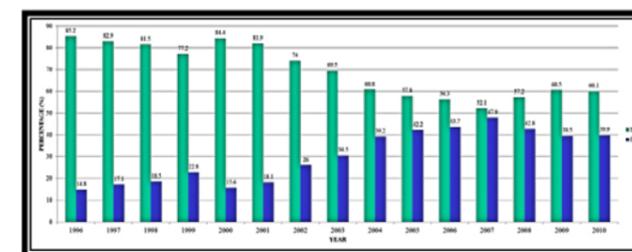
TABLE 4: Prevalence rates of hiv infection per 100000 population



Picture 2: hiv prevalence in different Russian regions, source federal scientific and methodological center for aids prevention and control, Russian ministry of health

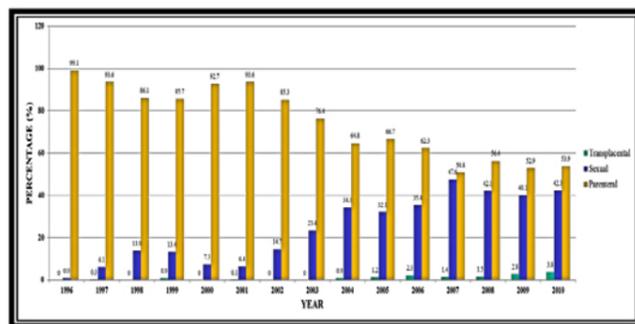
(e) Number of infected males increased from 56.3% to 60.1% ($p < 0.001$) and infected female decreased from 43.7% to 39.9% ($p < 0.001$).

TABLE 5: Distribution by sex of hiv infection from 1996-2010 in nizhny Novgorod region



(f) Analysis showed that there are increases in transplacental/perinatal (*2.3%-3.8%) and sexual pathway (*35.4% to 42.3%) of transmission whereas a decrease in parenteral pathway (*62.3% to 53.9%). * $p < 0.001$. However, parenteral way of transmission, especially infection among injecting drug users still remain high and is the main pathway for dissemination of HIV and Hepatitis C infections in Russia. Introduction of “Methadone Injection Program” to decrease symptoms of opioid withdrawal is much debated in this region and still remains a controversy till now. Further increases in perinatal way of transmission can be prevented if HIV screening test (ELISA test) is done for all pregnant mothers during the first initial visit, effective antiretroviral regimens (two or three drug regimen <28 weeks of gestation) is prescribed appropriately, adequate infrastructure is provided for elective cesarean delivery and breastfeeding from HIV infected mothers are avoided.

TABLE 6: Changes in modes of hiv transmission from 1996-2010 in nizhny Novgorod region



CONCLUSION

(a) Although HIV surveillance in Russia has some advantages, but still it is inadequate

(b) Insufficient surveillance system can result in high number of incidence rates in NNR, VFR and RF and pronounced increasing trend of prevalence rate in VFR and RF from 2006-2012

(c) The disadvantages in surveillance system can also be related to increases in transplacental and sexual modes of transmission and infected male sex distribution

(d) As such, an improved surveillance system is needed for proper treatment, control and prevention of HIV infection

(e) It is highly recommended that some of the effective surveillance measures, which are implemented successfully in certain regions of Russian Federation, are also carried out in different/all regions of this country

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THE EMPLOYMENT OUTLOOK FOR YOUTH: Building Entrepreneurial Ecosystems as a Way Forward

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Since the outbreak of the recent financial crisis we have experienced some of the highest rates of youth unemployment in history. If we want to avoid branding the young people as a "Lost Generation", we need to act quickly. One important active labor market strategy to solve the youth unemployment crisis is entrepreneurship, helping them turn into job creators rather than job seekers. Entrepreneurship has received significant attention over the past decade with a rapid and often uncoordinated increase in entrepreneurship support programs. These constitute a major part of entrepreneurial ecosystems. In order to build effective entrepreneurial ecosystems, we need to understand the components and assessment indices of such ecosystems. This essay proposes a new conceptual framework describing entrepreneurial ecosystems. The proposed framework is expected to support policymakers and practitioners in setting up new entrepreneurial ecosystems and serve as a basis for future research.

Keywords: Entrepreneurial Ecosystems, Youth Unemployment, Next Generation

INTRODUCTION

An economic and labor market crisis has plagued the world since 2008. The labor market slowdown is dramatic with a current deficit of around 50 million jobs, in comparison to the pre-crisis situation (ILO, 2012). Policymakers around the world face critical challenges in reducing unemployment and poverty (Guillén, 2001). According to the ILO, 45% of the world's employed live below the poverty line (below \$1.25/day), a trend, which has worsened since the onset of the financial crisis. Further deterioration in the global economy may push as many as 200 million workers, mostly in developing economies, into extreme poverty. One of the UN Millennium Development Goals is that "full and productive employment and decent work must be achieved by all means".

A lack of job opportunities disproportionately affects youth, permitting only a small percentage of

these young men and women to follow their professional dreams. This trend prevails even during positive economic situations and is worse during bad economic times (ManpowerGroup, 2012). The average youth unemployment rates in OECD countries are consistently in the range of 1.5 - 4.5 times higher than the adult unemployment rates (Figure 2). Unemployment has been shown to have severe effects on individuals, particularly when they are still young and in a stage of developing their professional "Self" (Winefield, 1997; Blakely, Collings & Atkinson, 2003). Various reasons, such as (1) the recent technological revolution and the resulting revolutionary change in generational characteristics, (2) outdated educational systems, which are disconnected from the labor market, and a demographic shift with an overwhelming proportion of older people that are forced to work longer, are partly explaining the particularly high rates of youth unemployment in recent years. It is critical that all stakeholders need to work on strategies to develop decent employment conditions for the next generation.

Entrepreneurship is a promising active labor market policy (ALMP), being an important driver of economic prosperity and social well being, creating jobs and economic competitiveness (Monitor Company Group 2009). In 2008, roughly two thirds of the working population in Europe was employed by micro-enterprises, or small- and medium-sized (SMEs) enterprises (Eurostat, 2012). As a result, the number of programs and initiatives promoting entrepreneurship and self-employment has increased rapidly over the past years. However, little scientific knowledge exists on the effectiveness and efficiency of existing and newly created programs. Furthermore, as a result of this rapid increase in support programs, an overall understanding of how the different actors and factors interconnect is missing. In order to best support the new generation of entrepreneurs to redefine the labor market for themselves and their peers, one needs to understand which mechanisms best support their activities in regard to both firm survival as well as job creation.

This essay proposes a novel conceptual framework to map out entrepreneurial ecosystems including their key stakeholders and assess their effectiveness and efficiency based on pre-defined indices. The terminology “entrepreneurial ecosystem” has gained increased scholarly interest over the past years (Krueger, 2012b); however, our understanding of their structure and the importance of adequate assessment mechanisms is still limited.

The following section will analyze and explain the current youth unemployment situation. Based on this analysis, the importance of entrepreneurship as an ALMP to partially solve the youth unemployment crisis will be discussed, including the introduction of a novel entrepreneurial ecosystem framework including actors, factors as well as assessment indices. In conclusion, future directions for research on entrepreneurial ecosystems as well as some initial suggestions for policymakers and practitioners who want to build entrepreneurial ecosystems will be provided.

YOUTH UNEMPLOYMENT

The International Year of Youth (2011) came at a time of strategic importance. According to a recent report published by the International Labor Organization (ILO), of the 620 million economically active youth between the ages of 15 and 24, 81 million were out of work by the end of 2009. This was a noticeable increase of over 2% from the 2007 figures of 11.9%, therefore making it the highest rate ever. The ILO predicts that there will be a huge number of unemployed youth adding to this number (ILO, 2010).

Youth population figures may more than double by 2050, with 90% of the world’s youth living in developing countries (Population Reference Bureau, PRB). “Young people are the drivers of economic development [...]. Forgoing this potential is an economic waste and can undermine social stability”, stressed Mr. Juan Somavia, ILO’s General Director.

In the developed world, the picture looks equally grim as in the developing world. With Greece and Spain having passed the 50% youth unemployment rate in early 2012 (Figure 1), as well as a wide gap between youth unemployment and adult unemployment (Figure 2), difficult challenges have to be met on the labor market.

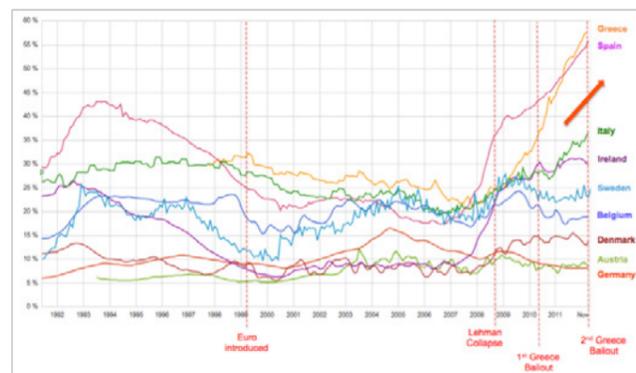


Figure 1: Youth Unemployment Rates in selected European countries (Thomson Reuters Datastream)

There is not a single OECD country, which has a youth unemployment rate that is equal to or lower than the adult unemployment rate. The global ratio of youth unemployment to adult unemployment is 2.9. In certain countries, for example in Sweden and New Zealand, the youth unemployment rate is roughly four times as high as the adult unemployment rate. In other countries, such as Spain, Greece and Portugal, the total rates of youth unemployment have reached shocking numbers with every second young person being unemployed (ILO, 2012), a trend which has worsened rapidly in the past years.

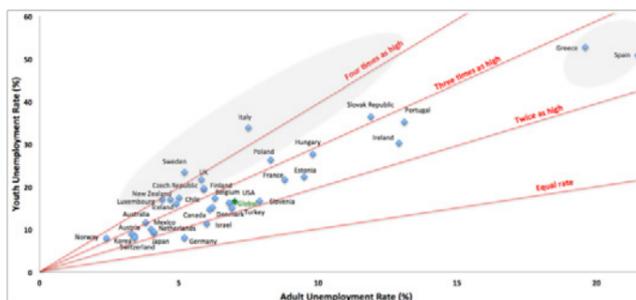


Figure 2: Ratio of Youth Unemployment and Adult Unemployment in OECD countries - 2010 (Data: Eurostat)

Detrimental effects of unemployment on young people. Unemployment not only leads to a waste of an enormous amount of unused economic potential, but also threatens to undermine the social stability of entire societies through a marginalization of large groups of people from the working population, particularly the youth. While psychological distress experienced by unemployed youth is less severe than that experienced by older people (Rowley & Feather, 1987; Broomhall & Winefield, 1990), there are other factors making youth unemployment a major social problem (Winefield, 1997). First, there are the disproportionately high rates of youth unemployment compared to adult unemployment. Second, based on

life span development theory (Erikson, 1959), scientists have made the assumption that unemployment during young years may retard healthy psychosocial development (Gurney, 1980). Third, social alienation may lead to increased criminal activity and other antisocial behavior (Thornberry & Christenson, 1984). Fourth, there is a potentially increased risk of suicide (Platt, 1984). Finally, there are the detrimental effects that unemployment has on work values and work ethics.

Explanations for a Widening Gap. There are four main explanations for the widening gap between youth unemployment and adult unemployment as well as the particularly high rates of youth unemployment in certain countries (ManpowerGroup, 2012). First of all, there are generational characteristics, which provide a partial explanation. Generations, just like individuals, have characteristics, depending on the political, social and economic setting within which they are embedded. Despite the difficulties to put chronological boundaries between generations (Taylor & Keeter, 2010: 5), there are certain patterns (periodic effects, cohort effects and life cycle events), which can be used to describe a particular generation. While those generations born between 1945 and the introduction of the Internet experienced an evolutionary generational development, the introduction of the Internet, computers and mobile phones marks a distinctive and revolutionary change in the way people live, work and think. The first generation to be fully immersed in this novel virtual world (digital natives) consequently has quite distinct characteristics, values and attitudes than the previous generations. These markedly different characteristics can cause inter-generational tensions. Employers are doubtful about the abilities of young people to apply their skills in a productive and meaningful manner. Therefore, as long as there are unemployed adult workers available for hire, employers might be reluctant to make a hiring commitment with a young and inexperienced individual. Second, a demographic shift is taking place currently exerting significant pressure on the retirement and pension systems, forcing older generations to work longer. This, in return, reduces the amount of open positions for the influx of younger workers. Third, national education systems are confronted with three major challenges. (1) We are experiencing an academic inflation with more young people receiving a degree than ever before. (2) The national education systems

typically prepare students in a rather theoretical and abstract manner, equipping them with skills that do not match those required on the labor market. “21st Century Skills” such as cooperation, communication, critical thinking, creativity and an entrepreneurial mindset are oftentimes missing (Trilling & Fadel, 2009; Rotherham & Willingham, 2010). (3) Education systems require a radical re-thinking instead of gradual reforms.

“Around the world, there is growing recognition of the need to strengthen policies and investments involving young people ... Youth can determine whether this era moves toward greater peril or more positive change. Let us support them developing into productive and powerful leaders.” (Ban Ki-Moon). Youth unemployment does not have to end in a catastrophe. They might actually benefit from the situation if the different stakeholders could provide support mechanisms, which are tailored to the next generations’ skills and talents and help them develop the career they are actually best suited for, may it be academic, corporate, entrepreneurial, political or social.

ENTREPRENEURSHIP AS A WAY FORWARD

There are already significant numbers of young people who would rather start their own business than work for someone else. Entrepreneurship is an important driver of economic prosperity and social well being, creating jobs and economic competitiveness (Thurik & Wennekers, 2004; Monitor Company Group, 2009; ManpowerGroup, 2012).

Promoting entrepreneurship is a difficult and multi-faceted issue, as there is no “one best way” to foster opportunity identification and exploitation. Over the past few years, we have experienced a rapid increase in entrepreneurship programs all around the world. On a daily basis, we can witness the establishment of some new entrepreneurship support program, as everyone wants to be part of this new and shiny trend. However, we see that these programs often lack coordination, resulting in redundant service offerings and a seemingly useless abundance of activities. It is important to understand the underlying economic, educational and socio-cultural conditions that entrepreneurs face in particular regions, countries, or industries in order to establish efficient entrepreneurial ecosystems. What changes have to take place on a political level in order to foster entre-

preneurship and promote entrepreneurially minded people in their endeavors?

ENTREPRENEURIAL ECOSYSTEMS

The terminology “ecosystem” originated from ecology, having first been used in print by Tansley (1935), who stated that organisms cannot be separated from “the environment of the biome – the habitat factor in the widest sense... with which they form one physical system” (p. 299). Willis (1997) provides a contemporary definition of an ecosystem: “a unit comprising a community (or communities) of organisms and their physical and chemical environments, at any scale, desirably specified, in which there are continuous fluxes of matter and energy in an interactive open system”. In the 1990s James F. Moore created the strategic planning concept of a business ecosystem. He defines it as “an economic community supported by a foundation of interacting organizations and individuals... producing goods and services of value to customers, who are themselves members of the ecosystem. The member organisms also include suppliers, lead producers, competitors, and other stakeholders. Over time, they coevolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies...” (Moore, 1996: 29).

While entrepreneurs drive change and innovation, they alone cannot be held responsible for creating the next steps in the societal evolution and the development of tomorrow’s jobs. Historically, entrepreneurship scholars have predominantly focused on the individual entrepreneur as the unit of analysis, ignoring the interaction of multiple actors that constitute entrepreneurial ecosystems (Van de Ven, 1993; Spilling, 1996). Research on entrepreneurial ecosystems is scarce; however, it has become increasingly popular over the past years (Isenberg, 2010). Based on previous work (Van de Ven, 1993; Spilling, 1996; Iansiti & Levien, 2004; Cohen, 2006), we define an entrepreneurial ecosystem as “an interactive community within a geographic region, composed of varied and inter-dependent actors (e.g. entrepreneurs, institutions and organizations) and factors (e.g. markets, regulatory framework, support setting, entrepreneurial culture), which evolves over time and whose actors and factors coexist and interact to promote new venture creation.”

The following section will analyze the most important components of an entrepreneurial ecosystem and describe some factors and criteria based on which one can assess whether the ecosystem is efficient and effective or not.

Components of an Entrepreneurial Ecosystem. Just like an ecosystem in nature, an entrepreneurial ecosystem is composed of a multitude of components, which are believed to strongly influence entrepreneurial activities in a specific ecosystem (figure 3). There are three overarching categories which constitute an entrepreneurial ecosystem, namely (1) infrastructure, governments and regulations, markets, innovation as well as the geographic location forming the non-entrepreneur-specific general context (externalities); (2) financing, entrepreneurial education, culture, networks, startup support and exposure of entrepreneurs as the entrepreneurship-specific environmental context; and (3) the entrepreneurial actors as the individual-level components. A detailed summary of the various sub-categories and components is provided in table 1.

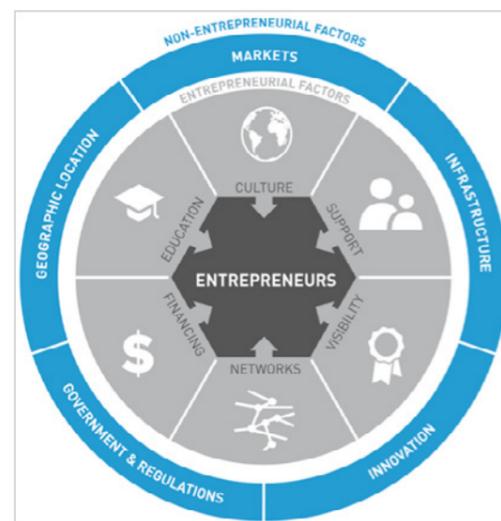


Figure 3: Entrepreneurial Ecosystem Map

Table 1: Entrepreneurial Ecosystem Measurement Indices

Ecosystem Components and Sub-Components	
Non-Entrepreneurship-specific Level	
Government & Regulations	Infrastructure
1. Policy framework	1. Physical infrastructure
2. Immigration & labor law	2. Educational institutions (e.g. universities)
3. Property rights	3. Energy, telecom & ICT
4. Freedom of people	4. Transport & logistics
5. Regional economic development	5. Workspace
Geographic Location	Innovation
• Livability in the area	1. Knowledge & skill creation
• Cost of living	2. Research & development
Markets	3. IP
1. Customers (including beta users and early adopters)	4. Published scientific papers
2. Competitors	5. Technology transfer
3. Distribution channels	6. New processes and methods
4. Suppliers	
5. Large corporations (as customers or strategic partners)	
Entrepreneurship-specific Level	
Financing	Support
6. Accelerators	6. Accounting & legal
7. Business angels, FFFs, VCs	7. Mentors & coaches
8. Debt	8. Experts & consultants
9. Micro financing	9. Export support
10. Private equity	10. Labor & talents
11. Loans & grants	11. Information hubs
12. Smart capital	12. Cluster / Tech Parks
13. Crowdfunding	13. Foundations
Culture	Education
6. Mindset, ambition, drive, creativity	• Entrepreneurship degree
7. Role models	• Skill training & certificates
8. Self-promotion skills	Networks
9. Social status of entrepreneur	1. Formal networks: organizations, institutions
10. Tolerance of failure & risk	2. Informal networks: friends, families, colleagues
11. Tolerance towards success	3. Entrepreneurship associations & organizations
Visibility	4. Group networks (e.g. women entrepreneurship networks)
7. Events & meet-ups	
8. Conferences	
9. Startup awards / labels	
10. Startup-related internet portals	
11. Media / newspapers	
Entrepreneurial Actors	
Entrepreneurs	
• Novice entrepreneurs	
• Serial entrepreneurs	

Assessment of Entrepreneurial Ecosystems. Having introduced the most essential components of an entrepreneurial ecosystem, this section focuses on the assessment of ecosystems. Why should we actually bother to measure and assess entrepreneurial ecosystems? The answer is quite simple: If we do not measure the effectiveness of the various components in an ecosystem as well as the ecosystem as a whole, we will not be able to improve existing programs and put in place new and complementary programs. There are a number of established research projects and secondary data sources that study a variety of national economic indices, which we use to supplement and cross-validate our primary data collection. Some examples for such data sources are the Global Entrepreneurship Monitor (GEM), the Global Entrepreneurship and Development Institute (GEDI), the World Bank Doing Business Index, the UN Human Development Index and the Global Innovation Index (GII).

20 indices have been created to rate and assess entrepreneurial ecosystems on three main levels: (1) individual level, (2) organizational level, and (3) community level. From these 20 indices, an ecosystem index is created to rank and compare ecosystems

from around the world. A detailed analysis of the different indices is summarized in figure 4.



Figure 4: Entrepreneurial Ecosystem Measurement Indices

CONCLUSIONS

In order to solve the youth unemployment challenge, we cannot rely on the large corporations to create sufficient amounts of jobs for the next generation. Instead, all stakeholders (policymakers, educators, large and small corporations and other support organizations) need to adapt and prepare the next generation to become job creators instead of job seekers. Youth entrepreneurship must be considered a critical pathway to decent work for young people and has to form a strategic component of national efforts to address youth unemployment. The number of entrepreneurship programs has rapidly increased in the past years; however, little knowledge exists about their inter-connection as well as their effectiveness. Picturing the components that make up an entrepreneurial ecosystem as well as providing measurement indices has been missing to date. The proposed framework is expected to support policymakers and practitioners in setting up new entrepreneurial ecosystems and serve as a basis for future research.

Suggestions for the Creation of Entrepreneurial Ecosystems: It is a complex, cost-intensive and risky endeavor trying to develop an entrepreneurial ecosystem, requiring expertise as well as patience. Policymakers and other stakeholders who try to establish entrepreneurial ecosystems should factor in the following suggestions:

- Each ecosystem is unique! It is not advisable merely to duplicate other ecosystems as many of the components making up an ecosystem are

quite different across the globe and cannot necessarily be controlled. It is important to understand a community's strengths and weaknesses in order to develop a strategic roadmap for the successful creation of effective entrepreneurial ecosystems

- Developing an ecosystem requires a joint effort! Neither top-down government-driven initiatives nor bottom-up individual-driven initiatives can alone create effective ecosystems. It requires a joint initiative with both, bottom-up entrepreneurial dynamics embedded and supported by governments and institutions. The private sector plays a critical role and government officials need to stop being afraid of public-private partnerships (PPPs)

- Holistic and supervised implementation! It is advantageous to implement as many of the elements of the ecosystem in parallel as possible and to make sure that the underlying settings of market, infrastructure, regulatory frameworks, etc. are all in place prior to initiating the other components. It is advisable to execute the implementation plan in a coordinated and supervised manner

- Dynamic bureaucracy! Neither during the creation of entrepreneurial ecosystems nor in the entrepreneurial life within the ecosystem should bureaucratic processes cause stagnation. Building an entrepreneurial ecosystem as well as starting up and running a company are equally dynamic and therefore require dynamic and iterative processes (Krueger, 2012a)

- Building an entrepreneurial culture! An entrepreneurial culture is essential to successfully build an efficient entrepreneurial ecosystem. Only if entrepreneurship is seen as a viable career option and entrepreneurs are seen as responsible and respectable individuals, will young graduates dare to take the step and become job creators instead of job seekers. It is important to create quick success stories, which can serve as inspiration for the new generations of entrepreneurs

Outlook for Future Research: With research on entrepreneurial ecosystem being fairly young, the proposed framework forms a basis for future theoretical as well as empirical research on entrepreneurial ecosystems. The following questions could be addressed

in future research projects: (1) which components constitute an entrepreneurial ecosystem; (2) are certain components more important than others; (3) is there a temporal dependency of the importance of individual components (which came first, the chicken or the egg) and can we infer some sort of pattern on how to develop an entrepreneurial ecosystem without having to put everything in place at once; (4) how did different entrepreneurial ecosystems evolve historically; (5) which stages outline the development of an entrepreneurial ecosystem and how do the paths differ depending on the type of ecosystem?

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ECOLOGY ENVIRONMENT ENERGY & FOOD SECURITY

ECOLOGY & ENVIRONMENTAL PROBLEMS: Global Warming and Agflation

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INTRODUCTION

A term 'Environment' is derived from the French word 'Environner', meaning 'to surround'. In the past, the term was used just to describe the physical world like water, air, rocks, etc., and its scope was limited in some extent. It was then recognized that variety of plants, animals, and micro-organisms including human beings are also an essential constitution of the environment, and people found it necessary to expand the term in order to include interactions and inter-relationships of all living organisms with physical surroundings. Although the definition, 'environment' varies from one and the other, the United States Council on Environment Quality specifies the term as "man's total environmental system including not only the biosphere but also his interactions with his natural and manmade surroundings." Therefore, environment can be defined as the interplay of all the elements in the Earth, and ecology as the study of the constitutions of environment. Taking the meaning of the environment and ecology into consideration, it becomes clear how the nature is in deep connection with human beings and their lives. Thus, this report will specifically deal with how the lives of people have been and will be affected due to the change in environment by observing the relationship between global warming and agflation, especially food security problem.

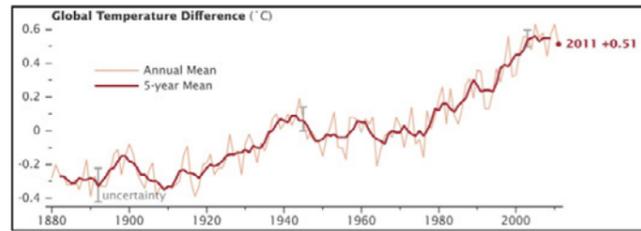
Global warming, an escalation of the atmosphere's average temperature due to the increase in greenhouse gases (water vapor (H₂O), carbon dioxide (CO₂), methane (CH₄), nitrous oxide, and ozone (O₃)) is a very serious and complicated problem facing the world leaders. Because global warming is not an issue that one superpower can deal with in a short period of time and the use of fossil fuel is in direct connection with a nation's economic prosperity, it is a very sensitive issue that world leaders evade to take responsibility over. However as all countries around the world have contributed to aggravating the problem, global warming may not be solved without cooperation and compromise of the international soci-

ety. Among many reasons behind paying attention to the issue, the most significant one is related with its consequence in people's diet, or food.

'Agflation', a terminology invented in the 21st century by the analysts at Merrill Lynch, a subsidiary of Bank of America, is coined by the combination of two words: agriculture and inflation. It describes an inflation induced by rises in price of agricultural commodity, including natural and processed food. As food is one of the basic resources needed to sustain living, it is a necessity with no close substitute and people have to consume food no matter how high the price rises. In that sense, food price development receives much attention and is a critical problem the world faces after global warming has been exacerbated.

STATUS QUO

The Earth's average surface temperature fluctuated since thousands of years ago. In accordance with the Intergovernmental Panel on Climate Change (IPCC), climate proxies show that temperature has been relatively stable over the one or two thousand years before 1850, with regional variation such as the Medieval Warm Period and the Little Ice Age. The pattern of temperature fluctuation was also predictable with time variation. However, it began to alter since the Industrial Revolution in the 18th century. The rapid economic development increased the amount of greenhouse gases in the atmosphere, leading to increased emission from carbon dioxide (36%) and methane (148%) since 1750. The concentration of CO₂ in the atmosphere has reached its peak compared to that of more than the past half-million years, and has done so at an exceptionally fast rate. The current global temperature is warmer than it had ever been before as the graph below from the National Aeronautics and Space Administration (NASA) shows. The report from IPCC also indicates that global warming after the latest ice age was a gradual process taking about 5,000 years. Thus, it is evident that the current climate change is an unusual, abrupt shift compared to earlier natural variations in the Earth's history.



Global warming caused many and detrimental consequences to ecosystem and the lives of humanity. Climate change resulted in extinction of many species, reduced diversity of ecosystems, and the rise of sea level. Hundreds of millions of people became climate refugees after losing their shelters due to coastal flooding and suffered from reductions in water supplies. Especially, the shift in temperature incurred significant impacts on agriculture and capacity of food production. This can be explained in two different perspectives.

Direct Influence

With technological development, such as irrigation system, introduction of herbicide, and genetically modified organisms, food productivity could be multiplied. We, the human beings, were able to enjoy the benefit and could produce more and variety of food in a shorter period of time. However, because weather is still a key factor in raising the yield, many studies have observed the catastrophic effects and projected pessimistic future arising from the climate change.

New research revealed that global warming has already damaged the world's food productivity. Decrease in production of crop plants was not mainly caused by changes in rainfall but because of dehydration, which ultimately led to slowed photosynthesis and pollination. The study published in the Science investigated the relationship between the rising temperatures and the annual crop yields of all major producing countries between 1980 and 2008. Scientists used computer models to show how much crop would have been reaped in the absence of warming, and revealed that global wheat production was 33million tons (5.5%) and maize production was 23 million tons (3.8%) lower than it would have been without warming. Consequences on rice and soybean were comparatively lower and insignificant, as they benefit from the CO₂ increase. Still, the length and quality of overall crop production became highly unpredictable by the rise in temperature.

Productivity and food price fluctuations due to the climate change varied from one region to another. Russia lost 15% of its potential wheat crop, while Brazil, Mexico, and Italy also suffered from above average losses. The United States, whose temperature rise was comparatively minimal, yet lost production. However, a very important fact here to notice is that the overall temperature increase has driven up food prices by as much as 20% over the last decades. According to the food price index reported by the United Nations Food and Agriculture Organization (FAO), food prices were at its culmination at their historic maximum (238 points) in February 2011. David Pimentel, a professor at the College of Agriculture and Life Sciences at Cornell University, also added that despite the significant regional variations, global warming is altering production of staples for billions of people.



Perspective of Indirect Influence

Along with the direct influence climate change plays on food production, the indirect impact is related with people's effort in combating the global warming.

Before the development of coal industry in the mid 19th century, almost all the energy was renewable i.e. human beings burned woods for cooking and used water mills for textile production. However in the 1970s, environmentalists warned the depletion of oil and promoted the development of new energy source. People then found the necessity of developing clean energy, improving energy efficiency, and reducing dependency on fossil fuels in order to address global warming problem. As a result, they have come up with ways to promote renewable energy source, and it has ceased to become alternative in many developed countries. In total, 53 nations have agreed to international commitments in reforming and phasing out fossil fuel subsidies by 2015 at the Earth Summit 2012.

Renewable energy comes from various sources: wind, solar, biomass geothermal, hydropower, etc. Among them, biofuel is derived from biomass, and bioethanol is one of the many types of biofuel. Bioethanol is well known for being an absolute, alternative power source for automobiles and is produced from agricultural feed stocks or common crops like sugar cane, potato, and maize. An analysis found that biofuel is a clean energy source, as it reduces greenhouse emissions by 41% and emits less gas while processed. It is also considered as a contributor of agricultural and rural development, bringing new investment, industry and trade opportunities for communities. As a result, the global market for biofuel increased about 400% from 2000 to 2008.

Nevertheless, some recent studies announced that there are many indirect negative effects of the biofuel, including higher food prices and forest clearing. The dilemma arises from the circumstance that depleting crops, which are initially yield to feed people, are now utilized as a fuel. In 2011, the Committee on World Food Security (CFS) suggested to review biofuel policies, as it threatens food security in a context with facts that there are currently 1 billion undernourished people around the world and that FAO estimates food demand to increase by 60~70% in 2050 with population crisis. In fact, while the United States used 25% of its corn production in biofuels in 2007, many underdeveloped countries underwent political and economical instability and social unrest after the world food prices increased dramatically in 2007 and 2008. Also, there are concerns of more land being devastated and food prices sky rocketing if prices of fuel grow faster than that of agricultural goods. This would definitely threaten the lives of poor people as they consume almost all of their incomes on food. It now becomes very evident that global warming leads to world hunger and poverty.

ACTIONS AND FUTURE OUTLOOKS

The IPCC Third Assessment Report, a report of available scientific and socio-economic information on climate change published in 2001, judged that the poorest countries would suffer the most with a decrease in crop production in tropical and sub-tropical regions due to the decreased water availability: many rain-fed crops in Africa and Latin America would soon approach their maximum temperature toler-

ance, and the productivity would fall up to 30% for even small climate changes. In addition, the Fourth Assessment Report projected that climate change would provoke different consequences depending on the latitude of continents; however, once warming rises more than 3°C, there would be negative impacts no matter where countries are located at. There are also possibilities of secondary impacts and multiple variables like fires and outbreaks of pests which would definitely bring negative consequences for food, fiber, and forestry. The Science also announced that Southern Africa could lose more than 30% of its main crop – maize by 2030 and South Asia staples, such as rice, millet, and maize over 10%.

Taking the projection into consideration, the following quote from Alexander Müller, the Assistant-Director General for Natural Resources at FAO, is quite worthy to bear in mind.

“Currently, the world is focused on dealing with short-term climate impacts caused mainly by extreme weather events. This is absolutely necessary. But ‘slow-onset’ impacts are expected to bring deeper changes that challenge the ecosystem services needed for agriculture ... Coping with long-term changes after the fact doesn't make much sense. ... We need to move beyond our usual tendency to take a short-term perspective and instead invest in the long-term.”

In fact, the High Level Panel of Experts (HLPE) on food security and nutrition also proposes that along with the research and development (R&D) and investigation on biofuel, revision of the current policies, and investment on food processing and biofuel, all the actions have to be considered and planned not only the short but also for long term.

CONCLUSION

It now becomes quite evident that global warming threatens the lives of humanity. After the aggravation, food production decreased because of the climate change, and people's effort in combating the warming led to food distribution problem, a dilemma of food vs. fuel. Thus, global society's effort of solving the predicament should be the primary goal, as it would definitely solve the energy depletion and food security problem. While merging ideas altogether is tough, once countries achieve mutual concessions and developed countries show mercy to underde-

veloped countries, the projection is quite optimistic. In that sense, the role of G20 is very critical. As G20 members account for more than 80% of the gross world product and two-thirds of the world population, their active roles in solving the problem would definitely play pivotal roles in encouraging the rest of the world. It is now time to make a change to secure food and energy for humanity.

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COMMUNITY PARTICIPATION ON FOOD SECURITY PROJECTS AMONG LOW-INCOME HOUSEHOLDS OF THE SEDIBENG DISTRICT MUNICIPALITY, SOUTH AFRICA

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Abstract: This paper is based on the context of community participation in community development projects. The paper reports the findings of the thesis titled: "*The impact of public participation on poverty alleviation: a case of promoting self-reliance through community food gardens*" conducted by Mzini (2010). The study addressed issues such as poverty and self-reliance in Sedibeng District Municipality (SDM), South Africa as attached to the Millennium Development Goals (MDGs) number 1 "*eradication of hunger and poverty*". The aim was to analyse the perceptions and potential of community participation for improving food security among low-income households. The study further looked on how low-income household's participation can be of greatest use in the food gardens.

In this regard food security is carried out in three strategic levels, namely on national, household and individual level. This study focused on the household level which strives to enable households to maximise food security and nutrition with their existing household resources. In South Africa, the state complements these activities through training and provides farming implements as a form of assistance. Effective community participation may lead to socio-economic and personal empowerment. The study found that some of the community members were eager to participate voluntarily despite the support from the state. Most of the households depend on government social assistance programmes to support their families. The funds obtained cannot cover all the household's expenses. By growing food gardens the households were able to feed their families and sell the surplus to obtain extra income to pay for the children's school fees and clothing. It was also discovered that these households were able to process (canned food and jam) the surplus crops for future use. Community participation in food security is evident among the low-income households and goes

beyond the anticipated outcomes. Yet there are barriers that delay the process to achieve the intended milestones. However in some households the study discovered that food garden participation was not effective resulting from lack of access to water and land resources. Household food garden projects have the greatest potential to enhance self-reliance. The paper also offers a series of recommendations for improved community participation.

INTRODUCTION

Globally, household food security in both rural and urban areas is still a major problem. As a result community participation is an important component of community development and reflects a bottom-up approach to overcome the high rates of poverty. The reduction of poverty has been a central concern of South Africa's government since 1994. The attainment of food security requires the increased involvement of community participation for designing, implementing and monitoring the development mandates of any country. Above all, the realisation of food security requires co-ordination among local institutions to support food insecure groups.

The South African government has developed household food security measures to empower local communities to assess their food security and incorporate their results into the national nutrition monitoring system. Community participation programs in community development planning can vary depending on the nature and scope of the planning problem. Barron (2006:14) identifies four criteria's for enhancing community participation, namely: establishing the goals of participation; determining the key stakeholders; determining the appropriate level of participation; and minimizing conflict. This study only looks at the third criteria for "determining the appropriate level of participation". This is realised by

analysing the perceptions and potential of community participation for improving food security among low-income households. The study further looks on how low-income household's participation can be of greatest use in the food gardens. The sections below present the methodological approach for this study. The conceptual framework for public participation and food security is outlined below. The results of the study are also presented to report the level of participation of low-income households in the SDM. A summary of suggestions is also offered for improved implementation and community participation on food security programmes.

METHODOLOGICAL APPROACH

Data collection for this study comprised of secondary data, primary data, and interviews by means of semi-structured questionnaires. The secondary sources used in this paper enabled the researcher to relate to the historical context and trends in food security over time. The primary data for this study are drawn from the three local municipalities of the SDM, namely: Emfuleni, Lesedi and Midvaal local municipalities; starting in September 2008 and ending in September 2009. A total of 112 households were interviewed. Institutional interviews involved the Community Development Directorate from the SDM and the Directorate: Agriculture from the Gauteng Department of Agriculture, Rural Development (GDARD). Specifically, the interviews targeted the GDARD regional offices situated at the Germiston Region, servicing Ekurhuleni Metro and Sedibeng District Municipality. Both the SDM and the GDARD are responsible to coordinate and monitor food security programmes in the Gauteng province, especially in the SDM. The community sample consisted of low-income households selected from Evaton; Sebokeng Hostel; Sharpeville; Rus-te-vaal Hostel; Bophelong-Muvhango; Sicelo Extention 4 & 5; and Heidelberg locations. In order to assess the level of community participation, the interviews were mainly held during the spring and summer seasons (September to March in South Africa) to showcase the household agricultural initiatives.

AN OVERVIEW OF COMMUNITY PARTICIPATION AND FOOD SECURITY

Food security is defined as a "situation when all people have access to food production and processing at all times". Access to food security entails gain-

ing access to physical and economic resources in order to achieve sufficient safe and nutritious food preferred by various household (Food and Agriculture Organization (FAO), 2008:3). The Municipal Systems Act (32 of 2000) requires municipalities to promote public participation and to build the capacity of residents, councillors and municipal officials to engage in participatory processes. Public participation has been a hallmark of government policy since the advent of democracy in 1994 in South Africa, although judgements of its efficacy in practice differs (Everatt & Gwagwa, 2005:12). Essentially public participation is the process of ensuring that those who have an interest in a decision are involved in making that decision (Harrison, Schmidt, Avis, et al., 2001:2). Public participation is seen as crucial to good governance and a constituent of democratic principles.

The concept of 'food security' has developed over the past three decades (Young, Jaspars, Brown, et al., 2001:10). The scope of food security dates back to the proceedings of the World Food Summit held in Rome in 1996; the World Food Summit: 2002, and the Millennium Development Goals. The Millennium Development Goals further highlight the importance of confronting the scourge of poverty and the despair of food insecurity. All these proceedings underline the importance of food security (Rivera & Qamar, 2003:ii). The discussions in these gatherings concentrated on stabilising the country's food levels. The question of worldwide availability of surplus products and the storage of food reserves was at the core of the discussion. (Bals, Harmeling, & Windfuhr, 2008:42). Specifically these proceedings aimed to halve malnutrition in developing countries by 2015. Concerns about food security mainly focused on the national and international level and concentrated on the country's ability to secure adequate food supplies. Food security on a global scale analysed overall trends on a global scale and to understand which effects climate change might have on agricultural production, fishery production, and livestock production at the global level (Bals et al., 2008:44).

The role of national government is central for catalysing its country's energies to combat food insecurity and poverty (Rivera & Qamar, 2003:2). Concentration on these two levels was aimed at reviewing their national food security policies. By this

the planners developed strategies for filling arising policy gaps, suggest new measures that will eliminate policy obstacles and streamline inter ministerial and inter-departmental initiatives. (Rivera & Qamar, 2003:vii). The focus on the international and national levels had its own implications as it did not consider the citizens challenges caused by globalisation and ageing. The concept of household and individual food security was also developed (Bals et al., 2008:43). Luckily, policy analysts also include its focus on food security at local level particularly to the household and individual level (Young et al., 2001:10). These notions strategically lead to the support for policies focusing on production increases (Bals et al., 2008:42).

GOVERNMENT INTERVENTIONS AND FOOD SECURITY PROGRAMMES

Agriculture is seen as a potential way out from poverty (Rivera & Qamar, 2003:19). Globally governments have invested a lot of public policy instruments to realize food security mandate as guided by the MDGs. Food security is a human right as it is enshrined in the Constitution of the Republic of South Africa Act of 1996. The food security mandate is preceded by the Department of Agriculture, Forestry and Fisheries (DAFF) at the national sphere of government. The DAFF is responsible for production and resource management; agricultural support services; trade and economic development; food safety and bio-security; forestry and marine aquaculture (Van Niekerk, 2012). To reduce food insecurity, the South African government initiated the Integrated Food Security Strategy (IFSS) in 2002. The IFSS is implemented throughout the nine provincial governments and the 276 municipalities. Food security in the Gauteng province is lead by the Department of Agriculture and Rural Development. In support of this mandate, the Department of Health, the Department of Education and the Department of Social Development are involved to promote food secured communities. Furthermore, municipalities play a larger role in the lives of all citizens of the country. Municipalities provide basic household services (water, electricity and waste removal) and infrastructure provision (roads, land for agricultural activities) (Nealer, 2007:154). Basic household service and infrastructure provision are important contributors and stimulators of local economic and social development (Richardson, 2005:6).

Three government strategies are identified to realise the food security objectives, namely: the "targeted direct feeding programmes"; "food-for-work programmes" and "food-for-work programmes" (Stamoulis & Zezza, 2003). Targeted direct feeding programmes include school meals offered to learners and in the developmental centres and in primary health centres. The food supplied may include a soup kitchen during winter season; for breakfast and for supper. In Bophelong, the ASED I community development centre provides meals for learners on daily basis in the afternoon. Food-for-work programmes serve as an incentive to vulnerable communities as they are absorbed to community development projects. In return the state provides liveable wages for the participants for sustaining food insecure households. Examples of this include, the Expanded Public Works Programme (EPWP); small business development; early childhood development and agricultural projects. Income-transfer programmes include the cash transfers such as disability, old age, child, foster and war veteran grants. Such grants are issued on a monthly basis to the beneficiaries.

Livelihood-support programmes

About 8, 5 million people depend directly or indirectly on agriculture for their employment and income (Van Niekerk, 2012). In South Africa, community members may participate in the following programmes, namely "income-support programmes; agricultural-support programmes; livestock-support programmes; and fishing-support programmes" (Young et al., 2001:11). Agricultural activities range from intensive crop production and mixed farming to cattle ranching in the bush-veld, and sheep farming. Agriculture is seen as a potential way out from poverty (Rivera & Qamar, 2003:19). Nearly 80% of agricultural land in South Africa is mainly suitable for extensive livestock farming (Van Niekerk, 2012). In addition to the abovementioned interventions the state developed the following programmes to realise the developmental mandate on food security. The programmes includes: household food gardens, community food gardens, school based gardens also forms part of the environmental factors of the systems theory (Burchi & De Muro, 2012:32).

Community food gardens are established as investments in agricultural development and are recognized as good business. Food security focuses on

income generation. The school based gardens are established government's intervention to improve school-age children's education is school feeding (Burchi & De Muro, 2012:32). Government make use of agricultural extension services to support food security programmes. Agricultural extension services is a non-formal educational function aimed at disseminating information and advice to agricultural projects beneficiaries. The main intention of the of extension services is to promote knowledge, attitudes, skills and aspirations to the project beneficiaries (Rivera & Qamar, 2003:7).

FOOD SECURITY'S RELATIONSHIP TO PUBLIC POLICIES

Food security's relationship to public policies comprises of the following characteristics, namely: food security is a public good; food security is a social and economic good; food security is a process leading to human development (Rivera & Qamar, 2003:34).

- *Food security is a public good*

Public goods "non-excludable" and does not "diminish" when consumed in any given time (Paarlberg in Rivera & Qamar, 2003:34). Public goods are goods which are meant to benefit all citizens.

- *Food security is a social and economic good*

Agriculture is considered to be a contributing factor for increasing economic growth in any country. Agricultural economists have maintained that greater concentration on small farmers leads to faster growth rates of both aggregate economic output and employment (Rivera & Qamar, 2003:34).

- *Food security is a process leading to human development*

Food insecurity is a great impediment for knowledge and education (Burchi & De Muro, 2012:31). Food security is regarded as a process to human development (Young, et al., 2001:1). The state of being food insecure directly contributes to destitution and damaged livelihoods in the long term. Such situations encourage the vulnerable to take part in waste picking, whereby they will eat unhealthy food and dead animals obtained from the landfills. Unhealthy food consumption poses "nutritional risk" among the food insecure households (Young et al., 2001:1). As a process for human development the state initiate programmes such as education, health, nutrition to encourage community participation.

Food security is associated with a goal as it encompasses the broader environment focusing on the internal and external environments. With this food security can therefore be seen as an outcome of the performance of the food system at the national level and the relevant international framework conditions (Bals et al., 2008:31).

FINDINGS: POTENTIAL OF LOW-INCOME HOUSEHOLD'S PARTICIPATION

The findings of this study comprise the responses of the low-income household's and the institutional based on the study conducted by Mzini (2010) in the SDM. Food security is a component of public policy which strives to reduce the high levels of poverty and unemployment. The assessment of household's participation on food security programmes is a multifaceted process. Such assessments make use of "multiple methods of enquiry and argument to produce and transform policy-relevant information" (Dunn, 2008:1). This section focuses on the following aspects: demographic characteristics and target group; policies; access to food; community resources; food availability and affordability; community food production resources; and local agriculture. These aspects have been used by Cohen, Andrews & Kantor (2002:166) and Fisher (2013) as measurement tools for assessing various issues of community food security and to determine the level of food security participation.

Demographic characteristics and target group

The table below presents the characteristics of the respondents for the study conducted in the SDM.

Table 1 Sample size in SDM

Subjects/ Elements	Area	Sample size (equal allocation)	Sample size (proportional allocation)
Community members			
Emfuleni Local Municipality	Evaton	12	67
	Bophelong	12	
	Rus-ter-vaal	11	
	Sebokeng Hostel	10	
	Sharpeville	12	
	Sonderwater	10	
Lesedi Local Municipality	Ratanda	11	22
	Heidelberg Ext 23	11	
Midvaal Local Municipality	Siqelo	12	23
	Sihlaliwe	11	
Total community members			112
Schools			
Quintile 1 primary schools (SDM)	SDM	17	17
Community facilities			
Facilities: CFGs (SDM)	SDM	7	7
Government entities			
Sedibeng District Municipality	SDM	1	1
GDRAD	SDM	1	1

Source: Mzini, 2010:154

The table above presents the characteristics of the low-income households interviewed in the SDM and these characteristics will be explained in the sections below. The community members included both the males (51%) and females (49%) categorised as the: Youth (21%); Elderly (18%); Disabled (19%); Unemployed (20%); Employed (22%) from the SDM. The analyses also include the 24 food garden facilities interviewed in the SDM.

Institutional policies

This section aimed to ascertain the implication of government policies on food security programmes. In South Africa, the subject of food security is expressed in Section 27 of the Constitution of the RSA of 1996 and conveys the right of every citizen to access sufficient food and water. Section 152 of the Constitution of Republic of South Africa Act of 1996 further compels municipalities to promote social and economic development. The South African government launched the Integrated Food Security Strategy (IFSS) in 2002 for to eradicating hunger, malnutrition and food insecurity by 2015. At the implementation level, both the SDM and the GDARD outlined that their established policy framework as aligned to the Gauteng Growth and Development Strategy (GGDS). The GGDS aims to provide of social and economic infrastructure and services aimed at building sustainable communities and contribute to halving poverty.

Based on the legislative framework, Maserumule (2007:79) points out that the municipalities in South Africa plays "catalyst role". The catalyst role is aimed to realise the strategic imperative of the national democratic transformation and to enhance the quality of lives of the citizens. The SDM developed the Sedibeng District Municipality Pro Poor Strategy to improve household participation on poverty alleviation programmes (Richardson, 2005:50). Food security objectives for the two institutions are incorporated into the integrated development planning (IDP) and the local economic development (LED) programmes; and are linked to the departmental objectives and to its annual performance strategic plans. The two institutions also indicated that the funding is allocated for food security programmes is not issued directly to the beneficiaries instead the institutions purchase farming implements for the intended beneficiaries. Further, the both institutions have a dedicated team to monitor the food security process.

Access to food

Access to healthy and affordable food is an important component for achieving food secured communities. The determination of household's participation does not focus only on hunger and nutrition. Factors such as the provision of basic services; human settlement and access to food security network are also essential for realising sustainable livelihoods. Access to food security is multifaceted and encompasses food produced within a household level and the food processed outside the household level by different chain stores. In terms of human settlement, the study discovered that community members had access to their own housing structures.

This study also examined whether these household's had access to the chain stores and for assessing if such stores traded culturally appropriate food items. The SDM has decent and legal chain stores for community members to purchase their consumables which are not detrimental to the health of the participants. Each selected location has a chopping complex trading food and non-food items. These chain stores are internationally and national recognised. Examples of this are the Evaton Plaza, Thabong and Sebokeng Plaza and the Rathanda shopping complex. In addition it was found that the shops have created employment opportunities with liveable wages for local residents who reside in the low-income communities. In the SDM there are more than ten shopping complexes developed within the locations to supply processed food for the communities.

Hunger and nutrition

When one conducts research it is crucial for the researcher to analyse the background of the respondents. Hunger and nutrition looks at food security factors such as: residential area, median household income, growing vegetables on household level, income generation, knowledge of poverty alleviation programme, and participation in government programmes.

Residential area

In terms of the living patterns a variety of residential structures were identified the researcher discovered that the participants lived and owned a house (21%); a Flat (6%); Hostel (13%); a Low Cost house "RDP" (36%); and in the informal residence (shack) (24%). Such structures are situated in the following

locations, namely: brick houses in Sharpeville and Rathanda; hostels in Rus-te-vaal and Sebokeng; low-cost houses (RDP) in Bophelong-Muvhango and Heidelberg and Sicelo; and the informal settlements in Evaton and Sicelo Extension 4-Silahliwe. These dwelling types are serviced by the municipality for accessing basic services such as water, sanitation, waste removal and electricity. However community members residing in the informal settlements do not have access to residential basic services. Such residents make use of communal taps and use the brazier, firewood and gas stove to heat water and for cooking. The respondents living in the flats were unable to participate in the crop production as they did not have access to a portion of land; however some flat occupants are growing herbs and tomato in their corridors.

Median household income

The study also assessed the employment status of the respondents. Sixty-two (62%) percent of the respondents were unemployed as compared to the 27% who were employed. Some respondents (11%) indicated that they were involved in the informal sector employment. Interestingly, those who took part in the informal sector employment sold vegetables, beverages, prepared food and clothes and rendered entertainment services (Dee-jays for parties and weddings). There was one female respondent who reported that she was never employed in her life, and that she grew up in the homelands, whereby community members relied on their abilities to provide food for the family. She reported that she produces brooms made from grass, and she was happy with her lifestyle. During the interviews the brooms produced by the lady-participant were placed on her head (rolled in a rope) in the process of selling to the prospective customers. Besides the forms of income generation mentioned in the preceding sentence, some participants indicated that they obtain income in a form of government protection schemes. These programs represent an investment in human capital because they reduce the long-term effects of malnutrition (Adato, Ahmed and Lund, 2004:3). The 28% of the respondents depend on pensions, whereas 26% depend on child support with an amount of 220.00 ZAR per month. The respondents indicated that they balance the income by selling beverages, clothes, some bake cakes and sell (5.00 ZAR); fat cakes (2.00 ZAR) in the street corners, taxi ranks and school premises in order to support their families.

Government protection schemes seemed to be the main source of income generation in the SDM.

Knowledge of poverty alleviation programme: community food garden

This section assessed the awareness of household's knowledge on food security programmes. The respondents indicated that they (57%) were aware of the programmes developed for increasing food secure communities in the SDM. Some participants (43%) indicated that they were not aware of the government interventions for improving food security in the SDM. Some of the respondents participate in food gardens which are not linked to government programmes. For example, the residents of Sebokeng-Hostel grow their crops on their own, their crop field was green during the interview (November 2009). Observations also confirmed that community members make use of vacant land and open areas near the railway station to grow their crops. It is evident that some community members participate in these activities, but they are not recognised by the authority in their respective locations.

Participation in government programmes

The respondents were asked to indicate their involvement in government programmes. Participation in agricultural activities was minimal (18%) although there is no contentment in this outcome. Lack of community participation in food security programmes is a concern which requires a robust discussion between the state and the larger communities. This includes respondent who were employed, those who are currently employed and the respondents who did not partake in any programmes. 14% of the respondents participated in the recycling project. In SDM currently the municipality regards this activity as an employment creation strategy, whereby the respondents were taken to workshops, for skills in recycling waste. This category increased enormously, to an extent that the municipality provides transportation of the respondent's goods to the waste depot where the products are sold. The 5% belongs to the Spatial Programmes in the SDM. In this category there are respondents who took part in the installation of bulk supply water in LLM (the project is in its implementing stage: 2009-2010) and the refurbishing of streets of Meyerton CBD (current projects in 2009-2010). Almost 46% of the respondents never participated in government programmes. Some respondents are currently employed as a result they are

unable to dedicate their time to community development activities. Some respondents said that they have lost trust in government programmes because the selection is biased and politically influenced. In other cases the involvement was satisfactorily.

Growing vegetables on household level

Ninety-four percent (94%) of the respondents had a backyard food gardens. It is interesting to observe residents growing their own vegetables. When asked about the rationale behind this activity, they claimed that they can not afford to purchase the produce since some are unemployed. The elders reported that they enjoy consuming fresh organic produce, which is not infected with chemicals used by industries to preserve the plants. 6% of the respondents are those households who reside in Silahlwe, Sonderwater and Rathanda Hostel. In Silahlwe, the researcher observed that the residential area (erf/plot) which is equivalent to a normal residential area in urban areas comprise of four families (housing structures). In Sonderwater, the allocation of residential housing structures is in accordance with the residential property guidelines. Further, they reported that they use communal taps, which makes it difficult for them to obtain the amount of water required for daily consumption and for growing crops. Some respondents are current participants of the food gardens with an aim to reduce the burden of poverty in SDM. Further, the participants indicated that they would be happy if the respective institutions could disseminate adequate information, grant available land to them and also give the beneficiaries resources for attainment of fruitful outcomes. 6% of the respondents are unable to participate due to employment commitments, disability and age effects.

Community resources

Community resources focus on existing community food resources as well as materials for assessing households. This section discusses aspects of the nearby community gardens, skills competency and agricultural skills.

Nearby community gardens

The study observed the seven CFGs and the 17 school based gardens established in the Quintile 1 schools. Among the seven CFG observed, one facility was discontinued due to theft and lack of community participation. Among the 17 schools observed

it was discovered that nine schools projects were active; four were discontinued; whereas the remaining two were established and the inception did not take place. The CFGs in the SDM are also registered as co-operatives and non-profit organisations involved in agribusiness. The challenge in these programmes is that the community representation is lacking, the projects are facilitated by the middle aged and elderly people. Most participants indicated that they grew up in the farming communities, for example in Gauteng, Free State and North West provinces. The identified community food projects use sustainable practices and also sell their produce to the local communities.

Agricultural skills

The respondents were asked to indicate if they have attended training. Skills development looks at the intentions of government to provide skills to community members in order to maintain their families in future with minimal support from government. The GDARD provides capacity development to its beneficiaries (households, CFGs and in school based projects). From the response given by the SDM, it was evident that the municipality support the citizens in SDM.

Skills competency

The respondents were asked to indicate their skills competency. The respondents are capable to provide income for themselves without relying on government's protection scheme. Government programmes are aimed at promoting sustainable livelihoods among low income households. The participants possess the following skills to enhance sustainable livelihoods among the low-income households: namely agricultural; Soft Skills, confectionary; dress-making, artisan/trade skills for. It was indicated that these skills were offered either by government or through formal education. In this case places like Thusong Centres and vocational centres will serve a purpose for developing self-reliant communities in SDM.

Local agriculture

Effective community engagement in government's developmental programme relies on a sustainable food supply in order to maintain food secured communities in a longer-term. The GDARD established community food gardens (CFGs) and school based gardens. The food gardens are also

established on vacant land, clinics, and faith based organisations and along railway lines. In addition, there are chain stores selling fruits and vegetables to the community. Besides the chain stores, community members are employed as informal traders selling agricultural items in residential places, street corners, central business districts and transport hubs. Furthermore, some households are involved in food processing whereby the own butcheries, spaza shops. Dairy products also form part of the local agriculture. There are community members trading with processed milk, eggs, yoghurt and processed juice. Animal production also forms part of local agriculture. In the street of Sebokeng, Evaton and Sharpeville there are local farmers and the livestock is seen along the streets grazing in the open veld. Local agriculture practices unable people to be sustainable since most community members are employed by local business patrons and in some cases the wages does not meet the standard of living.

HOUSEHOLD PERCEPTIONS ON FOOD SECURITY PROGRAMMES

The following section presents the factors that contribute to the lack of community participation in the food security programmes. The participants reported that they do not have the necessary information or knowledge to partake in the food security programmes. The urban lifestyle seemed to cause conflicts among the generations. The culture of agricultural production among households living in urban areas is lacking as opposed to residents in the rural areas. The rural communities depend on agricultural production for survival and this is practices from the early childhood development. Whereas in the urban areas the agricultural activities are optional, community members often purchase basic agricultural consumables instead producing their own crops and livestock. Stakeholders do not believe in their ability to influence the outcomes. This may be due to a lack of supportive democratic institutions or of a public participation culture (Mzini, 2010:131). The culture of community participation is still in its infant stages, however this does not prevent the household's to be involved in decision making processes that affects their developments. Some people may be interested, but are not willing to participate as individuals, as they lack the organizational capacity or other means of presenting their views.

This study observed that on a number of occasions some interested groups deliberately stay out of a participatory process because they see better opportunities to influence outcomes from the outside. Many public involvement activities seem to be and may "insincere" (Mzini, 2010:132). Given the number and complexity of public issues at the local level, most people rather focus on balancing their family priorities and social commitments. The participants indicated that the crop production process and it delays the food consumption process. Hence they opt for better opportunities. Interestingly, the participants were engaged in the informal sector employment and trading practices. The youth of SDM assume that the CFGs are meant for the elderly of the country, since "we grew up relying on our elders to grow the crops in various households". The participants expressed that the informal employment sector enables them obtain quick cash and also serve as a relief strategy for alleviating poverty. The informal employment practices are regarded as illegal economic practices, as these practices unable the state to obtain accurate figures on the poverty profile and unemployment rate. Occasionally, the public is not adequately aware of the opportunity to participate in a public decision making process. In some cases, only a limited segment of the public is aware of the opportunity, which may bias the results of public involvement.

WAYFORWARD

Food security projects have achieved steadily, however such projects suffered from insufficient coordination and institutional capacity for implementation. A proposal of a methodology for analysing the support staff and the processes is essential for programme improvement. Allocation of transparent policy outcome is crucial for winning the trust of the local community and for their buy-in. Investing in food security programmes is cost effective. Enhancing resilience on food security calls for a long-term approaches which is responsive and accessible. The implementation strategies required to achieve food security may need to change over time in order to address new threats or barriers. The right to adequate food allows for holding governments accountable with regard to their adaptation policies to climate change. Governments must develop a national strategy for the implementation of the right to adequate food, which should encompass at least the following five elements as suggested by (Bals et al., 2008:61).

- Governments must assess and identify the most vulnerable groups concerning the right to adequate food and food insecurity or those who are malnourished and hungry;
- Governments have to make sure that existing legislation addresses the concerns of these groups and that the legislation is not leading to de jure discrimination and violations;
- Governments have to make sure that their policy response and choice of instruments (de facto) is reasonably focused towards the most vulnerable;
- Governments are obliged to monitor the outcome of their policies; and
- Governments must also allow for accountability mechanisms, including functioning complaint mechanisms and access to recourse procedures.

CONCLUSION

The main premise of the paper was to analyse the perceptions and potential of community participation for improving food security among low-income households. The study further looked at the benefits of food security participation. This study found that agriculture is not only a source of the commodity food but it is a source of economic and income generation. These projects open up opportunities to the participants as they enter into small business enterprises. The role of the international organizations is remarkable in a way that the food security is operational on a local and individual level. Governments departments face socio-economic dilemmas in dealing with the escalating figures of poverty and unemployment. With these issues, the public sector commitment is acknowledged in its plans to promote agricultural extension and communication for rural development and food security.

Recent and recurring food crises on the global agenda is a concern and particularly among low-income households. Poverty worldwide is excessive. But lack of income and access to adequate incomes is paramount, and is closely related to asset poverty. Investments to improve the food security situation have been shown to provide high returns and benefits for national social and economic development. Improving food security requires cooperation and efficient coordination mechanisms linking a wide range of ministerial and non-governmental stakeholders. Strategies for agricultural in rural and urban development require situational analyses and needs assessments.

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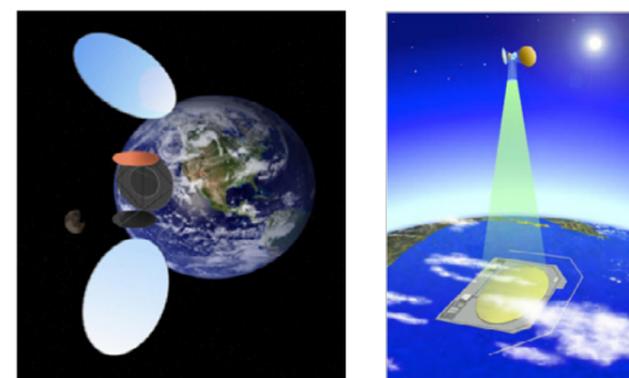
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CREATING A SYMBIOTIC RELATIONSHIP WITH NATURE BY USING SSPS

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SHORT DESCRIPTION

In 2011 Japan was pummeled with triple catastrophes: a tremendously powerful earthquake followed by a devastating tsunami, and then a nuclear disaster. These catastrophes created an awareness of human shortcomings in dealing with such difficulties, and intense interest towards renewable energy. Plus, we are confronted with global warming, climate change, natural resources limitations, and overpopulation. This paper will introduce a novel renewable energy system called Solar Space Power System (SPSS) and explain how this emerging enterprise will improve our lives.



Components in the space Components on the ground
Images of SSPS

1. OUR ENVIRONMENTAL SITUATION

It is said that global warming occurs because of the increase in the amount of CO₂, and as a result, air and water pollution has become serious in some countries, and the exhaustion of petroleum is coming soon. The time has come to face these problems.

2. OUR GOAL IN THE FUTURE

Many solutions have been proposed and some may lead to the creation of a symbiotic relationship between human beings and the nature in the future. The "hydrogen society" is one such proposal, and its advantages are as follows:

1. Only water remains after burning (no emission of CO₂ or toxic substance)

2. Gravimetric energy density is high (about 3 times higher than gasoline)

3. Possible to convert between hydrogen and electricity mutually.

However, hydrogen itself is not a primary energy but a secondary energy, and carbon dioxide is generated when hydrogen is produced by using non-renewable energy.

This is why we need novel technology development in renewable energy to produce hydrogen without CO₂. To achieve this goal, the Space Solar Power System (SSPS) is one important technological solution and significant research is on going in Japan.

3. WHAT IS THE SSPS?

The Space Solar Power Systems project is about space-based solar power plants in geostationary orbit that generates energy by collecting sunlight. The energy is then transmitted to the ground, and converted into electricity and hydrogen for practical use. SSPS consists of a space-based power generation/transmission facility that gathers sunlight, converts it into microwaves or laser beams, and transmits those to a power receiving facility at the ground. Dr. Peter Glaser introduced the idea of space-based solar power generation in 1968. His idea was to deploy large solar panels in space for power generation, and convert the energy into microwaves to transmit to the ground. NASA and the United States Department of Energy looked forward to its implementation. However, the project was so costly that it was stopped funding during the Reagan administration in the 1980s. Meanwhile in Japan, probably reflecting our nation's shortage of energy resources, the SSPS research was started early, and since then it has been pursued by many universities and JAXA (Japan Aerospace Exploration Agency).

4. ADVANTAGES OF SSPS

There are several advantages of SSPS, and in this section I introduce three of them as follows:

4.1 Zero Emissions

Because the power is generated in space and carbon dioxide is emitted only at the receiving site, emissions within the Earth's atmosphere will be greatly reduced, which makes this technology environmentally friendly at a high level. Plus, sunlight is an unlimited source of energy.

4.2 Steady and Highly Efficient Power Supply

Regardless of what transmission technology is used, when sunlight is collected outside the Earth's atmosphere, there is continuous energy supply with almost no influence from the weather, the seasons, or time of the day, thereby allowing collection of solar energy with high efficiency. In addition, it is estimated that there can be 10 times the amount of energy compared with conventional photovoltaics.

4.3 Contribution in Case of Emergency, and to the Use in Space

As mentioned earlier, in 2011, a tremendous earthquake hit Japan, and the following tsunami caused a nuclear disaster. Power outages were serious problems after the tsunami, especially in the stricken area because power facilities were damaged. If mobile receiving antenna facilities are prepared, for example, on the top of cars, then electricity received from space can be collected and distributed. This is because SSPS facilities are in the space, and direction of energy transmission can be changed. SSPS will also be able to supply energy to satellites in orbit, and perhaps even to settlements on the moon.

5. SSPS PROBLEMS

Technically we can construct SSPS even today, but there is a huge financial barrier, and thus, technology must evolve in order to reduce the cost of SSPS. For a microwave power transmission system, 2 mirrors sized 2.5 km × 3.5 km with a weight of 1,000t for each are needed. In addition, a 1.25km radius power generation section and 1.8km radius power transmission section will be 8,000t. Totally, we need to get approxi-

mately ten thousand tons of material from the ground into space. A Reusable Launch Vehicle (RLV) similar to the space shuttle is one of the candidates to carry SSPS materials to space. It is planned to carry objects up to low orbit, and then use the Orbital Transfer Vehicle from there until geostationary orbit. In this way, we will be able to build one SSPS by traveling back and forth between ground and space for more than 300 times by RLV. This is much cheaper and generally safer than transporting SSPS materials on one rocket launch to geosynchronous orbit. Including maintenance, the total cost would be about 10 – 20 billion U.S. dollars, and the generating cost is estimated as around 0.09 U.S. dollars per kWh. This is almost the same cost performance of nuclear power if we use SSPS for 40 years.

6. HOW TO SOLVE THE COST PROBLEMS OF SSPS

SSPS needs a huge structure constructed in space to generate energy. It is very important to reduce the weight of the system as it is estimated that it costs about \$22,000(US) to carry 1 kg into space. This section addresses a method to reduce the weight of the antenna, an essential component of SSPS, with an estimate of its effectiveness. Following is an idea to reduce governments' expenses of the project.

6.1 Reduce weight of SSPS components

A Radial Line Slot Antenna (RLSA) is a planar multimode waveguide slotted array originally designed for DBS reception. The planar structure of RLSA made it a suitable candidate for space use where the added features of light weight and mechanical strength were required. These requirements were successfully met with the use of a quartz honeycomb structure as the spacer.

The asteroid explorer "Hayabusa (launched in 2003)" used a parabolic antenna, and now our lab and NT Space Ltd., are making an antenna for "Hayabusa 2" (to be launched in 2014). The table below shows a comparison of an antenna of each explorer.



Hayabusa

Hayabusa 2

	Type of antenna	Diameter [m]	Weight [kg]
Hayabusa	Parabolic	1.6	7
Hayabusa 2	RLSA	0.9	1

We succeeded in reducing the weight of the antenna and contributed to cost reduction. In the same way, they are needed to reduce weight of other components of SSPS.

6.2 Change cost structure of SSPS and collaborate with private companies

In Japan, MEXT (Ministry of Education, Culture, Sports, Science and Technology) and METI (Ministry of Economy, Trade and Industry) allocate government budget to JAXA.

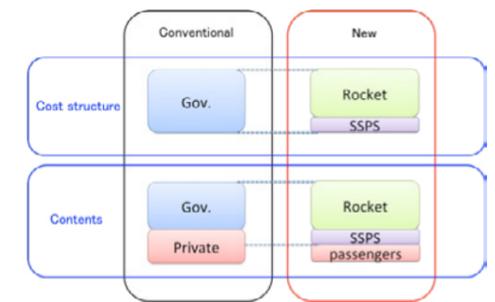
As I described at "5. Problem of SSPS", we will have to launch Reusable Launch Vehicle (RLV) such as Space Shuttle for more than 300 times, and to do so, huge amount of budget is needed.

Japanese budget for space industry is relatively smaller than that of NASA and European Space Agency (around one tenth and half, respectively). It means we might have less opportunity to launch RLV, and thus we need to find way of collaboration with private companies to reduce cost for SSPS.

In US, for instance, space ventures such as "Space X" and "Virgin Galactic" are about to start space sightseeing even for Japanese citizens. These space ventures collaborate with NASA, and their development of space technologies lead to contribute to cutting cost.

Meanwhile in Japan, there are private companies which have business relationship with JAXA, however this relation is different from that between NASA and space ventures in the US. They mainly behave as subcontractors for JAXA. In addition, the most different points are they are tend to be big matured company, and the opportunities are not opened to the public.

Space Sightseeing is attractive and efficient way to reduce proportion of government budget for SSPS and increase opportunities for the public to aware what is SSPS. The figure below shows the cost structure for transmitting materials of SSPS now in Japan, and my proposal



The quadrilateral black line in vertical shows the conventional state, and this has problem in shortage of budget as mentioned before. However, as the quadrilateral red line shows, we will be able to change the cost structure if we collaborate with private space sightseeing companies.

I would like to mention some reasons for these advantages of Space Sightseeing as followings;

1. Why it will be able to reduce the ratio of the budget from government

Rich people usually use first class sheets on the airplane since they use their money to be able to get high quality of time and experience, and thanks to them other passengers are able to get on the air plane at low cost.

In the same manner, they might use their money for space sightseeing because they would like to get precious experience, and they might want to feel as if they became a part of space development.

Hence, we will be able to collect money and use as budget, and JAXA could use their left budget for research or development for SSPS technologies.

2. Why it will increase opportunities to let people recognize what is SSPS

Space industries have been dreaming image for the public, and they think that "Space things" has no relationship with them in daily life. However, if people start to enjoy Space Sightseeing, people will feel that they might have opportunities, and this just happened when airplane trip started. Nobody thought that people become able to travel around the world by airplane. However, you can see the result if you go to an airport today.

CONCLUSION

In this report, I introduced SSPS as one of candidates to solve environmental problem, then surmised its features and problems. We found that cost problem is the bottleneck to realize SSPS, and I proposed two countermeasures, which are to reduce the weight of components and to change the budget structure of SSPS.

I hope more and more people will become aware of SSPS, and participate in this activity across the world to help each other to make it real, then succeed in creating a symbiotic relationship with nature by realizing hydrogen society.

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ECONOMICAL, ECOLOGICAL AND ETHICAL CONSIDERATIONS OF DRINKING WATER PRODUCTION

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INTRODUCTION AND PROBLEM STATEMENT

The world is inhabited by an estimated amount of seven billion people of which nearly one billion does not have access to clean drinking water. Even though 70 percent of the earth is covered with oceans, this water is not suitable for human consumption because of its salt concentration. Only a very small amount, approximately 93 million liters (0.006 percent), of the world's water content is usable potable water. This paper will explain the problem of drinking water shortage and look at ways to gather money to finance its solution. Next to that, the environmental impact of some possible solutions and the ethical concerns the financing might raise, will be discussed briefly.

In order to define the problem of drinking water shortage it is important to know which kind of water is considered potable. As said before, ocean water is not potable due to its high concentration of salt. This is because salt dehydrates someone who drinks the water, through the osmosis effect that dilutes the ocean water as it has a higher concentration of solutes than human blood. In consuming sweet water as well as salt water, waterborne illnesses have to be avoided, so pathogens in this water have to be killed or removed for the water to be potable. A lot of these pathogens enter the water through fecal matter. (e.g. E. coli bacteria, enterohaemorrhagic strain, which can cause bloody diarrhea and even lead to death) These are most often taken care of by adding chlorine, which has to be removed afterwards. Aside from microbial hazards there is also a tolerable daily intake of some chemical substances. If you ingest more of a certain chemical solution, this can cause adverse health effects as well. (Ingestion of chlorine can cause pulmonary edema, blood vomiting, collapse and even death when ingested in large quantities (200 ml of a 3-6% chlorine solution)). There are strict guidelines for drinking water quality that impose certain upper limits for chemicals. Several substances, like some minerals, are still not regulated. This can cause

nausea when the person drinking it is not used to a high quantity of one of those minerals. But it does not mean that the water is harmful, it just takes some getting used to.

WATER TREATMENT PLANTS

The only attainable potable water in nature is ground water. However, apart from its slow rate of replenishment, we are faced with a number of other problems in accessing potable ground water. There is no guarantee that the potable ground water can be accessed at all and the accessibility depends on a number of factors, such as the depth of the ground water, the hardness of the soil and the use of the land. The first assumption we will make is that all the water will thus have to be treated, so any source of sweet water can be used. An average water treatment unit that is designed to treat low quality sweet water (like sewage water) costs approximately 0.26 Euros to generate thousand liters of drinking water. It is best to keep in mind that the investment cost of the infrastructure and distribution costs are not taken into account, so overall the cost will be even higher.

There will also be a need to treat ocean water due to a lack of sufficient sweet water in dry areas. To be able to afford the necessary treatment plants, and perhaps even a pipe network, we will need to charge an estimated three Euros per thousand liters water. Then, add 1.5 Euros to produce and distribute those thousand liters of water, which makes for a sum of 4.5 Euros per thousand liters of water. The minimum amount of potable water a person needs per day is approximately seven liters, only counting the water used for drinking and cooking. After a quick calculation, it is clear that we will need 28.35 million Euros per day to provide every single person with sufficient clean drinking water, taking into account the investment costs to set up the 32 water treatment plants with a daily capacity of 200 million liters.

These plants have an estimated investment cost of 250 million Euros. Since we use 3 out of the 4.5 Euros per thousand liters to cover for the investment costs, we raise 18.90 million Euros for investment per day, which means that we need 14 days to cover the investment cost of one water treatment plant and 424 days (one year, one month and 28 days) to cover the investment costs of all 32 plants necessary to provide everyone with the minimum amount of drinking water. Since it takes over four years to build a single plant, the 18.90 million Euros per day is more than sufficient in providing the required funds. Also, as long as all the plants are under construction, none of the money can be used for water production, so all of the 28.35 million Euros can be used for investment.

This price includes the cost of sampling and quality checks of the drinking water and the production process. The process is designed primarily for the cleaning of water, but keeps control over so-called unforeseen situations, and limits their influence on the effluent water. A strict quality control helps prevent the spreading of unsafe tap water that could carry epidemics.

The investment in the distribution system will not be calculated, because it depends on too many factors. The population density in a region is important, as is the hardness of the soil on the location where you want to install the pipeline. An extensive calculation will also point out the need for extra water production, because there is no avoiding leaks in the distribution pipes, which will result in some water loss there. However, the money raised per day will be enough to cover at least a basic distribution network costs, and the network can be extended while the plants are running. Although it is practically impossible to make sure every single person gets his or her seven liters of drinking water, at least it is a start.

The installation of the water treatment units will have an impact on the environment. Constructing the plants alone will require a lot of material and the process of making these materials will generate a lot of carbon dioxide. And surely, no water treatment plant can operate without releasing waste water. The cost of processing these waste streams is included in the operating costs, but the people that actually are in dire need of clean water often live in under developed countries, where there are no waste water treatment facilities. Thus, processing those waste prod-

ucts will turn out to be elaborate. Releasing the waste into the environment will only raise the surface water concentration of the substances you are trying to remove in the drinking water production plants and kill aquatic organisms. A lot of water treatment plants need a cooling circuit as well, so there will have to be some rules to avoid dumping hot water in rivers, because this can destroy aquatic life. As these countries do not have a sewage system, waste water will be released into the environment.

If it does not rain enough to provide the sweet water treatment facilities with sufficient river water, more salt water treatment facilities have to be constructed to avoid draining rivers and lakes completely. So it is best to think the entire process through before building the plants.

ALTERNATIVE METHOD: SODIS

If we use the SODIS method instead of water treatment plants, costs will be reduced significantly. The SODIS method uses plastic PET bottles, which are filled with sweet water, like river water. This water has to be clear and the bottles cannot contain more than two liters of water for the method to work properly.

The bottles are then placed outside on a roof and depending on the intensity of the sunlight; the water becomes drinkable after 2 to 48 hours. If it rains however, the water will not be sufficiently decontaminated by the UV light, so you will have to wait for the rain to stop to start counting the hours. This method is easy to use and cheap, but has a severe impact on the environment, as it is based on providing people in developing countries with plastic bottles. Even in industrialized countries where people know about recycling and are very much aware of environmental problems, plastics are posing problems in recycling and degradation processes. This method will become more attractive once completely biodegradable plastics are cheap and widespread.

ALTERNATIVE METHOD: CLAY POTS

There is another method often used in developing countries that uses a clay pot as a water filter. The pots are made with sawdust in the base and then fired, so the sawdust burns and leaves tiny pores in the pot. This pot can then be filled with water and put on

top of a regular clay pot to catch the water that seeps through the bottom. This method will only remove substances and larger organisms from the water, it will not kill bacteria! In order to purify the water on a microbiological level, colloidal silver has to be used, which is quite expensive.

Let us assume we will use the water treatment plants for economical and ecological reasons: this means it will cost the world 28.35 million Euros per day to provide every single person on this planet with potable water! That does not seem all that much, does it? Still, where will the money come from? Who will pay for this?

WATER CONSUMPTION IN DEVELOPED COUNTRIES

To be able to come up with an answer, let us take a look at water consumption in developed countries. A Canadian or American citizen uses 350 liters of water per day and since most developed countries offer potable tap water, they consume 350 liters of potable water per day. In Europe, daily water consumption is about 130 liters per person.

Residential Water Consumption

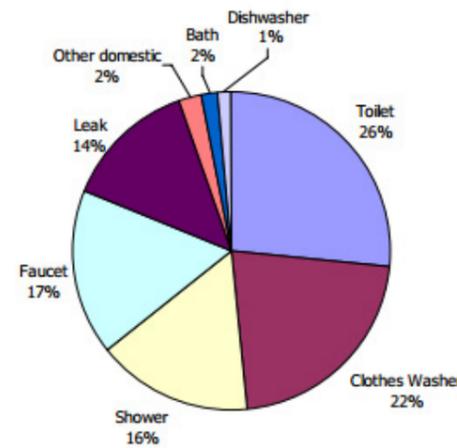


Figure Residential water consumption (Safe Drinking Water Foundation)

As you can see in above, most of the residential water consumption is used for hygienic purposes. But water of drinking water quality is only really necessary for oral consumption and there are several ways to replace the drinking water with water of lower quality like rain water. They will be discussed later.

FUND RAISING BY REDUCING WATER CONSUMPTION

A first step in this process is to reduce personal water consumption in Canada and the United States to the European consumption level. To realize this, people should be made aware of the huge amount of water they are wasting and be encouraged to invest in water-efficient appliances. The replacement of toilets that use 13 liters of water per flush by toilets that only use 4 liters is an example of such an investment. The reason we target Canadians and Americans first is because (most) Europeans already use a lot of water-efficient machines. Very wasteful appliances are often not even produced anymore.

The 34.300.083 inhabitants of Canada will save 2.293.990 Euros per day (0.30 Euros per thousand liters) if they all reduce their daily consumption to 130 liters. This is the money the Canadians would not have to pay their water supplier, their so-called savings for consuming less water.

There is only one problem with this reasoning: not every household has to pay for their water usage due to lack of a metering system and the low price does not always suffice to cover for the production and distribution costs. This implies that part of the water consumption is paid for by taxes, not by inhabitants. The money saved will thus be partially government savings. If we do the same calculation for the United States with 313.847.465 inhabitants and a cost of 0.39 Euros per thousand liters, this generates another 26.762.401 Euros.

So far we have raised 29 million Euros, which is already more than the 28.35 million Euros per day necessary to provide everyone with the bare minimum of potable water, including the investment costs. And we have not even touched European, Australian or Asian water consumption yet. If inhabitants of rainy countries like Belgium and the Netherlands would use rain to flush their toilets, water the plants and wash their cars instead of using potable tap water for those purposes, a lot of water can be saved there as well! On average 2mm of rainfall per day, collected on a collection roof of 25 square meters, will save 50 liters per day for that household.

Another way to reduce water consumption is to reuse water. Reusing the water from your clothes washer or shower to flush the toilet will save 22% of your water, according to . Fixing leaks as fast as possible will also reduce water consumption significantly.

Building a separate water circuit for rain water collection or another separate circuit for collecting reusable water is already obligatory in some countries, but only when building a new house or when significantly remodeling an existing house. This measure is nowadays not retro-active, because the cost of installing such a system in an old house would be too high if you are not planning on remodeling. Keep in mind that even though the installation of such a unit is obligatory, the use of the collected water is still optional!

A possibility to reduce drinking water consumption in developed countries significantly is to stop providing it as tap water. The tap water will then be clean, but not safe to drink. This will mean every single household will need a water filter. Small water filters are not very efficient and need to be checked often. The filter has to be replaced in time as the cleaning efficiency decreases over time. If such a filter does not work properly, you only notice it after becoming sick from drinking the water! The increased risk of illness will make people doubt tap water in general which will result in an increase in consumption of bottled water.

Also, people will have to be careful when taking a shower and the safety of dish washers will be doubted. This poses a huge ethical problem and the reduced cost of the drinking water production facilities will not even compensate for the installation of a small water filter in every household. The actual filter has to be replaced roughly every 4 months at a consumption rate of 15 liters per day and costs approximately 30 Euros. This is a cost of 16.7 Euros per thousand liters of potable water! So it cannot be used as a means of fund raising.

FUND RAISING BY INCREASING WATER PRICE

It does not seem very likely that people will use less water and then give all the money they save away to provide other people with potable water, not even after they covered the investment costs of the

new water-efficient appliances or collection units. An easier way to collect roughly the same amount of money is to increase the water price. The Canadian government has adopted a new water policy in 2012 that includes an increase of the water price. If they install a metering system in every house and if they double the water price, the same amount of money can be raised from the current Canadian water consumption.

Though this will mean that people will still waste a lot of drinking water, they will only pay more in order to do so. The profit made this way can then be used by the government to fund the production of potable water in developing countries.

If we take a look at water pricing, the huge differences between the countries are obvious.

Country	\$/M ³
Germany	\$1.91
Denmark	\$1.64
Belgium	\$1.54
Netherlands	\$1.25
France	\$1.23
United Kingdom of Great Britain and Northern Ireland	\$1.18
Italy	\$0.76
Finland	\$0.69
Ireland	\$0.63
Sweden	\$0.58
Spain	\$0.57
U.S.A	\$0.51
Australia	\$0.50
South Africa	\$0.47
Canada	\$0.40

Figure 2: Water pricing
(Safe Drinking Water Foundation)

Germany is at the top of the (incomplete) list with nearly 1.5 Euros per thousand liters of water, while Canada is at the bottom, charging only 30 cents for this amount of tap water. There is no shame in putting the minimum price at 0.76 Euros (one US Dollar) everywhere if a good explanation is given to the inhabitants.

People have to know that potable water is scarce and they have to use it accordingly. The extra profit of the water production plants in all of these countries will be more than sufficient to cover the costs of the drinking water provision, even if people everywhere decide to reduce their water consumption. But of course we prefer the first solution as it provides the money and reduces drinking water consumption!

INDUSTRIAL WATER CONSUMPTION

Although industrial water consumption has not been discussed in this paper at all, we will briefly shed some light on that aspect. The production of consumer goods like clothing, cars and meat a huge amount of water is used as well. (E.g. 75000 liter per car and 15000 liter per kilogram of steak) However, the industrial water consumption is harder to visualize and that is why it is harder for people in general to act on. The implications of reducing the industrial water consumption or reducing the water quality are very elaborate and not so straightforward. Because of that, we will not discuss improvements in the industry.

CONCLUSION

First, we looked at a way to produce drinking water for people who do not yet have access to it. We also looked into the cost of doing so, and the environmental consequences. In a second step we looked for ways to raise the money to implement the suggested solution.

A first and good possibility was to finance the production of drinking water by reducing drinking water consumption in developed countries, where people consume too much potable water in general. The money saved by reducing water consumption should then be invested in the implementation of the solution. The problem here is that people will not reduce their water consumption, only to give the money they would save by doing so away.

A second possibility is to raise the money by increasing the price of drinking water, which will encourage people to use less water, but it will still raise money for the cause. It is a more easy way to raise money, as it will be collected centrally, by the drinking water production facilities; and not by every single inhabitant of the country, individually. This does not decrease the water consumption by as much and so does not represent the scarcity of water as well, but it is a start!

I hope this paper made you think about how easily the problem can be solved if everyone is willing to give up a bit of comfort and pay attention to the amount of water they waste. The next time you take a shower, make it last only five minutes, and install a toilet that uses only 4 liters to flush instead of 13. And

even better, use the money you save by spending it on a good cause, it can really make the world a better place!

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All units have been converted into SI units and the exchange rate of US Dollar to Euro has been fixed at 0.759 Euros per US Dollar.

ENVIRONMENTAL POLLUTANTS REMOVAL AND RECYCLING IN CLEAN COAL TECHNOLOGY

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1. COAL STATUS AND ATMOSPHERIC POLLUTION IN CHINA

1.1 Coal dominant energy structure in China

Coal is the most abundant energy source in the world, especially in China. China's coal resources are estimated to be 5570 billion tons with 1018 billion tons of proven reserves and 4552 billion tons of forecasted reserves. Taking the year 2005 as an example, China's proven recoverable reserves of coal were 114.5 billion tons or 82 billion tons of coal equivalent (tce), accounting for 12.6% of the world total.

Although common complain about coal include its uncleanness, low efficiency and atmospheric pollution, coal is still dominant in China's energy structure. As illustrated in Fig.1 of China's Primary Energy Production from 1980 to 2007¹, coal constituted around 70% of the total primary energy production. In accordance with China's Primary Energy Production, coal also plays a dominant role in China's primary energy consumption (As shown in Fig.2). The coal share of the total was 74–76% from 1982 to 1996, but declined to 71.7% in 1997 and then stayed between 66% and 70% from 1998 to 2007. In 2005, China consumed 1528Mtce of coal, ranking number one in the world with 36.9% of the world total². The percentage of coal in China's total primary energy consumption was 68.7%, close to the percentage of oil and gas in the world's total primary energy consumption (59.6%).

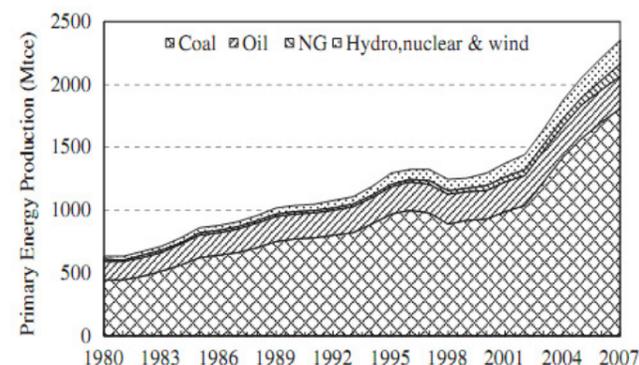


Fig.1 China's primary energy consumption from 1980 to 2007³

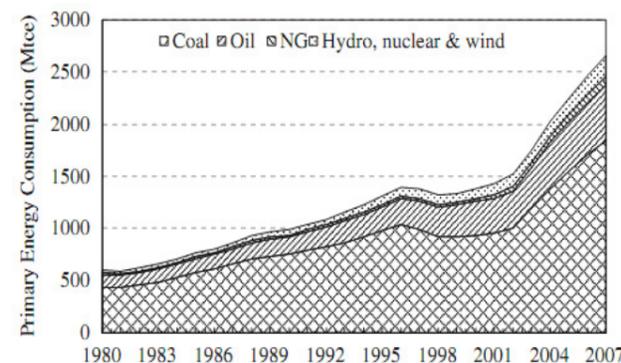


Fig.2 China's Primary Energy Production from 1980 to 2007³

In China, although many researchers are committed to the development and utilization of new renewable energy, it has been a common sense that the prominence of coal in the energy scheme will continue in the future. It is expected that until 2050 the proportion of coal in total energy demand will not be less than 50%.

1.2 Atmospheric Pollution Caused by Coal-combustion

In China, around 70% of coal consumption is for direct combustion. Since 1990, the percentage of thermal power from coal-combustion has leveled off about 75% of the total coal consumption while the percentage of electricity generated from coal has remained 80~83%. Taking into account that coal is a

sort of low-grade energy consisting of a variety of inorganic elements and organic molecules, various environmental pollutants including dust, flue gases (i.e. SO₂, NO_x), heavy metals (such as mercury) and so forth are generated during the coal combustion process. According to related statistics, approximately 90% of SO₂ emission, 67% of NO_x discharge, 70% of dust and 45% of Hg contamination are caused by coal combustion^{3,4}.

In recent years, the fast-growing energy consumption and its resulting impact on the environment and energy security in China have become much more serious as China's economic growth rate increases. Coal, the most abundant energy resource, will continue to be the dominant energy source, especially for electricity generation in China for a very long time. On top of this, the most critical issue with increased coal utilization is the environmental pollution. To help resolve the increasing energy and environment problems, clean coal technologies which include "advanced power generation technologies, supercritical

and ultra-supercritical systems, coal transformation, integrated gasification combined cycle (IGCC), carbon capture and storage technology (CCS)" has been greatly developed in China to utilize coal without harming the environment and to increase the coal utilization efficiency. At the same time, advanced control technologies of conventional pollutants (i.e. SO₂, NO_x and dust) are always efficacious approaches for management of atmospheric pollution caused by coal-combustion that Chinese scholars address emphasis on⁴.

Herein, we will discuss three kinds of most intractable air pollutions and their removal technologies that our research group focuses on, namely SO₂ pollution and removal, NO_x pollution and removal and PM_{2.5} emissions.

Table 1 Chinese coal consumption, SO₂ emissions and S resource circumstance (units: million tons)

	Coal Consumption	SO ₂ Emission	H ₂ SO ₄ Production	H ₂ SO ₄ Import	S Import
2000	132000	1995.1	2427.0	—	—
2001	135000	1947.8	2696.3	—	—
2002	142000	1926.6	3050.4	—	—
2003	169000	2158.7	3371.2	—	—
2004	194000	2254.9	3928.9	—	—
2005	217000	2549.3	4544.7	195.7	830.7
2006	239000	2588.8	5033.2	215.8	881.3
2007	259000	2468.1	5412.6	—	965.0
2008	281000	2321.3	5132.7	—	841.5
2009	302000	2214.4	5960.9	—	1216.8

¹ China Statistics Bureau, 2008. China Statistical Yearbook 2007. China Statistics Press, Beijing.

² International Energy Agency, 2007a. Energy Balances of Non-OECD Countries 2004–2005. International Energy Agency, Paris.

³ Xu, H.: The prospect of clean coal technology. Clean coal technology 13, 89-92 (2007) (In Chinese)

⁴ Wenying Chen, Ruina Xu. Clean coal technology development in China. Energy Policy 38 (2010) 2123–2130.

2. TYPICAL ATMOSPHERIC POLLUTIONS AND CONTROL TECHNOLOGIES IN CHINA

2.1 SO₂ emission and recycled removal

Sulfur dioxide emissions from coal combustion in power plant are one of the major anthropogenic contributors to air pollution that result in serious acid rain effects, causing severe ecological damage as well as severely affecting people's health⁵. Relevant analysis indicates that until 2050, China will consume 150 billion tons of coal at least. Additionally, the high sulfur coals account for approximately 10% of the total and with the increasing mining, SO₂ pollution due to coal firing will be undoubtedly serious. As can be seen from Table 1, from 2000 to 2009, SO₂ emissions of China leveled off at 2000 million tons disregarding the slight fluctuation. However, Chinese coal consumption saw a sharply increasing trend during the decade from 132000 million tons to 302000 million tons. At this stage, SO₂ emissions had been effectively controlled during the last decade. It is due to the strong commercializing of Flue Gas Desulfurization (FGD) systems, especially traditional wet desulfurization using limestone as absorbent which accounts for 90% shares of FGD marketplace. In China, statistics shows that by the end of 2005, the capacity of power plants with Flue Gas Desulfurization (FGD) systems reached 53GW with China's average SO₂ emissions per kWh 40% less than in 1990. The average sulfur removal rate was 92.5% with SO₂ emission reductions of 2.3 million tons in 2005³.

Although traditional wet FGD has been commercialized for a long time and is a efficacious method for SO₂ removal. It has some inevitable disadvantages of high capital cost, requiring large amount of water, SO₂ not completely removing with 50 ppm leaking out etc. More seriously, as a result of utilizing carbonate as absorbents, each emission reduction of 1 mole of SO₂ releases at least 1 mole of CO₂. Since carbon emission reduction is a world-widely advocated, this kind of SO₂ removal technology confronts ethic queries. Therefore, more energy-saving and deeper desulfurization technology has been expected to be developed for environmental protection. From table 1, we can see that on one hand, the amount of SO₂ emissions is rather large, on the other hand, hundreds of million tons of H₂SO₄ or sulfur were imported

⁵ Sakizci, M., Alver, B. E., Yörükogullari, E.: Influence of the exchangeable cations on SO₂ adsorption capacities of clinoptilolite-rich natural zeolite. *Adsorption* 17, 739-745 (2011)

from other countries. It is obvious a technological dream that air pollutant SO₂ can be recycled to useful resources at the same time when SO₂ is removed from flue gas. For China, it is urgently needed.

In recent years, applying activated carbons for SO₂ adsorption and conversion to H₂SO₄, as a dry process, has attracted many researchers' attention. The desulfurization process has the advantages of water-saving, by-product recyclable utilization, no secondary contamination and adsorbents renewable. This SO₂ removal technology has been considered the development direction of SO₂ emission removal technology⁶⁻¹⁰.

Previous researchers and our research group have done a lot of work on SO₂ removal by activated carbons. Based on the related researches, the SO₂ removal process in the presence of O₂ and H₂O has been described as follows: SO₂ is adsorbed onto the surface of carbonaceous materials and converted to H₂SO₄ with the oxidation of O₂ and the hydration of H₂O⁶⁻¹⁰ (Shown in Fig. 3). With suitable generation method, H₂SO₄ can be collected in the form of liquid H₂SO₄ or SO₂.

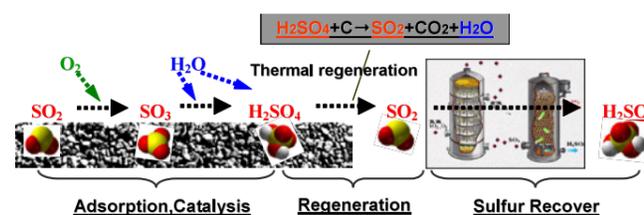


Fig.3 SO₂ removal and recover process by activated carbon

To realize efficient H₂SO₄ recover from activated carbon materials, the most important work is to synthesize functional carbon materials with rich pore structure and specialized functional groups which can convert SO₂ to H₂SO₄ efficiently and make H₂SO₄ desorb from carbon material internal easily. Our research group members have done a lot

⁶ Mochida, I., Korai, Y., Shirahama, M.: Removal of SO₂ and NO₂ over activated carbon fibers. *Carbon* 38, 227-239 (2000)

⁷ Gaur, V., Asthan, R., Verma, N.: Removal of SO₂ by activated carbon fibers in the presence of O₂ and H₂O. *Carbon* 44, 46-60 (2006)

⁸ Raymundo-Piñero, E., Cazorla-Amorós, D., Salinas-Martínez de Lecea, C., Linares-Solano, A.: Factors controlling the SO₂ removal by porous carbons: Relevance of the SO₂ oxidation step. *Carbon* 38, 335-44 (2000)

⁹ Lizzio, A. A., DeBarr, J. A.: Mechanism of SO₂ removal by carbon. *Energy and Fuels* 11, 284-291 (1997)

¹⁰ Fei Sun, Jihui Gao, Yuwen Zhu, Yukun Qin. Mechanism of SO₂ Adsorption and Desorption on Commercial Activated Coke. *Korean Journal of Chemical Engineering*, 2011, 28(11): 2218-2225

Table 2 limiting high NO_x emission of coal-fired power boiler in 2003 and 2011 national standards (units: mg/m³)

Implemented	Limiting high NO _x emission			
		1 January, 2005	1 January, 2005	1 January, 2004
GB13223-2003	V _{daf} <10%	1500	1300	1100
	10%< V _{daf} <20%	1000	650	650
	V _{daf} >20%			450
GB13223-2011	100 (key areas)			

V_{daf}: Volatile content of coal

of research work on find the mechanism of gas molecules adsorption, transformation and reaction in the nano-scale space of carbon materials such as carbon nanotubes, activated carbon fibers and activated carbons of different raw materials. Based on the understanding of SO₂ adsorption and reaction mechanism in typical carbon materials, our research group members are working on the directional preparation of functional carbon materials that can make environmental pollutants into available resources.

2.2 NO_x emission and low-NO_x combustion technologies

Nitric oxide (NO_x) emissions caused by coal combustion includes NO, NO₂, N₂O, N₂O₃, N₂O₄ and N₂O₅. They can result in serious acid rain effects and pose a great threat to the health of humans and plants by arousing human and plant poisoning after breathing in them. Currently, NO_x emission concentration of flue gas in Chinese power plant is in the range of 600~1200mg/m³ and NO_x emissions every 10 billion kWh of thermal power is about 3.9 to 88,000 tons. It has been reported that in 2000, the nationwide average NO_x emission concentration of power plant boiler is 750mg/m³ and total emissions is 258.02 million tons, an increase of 93 million tons more than in 1995. With the development of thermal power technologies in China during recent years, unit coal consumption and NO_x emissions of unit electricity generation have decreased year by year. In 2010, NO_x emission concentration was controlled at 650 mg/m³. However, because of the rapid growth of electricity generation capacity, NO_x emissions will continue stabilize at about 600 million tons⁷⁻¹².

¹¹ B. J. Finlayson-Pitts, J. N. Pitts. *Atmospheric Chemistry*. Chat 11,

On the other hand, a more restrictive national standard of NO_x emissions was implemented in 2011¹³, shown in Table 2. NO_x emissions from new coal-fired power plant must be no higher than 100mg/m³, much higher than that in 2003 standard (shown in Table 2). Low-NO_x emission systems have been required in newly built, expanded or retrofitted power plants since 2004¹⁴. But to meet the new national standard, advanced NO_x emissions control technologies will be urgently needed in the next few years.

Currently, there are two kinds of NO_x emissions control technologies: (1) flue gas denitrification; (2) low-NO_x combustion. Flue gas denitrification is defined as removing NO_x from flue gas after coal combustion. It is to use the oxidation, reduction and adsorption characteristics of NO. In the removal process, reducing agents are added into the flue gas and react with NO_x with catalysts participating to convert NO_x to N₂. It mainly includes two methods: (1) Selective Catalytic Reduction (SCR)¹⁵; (2) Selective Non-Catalytic Reduction (SNCR)¹⁶⁻¹⁷. Although

John-wiley, Chichester, 1986

¹² Yaxin Su, Yuru Mao, Zhang Xu. NO_x emission control technology from coal combustion. *Chemical Engineering Press*, 2005:10-13

¹³ National Environmental Protection Agency. GB13223-2011. Thermal power plant air pollutant emission standards National Technical Supervision Bureau, 2011

¹⁴ National Environmental Protection Agency. GB13223-2003. Thermal power plant air pollutant emission standards National Technical Supervision Bureau, 2003

¹⁵ H. Bosch, F. J. Janssen. Catalytic Reduction of Nitrogen Oxides: a Review on the Fundamentals and Technology. *Catalysis Today*. 1998: 369-378

¹⁶ R. Comparato. NO_x Control Technologies: Focus SNCR, Western Coal Council. Burning PRB Coal Seminar, Birmingham, Alabama: 24-26

¹⁷ C. B. Moon, G. Paul. First Installation of Selective non Catalytic NO_x Reduction Process on Utility Boilers in Korea, Carmigani, MEGA Symposium, Chicago, IL, 2001

the above two methods have high NO_x removal efficiency in laboratory studies, they can hardly be spread in large scale in China due to their disadvantages of high initial investment, expensive operation fee, catalyst poisoning and secondary pollution caused by NH₃ escaping. Against those drawbacks of flue gas denitrification, low-NO_x combustion technologies were proposed. In contrast to flue gas denitrification, NO_x reduction process of low-NO_x combustion take place in the coal combustion process without the complicated post-treatment devices which are needed in SCR and SNCR methods. Our research group has been focusing on the exploit of low-NO_x combustion technologies during the last two decades and achieved large research and application progresses.

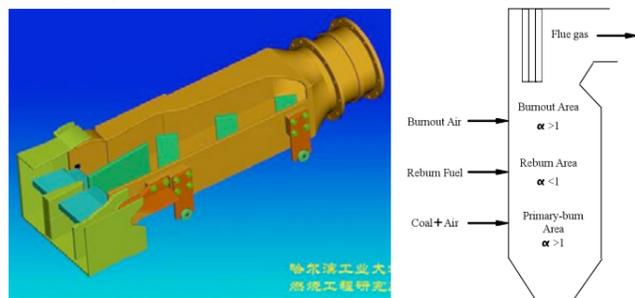


Fig.4 Horizontal bias burner Fig.5 Fuel staging technology

Fig.4 shows a kind of horizontal bias burner which was devised by our research group to increase combustion efficiency of pulverized coal and decrease NO_x emissions. NO_x emissions control is achieved through the specialized design of burner structure. As can be seen in Fig. 4, the arrangement of shutters inner burner can separate pulverized coal into two airstreams with different pulverized coal concentration. The combustion of pulverized coal with high concentration can construct a reducing atmosphere which is adverse for NO_x generation.

Fig.5 shows the fuel staging technology which exploited by our research team. This technology divides combustion process of pulverized coal into three stages: (1) 80~85% of total fuel is sent to primary combustion area with excess air ratio $\alpha > 1$ and at this stage, NO_x can be easily generated. (2) The rest 15~20% of total fuel is sent to reburn area with excess air ratio $\alpha < 1$ and a large amount of NO_x can be reduced into N₂ at this stage. (3) At last stage, combustion products of previous two stages enter into burnout area and burnout air is sent to this area to help combust completely.

The above two techniques exploited by our research group are two typical kinds of low-NO_x combustion technologies and has been widely used in Chinese power plant. According our operation statistics, the NO_x emissions concentration in power plant which adopted "Horizontal bias burner" and "Fuel staging technology" can be decreased to 200~300mg/m³. China is still a developing country, controlling NO_x emissions must proceed from the source. It is undoubtedly a technical dream that NO_x emissions can be completely eliminated in the coal combustion process without any auxiliary or post-combustion methodologies by just rational combustion organization. It is now the Low-NO_x combustion technologies are the inevitable choices. Our research group members are now making every effort to accelerate the development of low-NO_x combustion technologies and understand the low-NO_x combustion mechanism.

2.3 PM_{2.5} emission and control

PM_{2.5} refers to the part of particles whose aerodynamic diameter is less than 2.5 μ m and it is also called Respirable Particulates. Dust or soot caused by coal combustion are two major sources of PM_{2.5}. Although the weigh content of PM_{2.5} emission just make up 1% of soot emissions caused by coal firing, the quantity contents account approximately 90% of soot emissions. Due to its high quantity contents in atmosphere, PM_{2.5} is one major atmospheric pollutant which affects air visibility greatly and poses a great threat on humans' health. Each additional 103 μ g/m³ of PM_{2.5} makes the excess risk of death from all causes of residents increase by 2.29% and makes the excess risk of death from cardiovascular and cerebrovascular diseases of residents higher (3.08%)¹⁸. Fig.6 illustrates satellite-derived worldwide PM_{2.5} pollution. It can be seen that China is one of the most serious pollution areas.

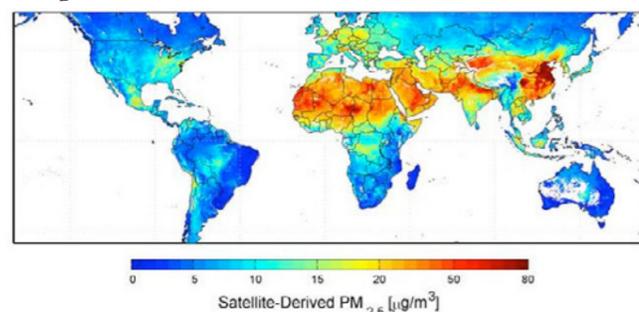


Fig.6 Satellite-derived worldwide PM_{2.5} pollution

¹⁸ Wei huang, et al., American Journal of Epidemiology, June 2012, 175(12)

Therefore, Chinese government has implemented a series of national standards to require related power plants and enterprises decrease PM_{2.5} emissions. In September 2011, thermal power plant air pollutant emission standard (GB13223-2011) was implemented to make particle emission standard increase to 30mg/Nm³ from 50mg/Nm³¹³. In November 2011, Ambient air PM₁₀ and PM_{2.5} Gravimetric method (HJ 618-2011) started to implement. In March 2012, the Ambient Air Quality Standard (GB 3095-2012) released and firstly added PM_{2.5} monitoring norms.

Traditional Particle control technologies in coal-fired power plants, such as electrostatic precipitator (ESP) technology and bag filter technology, can only capture particles whose diameter is up to PM₁₀. PM_{2.5} whose aerodynamic diameter is less than 2.5 μ m is hardly to be removed from soot emissions. Seeking PM_{2.5} efficient removal technology from coal-fired power station is the key to the improvement of air quality in China.

Our research group has done a lot of work on PM_{2.5} control and found that the difficulties for PM_{2.5} removal come from its dispersion characteristics and low weigh content. The best method for PM_{2.5} removal is aggregation. Through chemical or physical actions, small particles are aggregated into large particles. Fig.7 and Fig.8 shows the aggregation morphology and aggregation mechanism of PM_{2.5} respectively. After aggregating into large particles, traditional electrostatic precipitator (ESP) technology and bag filter technology can be utilized to capture them. Additionally, PM_{2.5} surface is gathered by heavy metals such as Hg, As etc. It costs much to remove PM_{2.5} solely. Achieving PM_{2.5} aggregation in the process of other pollutants such as SO₂, NO_x removal is undoubtedly best choice.

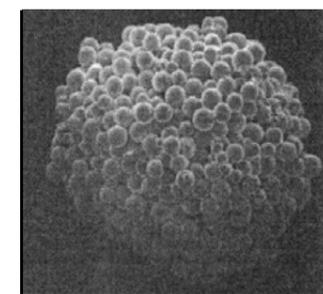


Fig.7 SEM microphotograph of PM_{2.5} aggregation

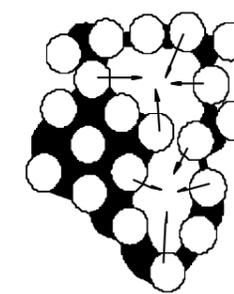


Fig.8 Aggregation model of PM_{2.5}

Based on this idea, our research group is now focusing on the research of PM_{2.5} collaborative removal with other air pollutants such as SO₂, NO_x, heavy metals. Based on our previous researches, we found that calcium-based substance has excellent PM_{2.5} adsorption characteristics. Traditional SO₂ absorbents are Ca(OH)₂ or CaO. Therefore, we proposed a kind of PM_{2.5} aggregation method that SO₂ removal products CaSO₃ and CaSO₄ act as the adsorbents to realize the aggregation of PM_{2.5}. This method has been demonstrated efficient for PM_{2.5} aggregation in laboratory studies. Our next work is to find the mechanism of PM_{2.5} collaborative removal with SO₂ removal process.

CONCLUSION

This paper discussed environmental pollutants SO₂, NO_x and PM_{2.5} emissions caused by coal combustion and their advanced control technologies in China. This paper describes coal's dominant role in China's energy scheme and the environmental issues related to coal use, such as SO₂/NO_x pollutions and PM_{2.5} emissions. After that, advanced emission control technologies were proposed and discussed. For SO₂ removal, directional preparation of functional carbon materials is the key for SO₂ recycled removal. For NO_x emission control, low-NO_x combustion technologies are the inevitable choices. As for PM_{2.5} emission control, the best method is collaborative removal with other air pollutant removal process.

RESEARCH ON INDUSTRIAL ENVIRONMENTAL EFFICIENCY OF THE LIAONING COASTAL ECONOMIC BELT

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Abstract: Environmental efficiency is an essential element of eco-efficiency. Data envelope and stochastic frontier analyses were performed to compute industrial environmental efficiency of the Liaoning coastal economic belt. We performed multiple linear regression to analyze factors that influence industrial environmental efficiency. The results indicate that, during 2001–2009, the environmental efficiency of the Liaoning coastal industrial belt improved significantly; however, a gap compared with the ideal production frontier remained apparent. With the increase of industrial production, most of the research area produced more wastewater and gaseous waste, but less solid waste. Increase of heavy industrial proportion, hi-tech proportion, and capitalization reduced industrial environmental efficiency, whereas promotion of living standard greatly increased it. Other factors, such as ownership, production scale, foreign investment, and environmental management, did not have significant impact.

Key words: Industry, environmental efficiency; data envelope analysis; stochastic frontier analysis; Liaoning coastal economic belt

1. INTRODUCTION

Northeast China was among the first group supported by Chinese government at the setting up of China. It is an important national industrial base. However, the opening up policy energized the economy of southern coastal area, and Northeast China fell far behind. A data comparison shows that, in 1978, the GDP of Liaoning was twice that of Guangdong. However, by 2010, the GDP of Guangdong was more than double than that of Liaoning. In order to help Northeast China take off again, since 2004, the Chinese government has published a series of documents to promote industrial structure upgrades, investment environment, state-owned enterprise reforms, and others.

The Liaoning coastal economic belt, located in the southern area of Northeast China, includes six cities: Dalian, Huludao, Jinzhou, Panjin, Yingkou, and Dandong. It is the most economically dynamic region in Northeast China. In 2009, the GDP of this area comprised 25% of Northeast China, although its area covers only 4.6%. In 2007, the Liaoning coastal economic belt was identified as a first-degree developing belt of Northeast China. In 2009, the development plan of this region was promoted as part of the national strategy. The governmental strategic support and capital input induced a momentum of the regional development.



Fig. 1. Map of China, Northeast China, and the Liaoning coastal economic belt

As an old heavy industrial center, the Liaoning coastal economic belt has been suffering from water scarcity, severe pollution, coastal ecosystem damage, and other problems that threaten regional sustainable development. In addition, vast investment on heavy, chemical, and electrical programs and building of high-resource consumption enterprises in this area increase environmental pressure. Clearly, the measure and analysis of industrial environmental efficiency in this area are quite important. Environmental efficiency is an ideal indicator that links economy and environment. An efficient producer is the one who produces most while destroys least.

2. EXPERIMENTAL DETAILS

2.1 Stochastic Frontier Analysis (SFA)

SFA assumes that the gap between producer i and the production frontier is composed of the random error term V and the inefficiency term U_i . The expres-

sion of stochastic production is $Y_i = F(X_i, \alpha) \cdot \exp(V_i - U_i)$, where Y denotes the value of production; X is the amount of input, which includes several indicators, such as labor, capital, and others; and α is a parameter to be estimated. Random error term V is independently and identically distributed as $V_i \sim N(0, \sigma^2)$. The inefficiency term U_i is the distance of producer i from the production frontier. The efficiency of producer i is $\exp(-U_i)$. When $U_i = 0$, the producer i is efficient, and its efficiency = 1; when $U_i > 0$, the producer is inefficient, and efficiency < 1.

The efficiency estimated by SFA is absolute efficiency in that it is attained by comparing a real producer with an ideal one. The advantage of SFA is that its estimation eliminates random error. If the weakness is too smooth, the efficiency transformation trend makes observing the variation of efficiency changing speed between producers and periods difficult.

2.2 Data Envelope Analysis (DEA)

DEA is an effective method to estimate efficiency by use of linear programming. Its basic theory utilizes a comparison of weighed inputs and outputs of different producers in order to identify an efficient producer (i.e., a real producer) as the production frontier. The efficiency of another producer is taken as its distance from the frontier.

$$\begin{aligned} \min_{\lambda, s^-, s^+} \rho &= \frac{1 - \frac{1}{m} \sum_{i=1}^m s_i^- / x_{io}}{1 + \frac{1}{s} \sum_{r=1}^s s_r^+ / y_{ro}} & 1 \\ \text{Subject to } & x_o - s^- = X\lambda & 2 \\ & y_o + s^+ = Y\lambda & 3 \\ & \lambda \geq 0, s^- \geq 0, s^+ \geq 0 & 4 \end{aligned}$$

In this paper, we chose nondirectional slacks-based model (Expressions 1–4) to integrate both input and output direction and solve the slacks problem. Here, o ($o=1, 2, \dots, n$) means the producer o ; $X = \{x_1, x_2, \dots, x_m\}$ means the vector of inputs; $Y = \{y_1, y_2, \dots, y_s\}$ means the vector of outputs; s denotes slack; s^- is input surplus; and s^+ is output shortage.

Efficiency computed by DEA is comparative efficiency because DEA utilizes the real, not the ideal, best performing producer as the basic standard against whom to compare with others. DEA does not

need to set up a function expression or give weight to each indicator in advance. Thus, the result is quite objective and accurate. The disadvantage of DEA lies in its incapability to eliminate random errors or show temporal trend.

2.3 Incorporating environmental indicators

We choose the amount of pollutant emission to demonstrate environment quality. We know that the more waste is emitted, the worse the environment will be. In fact, pollutants represent environmental cost; thus, we take them as conventional inputs in the efficiency computing model, thereby obtaining environmental efficiency.

2.4 Data

In this study, the six cities in Liaoning coastal economic belt are considered as producers or samples. We utilize industrial production value as output, number of workers, fixed capital as conventional inputs, wastewater emission, gaseous waste emission, and solid waste emission as environmental inputs. The research period extends over the 2001–2009 period. The data are gathered from the 2001–2009 *Liaoning Statistic Yearbook*, *City Environment Report and Statistical Communique on National Economic and Social Development of Cities*.

3. RESULTS AND DISCUSSION

3.1 Environmental efficiency

The industrial environmental efficiency of the six cities of the Liaoning coastal economic belt estimated by SFA is shown in Fig. 2. During 2001–2009, average environmental efficiency improved from 0.15 to 0.44. The progress was large; however, a great gap from 1 remained. In addition, clearly, environmental efficiency of the six cities differs. The city of Panjin has the highest environmental efficiency, whereas Huludao and Dandong stay at the bottom. Environmental efficiencies of Jinzhou, Dalian, and Yingkou are similar and in the medium level of the area.

DEA measures comparative efficiency (Fig. 3). The environmental efficiency of the city of Panjin is 1 (2002 is an exception); thus, it is an efficient producer. The environmental efficiencies of the other five cities are measured, taking Panjin as the standard. The figure shows that the distances of environ-

mental efficiencies between Panjin and Yingkou, Dandong, Dalian, and Jinzhou are becoming smaller. Huludao's environmental efficiency is low and falling farther behind. To sum up, the industrial environmental efficiency of the Liaoning coastal economic belt is being upgraded, and regional disparity of environmental efficiency is decreasing.

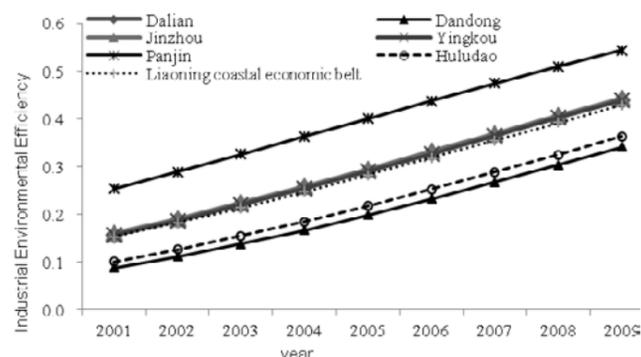


Fig. 2. Industrial environmental efficiency of the six cities of the Liaoning coastal economic belt (SFA)

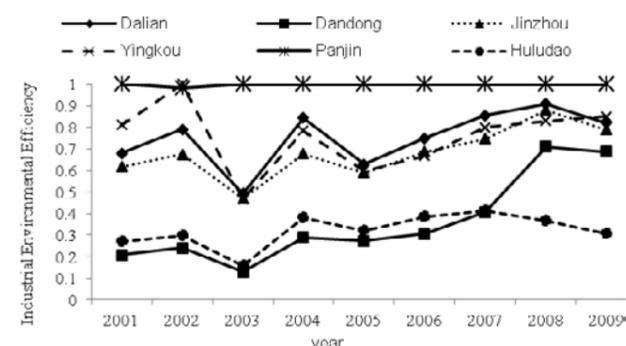


Fig. 3. Industrial environmental efficiency of the six cities of the Liaoning coastal economic belt (DEA)

To compare the results estimated by SFA and DEA, the six cities are ranked from highest to lowest as follows: Panjin, Dalian, Yingkou, Jinzhou, Huludao, and Dandong. Some disparities between the two methods are evident. The efficient producer does not exist in SFA, it is an ideal estimated by the function. The efficiencies estimated by SFA are lower. The efficient

Table 1. Elasticity of inputs of the six cities of the Liaoning coastal economic belt

City \ Input	Dalian	Dandong	Jinzhou	Yingkou	Panjin	Huludao
Fixed capital	3.37	4.13	4.06	3.87	3.62	3.80
Labor	0.64	-14.11	4.07	-4.17	2.26	3.02
Wastewater	-	6.01	5.68	5.32	3.93	4.79
Gaseous waste	10.07	4.10	6.05	9.83	3.97	6.79
Solid waste	-6.75	-6.21	-6.39	-3.96	-4.10	3.16

producer estimated by DEA indeed exists, which is Panjin in this case. The efficiencies of different producers vary at a larger scale. Because SFA eliminates the random error, the efficiencies change smoothly with time, which makes distinguishing temporal variation and variation among different producers difficult. In contrast, the efficiencies estimated by DEA are affected by random disturbance. In general, SFA is better at providing general trend, whereas DEA is more often used for learning each the variation of each producer. In the research of a region, the two methods are complementary.

3.2 Elasticity of each input with respect to output

Table 1 reports elasticity of different input of the six cities of the Liaoning coastal economic belt by use of parameters estimated by SFA. Elasticity of fixed capital varies from 3.37 to 4.13 without much difference among cities, representing an increase of 1% in production needs more than 3% in capital inputs. Each city's elasticity of labor differs. Dandong and Yingkou need to cut 14.11% and 4.17% labor, respectively, to increase output by 1%. However, Jinzhou, Huludao, Panjin, and Dalian need to produce and donate 4.07%, 3.02%, 2.26%, and 0.64%, respectively. Elasticity, with respect to wastewater, is negative only in Dalian and positive in the other five cities. This means that, in most areas, the emission of wastewater will grow as production improves. Elasticities of gaseous waste are all positive, indicating that emission of gaseous waste increasing. Elasticity, with respect to solid waste, is negative, except in Huludao, which means most of the area will emit less solid waste as production increases.

3.3 Discussion about influencing factors of environmental efficiency

As previous research has shown⁶, the factors that influence industrial environmental efficiency are

Table 2. Regression result of the factors influencing industrial environmental efficiency of Liaoning coastal economic belt

Note: * and *** denote the level of significance 10% and 1% respectively.

City \ Input	Dalian	Dandong	Jinzhou	Yingkou	Panjin	Huludao
Fixed capital	3.37	4.13	4.06	3.87	3.62	3.80
Labor	0.64	-14.11	4.07	-4.17	2.26	3.02
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Solid waste	-6.75	-6.21	-6.39	-3.96	-4.10	3.16

mainly capital-labor ratio (CL), heavy-light industry ratio (HEA), structure of ownership (production proportion of nation-owned enterprises, NA), production scale (proportion of large enterprises IP), GDP per person (PG), technology (proportion of hi-tech industry HI), foreign invest (FI), environmental control (wastewater compliance rate, WS), and others. Tobit's model is a regression model mainly used in the case that dependent variables are limited. Because our dependent variable environmental efficiency is in (0,1), we use Tobit's model to test the significance of each factor and how they influence the environmental efficiency. We choose IE (the average of environmental efficiency computed by DEA and SFA) as the dependent variable, take influence factors as dependent variables, and build a regression function (Expression 5). The result is shown in Table 2.

$$IE=c0+c1*CL+c2*HEA+c3*NA+c4*IP+c5*PG+c6*HI+c7*FI+c8*WS \quad (5)$$

3.3.1 Capital-intensification and heavy industrialization reduce industrial environmental efficiency

During 2001-2009, capital-labor ratio (CL) increased from 6.1*10⁴ RMB/person to 16.6*10⁴ RMB/person, indicating that the industrial structure transformed from labor-intensive to capital-intensive. With 1 unit increase of CL, industrial environmental efficiency increased by 0.095 units. Similarly, heavy-light industry ratio (HEA) increased from 78.9% (2001) to 82.6% (2009). Industrial efficiency fell by 0.045 units as HEA increased by 1 unit. Increase of environmental efficiency is harmed by the industry becoming more capital-intensive and heavier. Based on the industrial developing stages summarized by Chenery^[7], industrial structure transforms from labor-intensive to capital-intensive, and finally to technology-intensive, and

correspondingly, from light industry to heavy industry, and then to modern industry as the polar industry. Currently, the Liaoning coastal economic belt lies between labor-intensive and capital-intensive, and between light and heavy industry. Although its industrial production has rocketed, the pollution has expanded as well, causing the reduction of environmental efficiency.

3.3.2 Increase of GDP per person greatly promotes industrial environmental efficiency

GDP per person rose from 1.3*10⁴ RMB per person to 4.6*10⁴ RMB per person over 2001-2009. The increase of GDP per person by 1 unit induced the increase of environmental efficiency by 0.229 units. The improvement of the economic situation of citizens greatly promotes industrial environmental efficiency. The fast-increasing demand for materials drives the rise of production and production efficiency. After meeting their basic living standards, people require higher environmental quality.

3.3.3 Increase of hi-tech industry proportion reduced industrial environmental efficiency

In recent years, the hi-tech industry has become a driving force of the economic increase of the Liaoning coastal economic belt because the government attracts investment mainly in hi-tech industry, increases foundation in scientific research, and encourages commercialization of laboratory achievements. During 2001-2009, proportion of hi-tech industry HI increased from 17.3% to 25.6%. Based on rich oil resources and the advantages of the industrial base, the Liaoning coastal economic belt emphasizes hi-tech industry of fine petrochemical, new materials, electronics, equipment manufacturing, biopharmaceuticals, and so on. According to traditional opinion, the hi-tech industry has less environmental im-

pact; however, this study shows an opposite result. In this study, the increase of hi-tech industry by 1 unit reduces environmental efficiency by 0.161 units. What accounts for this result is the complexity of the hi-tech industry. The hi-tech industry produces more kinds of pollutants, many poisonous, whereas relative treatments lag behind. Therefore, this industry may cause worse environmental effects than traditional industries. This finding supports the conclusion made by Xia¹⁸ and Jin¹⁹, who analyzed hi-tech industries in advanced countries.

3.3.4 Ownership structure, production scale, foreign investment, and environmental control do not act on environmental efficiency significantly

Nation-owned enterprises are considered to have higher environmental efficiency than private enterprises because they have stronger responsibility for society and stricter requirements on pollutant emission. From 2001 to 2009, the production proportion of nation-owned enterprises fell from 63% to 32%. This change of ownership did not have significant effect on environmental efficiency, which means nation-owned enterprises do not conceive better environmental efficiency compared to private enterprises. With the enforcement of governmental supervision, introduction of international production line and improvement of self-management capabilities, the environmental efficiency of private enterprises has improved significantly.

A rational production scale could raise environmental efficiency. With the perfection of market system, diversification, and minimization of developing models, the proportion of large enterprises has fallen. Our regression result indicates that variation of production scale did not have significant impact on environmental efficiency. In general, the advantages of large enterprises are better risk resistance and more environmental control measures. However, small enterprises also have certain advantages, such as flexible operation, low organization cost, market sensitivity, and others.

Foreign direct investment (FDI) to Liaoning coastal economic belt has kept increasing. Actual utilization amount of FDI rose from 2*10⁹ USD in 2001 to 7.75*10⁹ USD in 2009. Our regression result shows that FDI does not have obvious function in raising industrial environmental efficiency. On one side, foreign invest brings in advanced technology and promotes communication; on the other, it

results in high fuel consumption and severe pollution from the industries of developed countries. The two sides act oppositely; thus, FDI does not play a significant role in improving environmental efficiency.

Environmental control is denoted by wastewater compliance rate (WS). WS rose before 2005, although it fell quickly after, showing discontinuous supervision. Our regression result indicates environmental control did not promote environmental efficiency significantly. Thus, if the environmental protection department persists in high standards, the regional environment could benefit significantly.

CONCLUSION

Industrial environmental efficiency, elasticity of input, and influencing factors

Empirical research from 2001 to 2009 indicates that the industrial environmental efficiency of the Liaoning coastal economic belt rose from 0.15 to 0.44; however, this still represents a significant gap from the ideal efficiency of 1. The difference of the environmental efficiencies of the six cities decreased. Among the six cities, the environmental efficiency of Panjin was the highest; those of Dandong and Huludao were comparatively lower.

From input elasticity, industrial production increase of this area needs more fixed capital input. Industrial workers in Dandong and Yingkou are more than sufficient, whereas the other four cities could take on more workers. With industrial economic increase, wastewater discharge will fall in Dalian and rise in the other cities. The amount of gaseous waste will continue to expand, with Dalian and Yingkou having the fastest expansion. Finally, solid waste will decline, except in Huludao.

Tobit's regression shows that the industrial trend of more capital intensive, heavier, and more hi-tech production is harmful for environmental efficiency. The upgrading of people's living standards requires the modification of environmental efficiency. The decrease of the proportion of nation-owned enterprises and the increase of the proportion of small enterprises do not reduce nor increase environmental efficiency. Higher FDI does not help elevate environmental efficiency. Environmental management does not play a dual role in promoting environmental efficiency because of unsteadiness.

Advice for industrial development of the Liaoning coastal economic belt

The Liaoning coastal economic belt should attach more importance to the environmental degradation caused by fast industrial expansion. To release environmental pressure, technological innovation must be accelerated, and environmental control must be strengthened. The industrial labor input of Dandong and Yingkou are overfull. Workers must be trained or re-educated in order to raise their working efficiency. They must be encouraged to join the third industry, or introduced to areas that need more workers.

Based on the advantage of location and developing stage, the Liaoning economic belt should limit the introduction and expansion of three "high" industries (high pollution, high energy consumption, high water consumption), accelerate the pace to survive the period of heavy and capital-intensive industrialization, and go into hi-tech industrialization period. However, because hi-tech industries brings even more environmental threat to this area, the government should enforce environmental evaluation before production, introduce hi-tech industry environmental protection standard and regulations, and strengthen its environmental control. Hi-tech industries should raise clean production capability and speed up the construction of pollution-treatment facilities. In addition, the local environmental protection agency should strictly supervise environmental quality and restrict the entry of pollution-causing enterprises.

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A SUSTAINABLE ENERGY FUTURE THROUGH EDUCATION AND RESEARCH

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INTRODUCTION

Sustainable access to energy for a growing population is a global challenge. Our society is dependent on a stable supply of energy; industry (including agriculture, mining, manufacturing and construction), transport and heating can only work if sufficient energy is available. Over 80% of the current global use of energy is based on fossil fuels: oil, coal and gas. In addition to the potentially devastating climate effects of burning two billion years of stored hydrocarbons within a century, fossil fuels will eventually run out and we will be left with less than one fifth of the current energy supply which will clearly not be enough. Thus the energy system of the world will have to change dramatically to replace the fossil fuels with existing and new sustainable sources. This is a major global challenge for mankind.

But it is not only a technological challenge; there are also important political dimensions: we need international agreements, a stable economy and a long-term view (over several decades). The kind of global restructuring needed requires local as well as international agreements. Already now we are facing tensions due to the uneven distribution of energy production (mainly “mining” of oil, coal and gas) and consumption. Access to strategically important regions is causing conflicts and as fossil fuels run scarce, increasing prices may lead to increasing tension. Even if we disregard open conflicts, the sheer size of the energy sector makes it a major force in the global economy and with the uneven distribution of producers and consumers this force is destabilizing. The transformation towards sustainable energy solutions will take decades, so a major political challenge is long-term commitment (over several elections). In democracies this requires a voting population which is aware of the energy problem and willing to support the transition. Policymakers around the world, and their voters, need access to comprehensible and trustworthy information about potential energy sources and ways to change our strong dependence on energy.

ENERGY NOW AND IN THE FUTURE

The current global power production is about 16 terawatts¹, which means that on average a human has 56 kWh / day to live on. But almost nobody is average - the “developed world” uses 100-300 kWh/d/p and the big majority uses significantly less per person. Even with significant energy savings per capita, it is unlikely that a 9-10 billion world population (majority “developed”) will use less energy in total than today’s 7 billion (majority “developing”)². The current energy production in the world is 87% from fossil fuels, 5% nuclear, 6% hydro and only 2% other renewables including wind, solar, geothermal, etc.¹. Looking at the energy consumption the overall picture is the same but the non-fossil energy is distributed a bit differently³ due to differences in loss rates and estimation techniques.

Even with a long-term sustainability perspective (switching from fossil fuels to renewables), the fact is that there are fundamental limits to the amount of useful energy we can extract from existing renewable sources⁴. Germany has been very serious about converting to renewable energy production locally (but still imports two thirds) and may serve as an example of the time-scale needed for the first step of the transition: from 2% renewable energy (Germany 1991) to 12% (Germany 2011) took 20 years⁵.

¹ BP Statistical Review of World Energy 2012, [With energy statistics up to 2011: Total consumption: 12274.6 Million tonnes oil equivalent (Mtoe): Oil 4059, Coal 3724, Natural gas 2905, Hydro: 791.5, Nuclear 599.3, Other renewable 194.8. Unit conversion: 12275 Mtoe / year / 7 billion = 1.75 toe / y / person = 56 kWh / day / person.]

² World Population Prospects, the 2010 Revision, summarized at gapminder.org

³ Renewable Energy Policy Network for the 21st century (REN21), Renewables Global Status Report, 2012. [Page 21, figure 1. Note that this report includes “traditional biomass” as 8.5% of the total, while the BP report [1] only includes traded energy. Note also that “Final energy consumption” can differ quite a bit from production due to conversion and transportation losses.]

⁴ Sustainable Energy - without the hot air, David J C MacKay, UIT Cambridge, 2008. ISBN 978-0-9544529-3-3. Available free online: www.withouthotair.com

⁵ Development of renewable energy sources in Germany 2011, Based on statistical data from the Working Group on Renewable Energy-Statistics (AGEE-Stat), 2012

The good news is that the massive investments needed for this transition can drive the economy. Simulations of the EU area indicate that Green Growth is a real possibility⁶ and that tighter goals for emission could help the economy to transition to lower unemployment at the same time as the energy production becomes more sustainable. An industrial perspective on the sustainable energy challenges and opportunities can be found in the recent Vision 2050 report⁷ which describes how a global population of around 9 billion people could live well, within the resource limits of the planet by 2050. The report is written by the World Business Council for Sustainable Development (WBCSD): “a CEO-led organization of forward-thinking companies that galvanizes the global business community to create a sustainable future for business, society and the environment.” which was founded in 1992. The report describes a number of things that must happen over the coming decade to make a sustainable planetary society possible: “These include incorporating the costs of externalities, starting with carbon, ecosystem services and water, into the structure of the marketplace; [...] halving carbon emissions worldwide (based on 2005 levels) by 2050 through a shift to low-carbon energy systems and improved demand-side energy efficiency, and providing universal access to low-carbon mobility.”

The energy system transition also requires a close collaboration between industry, academy and government. Unfortunately many of the energy actors (both in industry and academia) are used to a competitive world and the general view is that a certain technology can outlive another. Governmental and educational actors should therefore communicate to both the general public and the most important energy actors that the development of a wide range of energy sources is essential for several reasons. Clearly, various sources are suited to be used in different circumstances and a smart balance of energy sources can solve part of the intermittency problem that renewable energy sources (wind and solar) suffer from. But more importantly, there is no chance to accelerate the change in energy system by an energy monoculture.

⁶ A New Growth Path for Europe - Generating Prosperity and Jobs in the Low-Carbon Economy, Carlo C. Jaeger, Leonidas Paroussos, Diana Mangalagu, Roland Kupers, Antoine Mandel, Joan David Tàbara, 2011

⁷ “Vision 2050” by the World Business Council for Sustainable Development, 2010

There are limits to the rate at which new energy technologies can be deployed. The reason is that it takes time to build the human and industrial capacity for substantial changes in the energy system. Historical evidence shows that it takes around 30 years for energy technologies that are available in principle to grow exponentially and reach materiality (that is delivering 1% of the world’s energy mix)⁸. Designing energy policies to outperform these historical deployment curves is almost impossible due to the global scale and inertia of the energy system. It is therefore important to follow several parallel routes, where each new energy type takes several decades to reach materiality, but the aggregate is faster than that, see e.g. Shell’s optimistic projection (Blueprint) of new energy deployment⁹. An important part of this is to continuously build, via education and research, the human potential that is a prerequisite for an acceleration of the first phase, the time before a new energy technology reaches materiality.

Even if the existing renewable technologies may be able to carry us through the next couple of decades, we will still eventually need revolutionary, fundamentally new large-scale carbon-free energy sources. To develop these, we need basic research within the energy area, on a diverse range of subjects from fusion energy via nanotech solar cells to ocean energy, to name just a few.

ENERGY SCIENCE

Energy science is truly interdisciplinary. Naturally it relates to physics and mathematics through the fundamental concept of energy and the mathematical methods needed for theoretical modelling, but also to chemistry through the understanding of isotopes, fission, fusion, burning of fossil fuels and production of renewable energy. It relates to computer science via the need for simulations, data analysis, visualisation, control systems, etc. It also relates to geography through the location of energy resources, to economics through energy pricing and policies, to political science for the need of international agreements and to history for understanding the connection to the rise and fall of civilizations. Here we expand on the areas of our expertise (information and communication technology and fusion plasma physics).

⁸ G J Kramer and M Haigh, “No quick switch to low-carbon energy”, Nature 462, 568-569 (2009)

⁹ Shell energy scenarios to 2050 (from 2008). Available from www.shell.com/scenarios

ics) - we hope to inspire others to think about how their subject is related to sustainable energy so that we can all help.

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

ICT can be used in many ways to prepare us for a sustainable energy future. We need

- Computer models, simulations and visualization to better represent and understand the global energy system.
- Decision systems to identify and evaluate different actions in order to capture possibilities and disentangle threats.
- Communication networks and social media to engage stakeholders (both the general public and policy makers) in the energy challenges, both locally and globally.
- Data gathering, curation and analysis to provide an open, shared picture of the “state of the world” in relation to energy and sustainability.
- Educational resources, online courses, and open access to key models and tools, in order to improve our understanding of the energy system and to enable “citizen science”.

When existing algorithms, methods, and tools are used for new problems and by new users, this also leads to new feature requests and new research ideas. Thus, even if sustainable energy is the main subject, there will be a need for both IT tool support and original computer science (CS) research. Two particular examples of computer science research with climate impact motivation are described briefly below (more detail in¹⁰⁻¹¹).

Computer simulations are essential in virtually every scientific discipline, even more so in those such as economics or climate change where the ability to make laboratory experiments is limited. Therefore, it is important to ensure that the models are implemented correctly, that they can be re-implemented and that the results can be reproduced. Typically, though, the models are described by a mixture of prose and mathematics which is insufficient for these purposes. In recent work⁹ we show that using mod-

ern computer science techniques (based on constructive type theory) allows one to gradually reduce the gap between the mathematical description and the implementation, and we give examples from economic modelling. We have formalized basic building blocks from economic theory such as Pareto efficiency, Walrasian equilibrium, Nash equilibrium etc. together with the relations between them.

The second paper¹⁰ is inspired by climate impact research and more generally, computational vulnerability assessment: evaluating the vulnerability to climate change of various regions and entities (by large computer simulations). Here, as in the previous example, we focus on correctness rather than speed - there is not much use to get an answer faster if it is wrong! The concrete results of this paper are examples where proving correctness (which is usually quite challenging) is actually more efficient than testing (the standard software engineering practice).

FUSION PLASMA PHYSICS

Fusion reactions between light nuclei are the most important energy source in the Universe. All the stars, including our sun, are gigantic fusion reactors. They produce their energy through a succession of reactions beginning with fusion of protons into deuterium. The goal of fusion research is to create controlled fusion energy on Earth, by combining light atomic nuclei into heavier elements. It involves merging (fusing) of light elements, mainly hydrogen isotopes, deuterium and tritium.

Fusion is a form of nuclear energy. The fundamental law of nature that permits energy release by nuclear fusion is Einstein's famous relation between energy and mass $E=mc^2$. The total mass of the reaction products is smaller than the total mass of the fusing elements and the mass difference is released as energy.

To control and extract energy from fusion reactions requires heating the fusion fuel (deuterium and tritium) to temperatures of the order of 100 million degrees, while maintaining a sufficiently high density. At the high temperatures that are necessary for fusion reactions to take place, the fuel becomes fully ionized - it is in plasma state. The plasma has to be confined until the rate of fusion reactions is large enough to generate the necessary power. Magnetic

confinement of toroidal plasmas is the most successful confinement concept to date and in the last decades there has been great progress. Megawatts of fusion power have been generated and conditions close to break-even (when the input power is equal to the output power) have been reached. A reactor-scale device (ITER) is under construction in France through an international collaboration. However, there are still some significant scientific and technological challenges to be met to establish the physics and engineering basis for the next generation of fusion experiments. The behavior of the plasma should be understood well enough to be able to operate at optimum performance, and increased understanding of the plasma-boundary region should be gained. It is likely that an economic impact of fusion cannot be realized within the next half century. In spite of this, there are many reasons why a strong effort should continue. If successful, controlled thermonuclear fusion would be a large-scale and environmentally friendly energy option, with many advantages: fusion power stations can be made inherently safe, fusion fuels are virtually inexhaustible and available everywhere, there is no direct contribution to the greenhouse effect and waste from fusion will not be a long-term burden on future generations.

EDUCATION AND RESEARCH

Education and research serve an important strategic role. Better energy education on all levels (and in many topics, e.g. physics, economics, chemistry, political science, history), accessible openly and globally, will ease the acceptance of the need for multiple complementing sustainable energy sources and energy-saving measures. Research on both sustainable use of our natural resources and development of alternative energy sources should be given very high priority, not only by governments and universities, but also by the industrial sector. It is important to realize that incremental changes are not enough. In addition to improving existing energy sources, we also need to support new ideas; the full range from curiosity-driven basic research to market-driven innovation.

Colin Harrison (IBM) gave a thought-provoking comparison in a recent presentation about “Information Society & Energy Addiction”. He asked “Is there any historical precedent for developed societies freely choosing to abandon a principal source of

economic advantage?” referring to the fossil fuels addiction. And yes, there is one such example; the abolition of slavery: starting with the British Act of 1834, the developed nations emancipated their slaves. For something similar to happen in the energy sector we need a moral conviction and the necessary technology. It is clear to us that education and research are the key to both parts.

¹⁰ Dependently-typed programming in scientific computing, Cezar Ionescu, Patrik Jansson, in submission, 2012

¹¹ Testing versus proving in climate impact research, Cezar Ionescu, Patrik Jansson, in Proceedings of the 18th Workshop Types for Proofs and Programs (TYPES'11), LIPIcs – Leibniz International Proceedings in Informatics, 2012

SYSTEMIC COLLAPSE OR A NEW INDUSTRIAL REVOLUTION: On the need for political courage and leadership to meet the global environmental and resource challenge

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PRELUDE

This year, a favourite topic for the essays of my master's students was systemic collapse of industrial society. The root cause of the dynamics that inexorably lead to breakup of the social fabric in these stories was not financial crises or lack of economic growth but the inability of any political system to respond in time to the global challenge of dwindling resources and environmental degradation. These gloomy outlooks produced by the young people that will see this century unfold constituted the lion's share of the files in my eReader, but fortunately, a few students painted a brighter picture, of possible transitions to a sustainable global society. The good news is that there are no laws of nature that would prevent the leaders of the world from influencing the dynamics in more hopeful directions. The bad news is that it might take more insight and courage than what can be mustered.

DESPAIR: ON THE VERGE OF SYSTEMIC COLLAPSE

Partly for good reasons, the current political debate in many countries is concerned with short term issues. It is very much about keeping various social groups reasonably happy, and making the economic clockwork run as smoothly as possible. In the more affluent parts of the world one could falsely be led to believe that we live in stable societies, in close to optimal equilibria, even in societies at "the end of history" where any change to be expected can be framed in terms of marginally varying levels of GDP growth. I say for good reasons, because individually we all are myopic, seeking convenience and short term gains, and there is indeed a political rationale for trying to facilitate our individual aspirations.

I say partly, because there is also a different storyline, a narrative that only occasionally manages to

enter the realms of real world politics, a narrative that says that we are far away from equilibrium and stability, maybe driving at a speed where we have lost control of the vehicle.

The Earth was created 4.6 billion years ago. Life appeared after one billion years and, over eons of time, used the energy from the sun to slowly create the prerequisites for increasingly diverse forms of life on our planet. The first hominids appeared a couple of million years ago and our species, *Homo sapiens*, only some 150 000 before present. About 10 000 years ago, *Homo sapiens* had spread to all continents, and a global population of only a few million lived as hunters and gatherers. The agricultural revolution that then unfolded over a few millennia implied a hundred-fold increase in how much food that could be produced per acre and consequently lead to a tremendous population growth. A number of confluent factors including a shortage of bioenergy in Britain and the invention of the steam engine lead to the utilisation of fossil fuels and the industrial revolution that rapidly changed societal organisation globally. The turnover of energy increased by two orders of magnitude over merely two centuries and the world population now exceeds seven billion, or thousand times the population in the pre-agrarian world. As a consequence, human society is now dramatically affecting environmental systems at the global scale.

Taking this perspective we live in far from stable societies. We live on the tip of an exponential curve never seen before. If the Earth's life was translated into one year, the agricultural revolution happened only one minute before twelve a clock on New Year's Eve and the industrial revolution one second to twelve. Change is dangerously rapid and the scale of the experimental human enterprise is unprecedented.

It has been pointed out that human society no longer operates within safe boundaries (Rockström

et al., 2009). The effects of climate change, loss of biodiversity and manipulated nutrient flows may soon come to hamper economic progress and become increasingly costly to counteract. In the case of the exploding number of manmade chemicals and their effects we are virtually ignorant and have no means to follow the impact of our own inventive capacity. In this century we are likely to see dwindling resources, not only of oil and gas, but also of some metals that have been key to industrial development and that we tend to take for granted. As population and our individual hunger for increased consumption grow there will be fierce competition for land and water for the production of food, materials and bioenergy, and preserving natural habitats for other species but humans will prove increasingly difficult.

Instead of levelling off, industrial activity and demand for energy will likely continue to grow. If the forecasted mid-century world population of nine billion people would use as much energy as a citizen in the European Union, global energy supply would have to increase by a factor of three and to reach the level of the average citizen of the USA, by a factor of five. If all people on Earth would be provided with energy services at European or North American levels at the same time as the current energy system based on fossil fuels are virtually phased out to cope with climate change the gap that needs to be filled with technologies that increase energy efficiency and supply carbon neutral energy is enormous. Indeed, for the billions that still live in poverty, increased consumption levels and well-being is nothing but a legitimate aspiration, and should have highest priority in global politics. However, the already rich continue to demand more, and saturation of consumption levels is not in sight.

A sometimes raised argument is that human ingenuity is vast and that we have always managed to get around resource constraints and environmental limitations. Unfortunately, historical evidence seems to falsify this presumption. The Mayan society, the Sumerian society and the civilization on Easter Island are all famous examples of once prosperous societies that passed the threshold of the carrying capacity of the land they inhabited, and were thrown into a spiral of decline, disintegration and collapse (Ponting, 2007). An uncomfortable lesson is that it was the same mechanism that led to success that also led to failure. Increased population growth led to a need for

specialization and more efficient technology, which increased food production and created flourishing cultures, but also spurred population growth and aspirations of new social classes, and in consequence a need for, as well as a capacity to, develop even more intensive agriculture. At some point the production capacity of the land was pushed over its limits, resulting in degradation from salinization and waterlogging and setting in motion a downward spiral towards collapse. The Mayan example is particularly telling for contemporary society. The growth and cultural development was accelerated by competition between small kingdoms within a limited area. A slowdown that could have prevented the collapse may have been effectively ruled out by this competition. Contemporary political language saying that we need economic growth to be able to withstand international competition resonates well with this historical tragedy (Tainter, 1987).

The problem is that there is no evil force, no bad guy as in a James Bond movie that can be blamed for this type of destructive dynamic. It is a systemic effect. It is the effect of many trying their best, but lacking the theoretical and empirical means of monitoring the whole and the power to do something about it. In sort, it is the invisible hand conspiring against us.

Perhaps we are locked-in on a runaway train, trapped by our own ingenuity, still fuelling the engine but having no one to watch out for the warning signs as we pass; no one capable of changing track or pulling the brake.

Over the last thirty years, a growing scientific literature on socio-technical change has started to explain the mechanisms behind technical, economic and social lock-in (Unruh, 2000). Complicated technical systems with a vast number of interrelated technologies in areas like energy and transport take decades to change, since every change requires alterations in coupled systems. Furthermore, all technologies are entangled with vested interests among producers and consumers. Costs and market arrangements are in favour of established technologies and practices, not because they are better in some divine sense, but simply for historical reasons, because they have benefitted from economies of learning and scale and societal entrenchment over decades, maybe even centuries. Not only hardware and societal organisation

are adapted to the socio-technical regime; laws and regulation, educational systems and our concepts, worldviews and imagination are also aligned with the system in place. Policy and politics are obviously part of the game too, constrained by locked in constituencies, lobby groups and the ideas of our time.

It is definitely time for being deeply concerned about the future, and the despair felt by many is far from irrational

HOPE: ON THE VERGE OF A NEW INDUSTRIAL REVOLUTION

Even if despair is rational, there are also good reasons to have hope. A first key issue is the plentiful physical endowments of renewable energy. A second key issue is that similar mechanisms that risk locking the world to a dangerous track paradoxically also may open pathways to system change.

As mentioned above, world energy use has increased by almost a factor of hundred over the last two hundred years of industrial development. This massive growth was enabled by exploitation of fossil fuels. Are there any options to supply this amount, or even more, with any alternative energy source? Nuclear energy in terms of fission, is not heavily constrained from a resource point of view, but a massive expansion of nuclear energy appears far from attractive in terms of safety and security in a world where people make mistakes and where some regard others as enemies. The tragedies of Chernobyl and Fukushima, may prove to be minor incidences compared to the potential dangers that loom ahead of us in any fission expansion scenario. From a climate change perspective, fusion is distant and will at best have a role to play towards the very end of this century. Carbon capture and storage could possibly present an interesting complement at some locations within a couple of decades, but it is becoming increasingly obvious to many that the development of infrastructure for carbon capture, transportation and storage of grand scale is a daunting task and might prove to be very difficult to put in place. Fortunately, there is another option.

Every hour the Earth is endowed with enough solar energy to equal the amount of fossil fuels consumed during a year. Solar energy is routinely converted to electricity with efficiencies between ten and twenty per cent. This implies that a minor part of less

valuable land can be used to harness the amount of energy that is needed to replace all fossil fuels and nuclear power. In a historical perspective, a leap to direct conversion on solar energy can be viewed as the next natural step that continues the development towards a more efficient use of the solar income that started with the agricultural revolution.

The transition from hunting and gathering to agriculture implied increased capture of solar energy. Most square meters on Earth receive between 1000 and 2000 kWh per year depending on location. The agricultural revolution increased harnessing of useful energy (mainly food) per acre by a factor of hundred from about 0.01 to 1 kWh per square meter and year. A conventional solar cell or solar thermal power plant would again increase this amount by a factor of hundred to 100 kWh (up to at least 400 kWh) per square meter and year depending on location and technology. From a distant point in the future, one might come to view fossil fuels as a transitional technology that over two centuries enabled humankind to develop the knowledge and science required to harness the solar income in such an efficient way that a sustainable industrialisation and wellbeing for nine or ten billion people was made possible (Sandén, 2008).

Solar energy in combination with other modular technologies enabled by science, such as batteries and fuel cells, as well as information and communication technologies, could in fact provide the backbone of a new industrial revolution. The need is immense and as a consequence the industrial potential is huge. In contrast to centralised nuclear and coal power, it also holds the promise and potential of democratic access and power - distributed energy, shared in networks, controlled by people – but it does not exclude large scale solar farms connected in global grids.

The good news is that seeds of this transition are sprouting up across the globe. In 2011, solar cells where number one in Europe in terms of installed power capacity, complemented with a good number of wind farms. Solar and wind also diffuses in some Asian countries and there are now hopeful signs also on the American continents.

The development is supported by far-sighted and targeted policies in a few countries. Unfortunately these policies are called into question. This is

far from surprising; it is what is to be expected in a carbon-locked in world. This is also what to be expected in a world where the most powerful political advisors come from an order of sorcerers that base their worldview on a simple idea of equilibrium economics and marginal costs and take the current socio-technical configuration for granted. It is argued that politics should not interfere; that environmental policy should be 'technology neutral' and that there is no place for directed and dedicated technology policy (Azar and Sandén, 2011). However, what is required now is not marginal adjustment of the current system, but contributions to radical system change, which requires targeted technology policy.

The lock-in dynamics imply that the status quo is maintained by a kind of Catch 22 situation, where novelties are not used because they are too expensive, and they remain too expensive because they are not produced and used on a large scale. Recent scientific literature on innovation and transitions have identified that novelties need to find niches where they can grow and mature, where the Catch 22 situation can be turned around into an engine of system change (Bergek et al., 2008; Geels and Schot, 2007; Kemp et al., 1998). Larger markets for novelties provide for increased production and lowered costs through economies of scale and learning, and hence even larger markets become within reach. This type of positive feedback mechanism can turn the tide of history and push societal development in new directions, very much in the same way as coal, iron, textile factories and the steam engine coevolved and formed novel production systems, transportation modes and consumption patterns a process now known as the industrial revolution.

When new technologies grow, industries will be developed and consumer attitudes will change. New constituencies will be formed and new lobby groups will grow strong. This will also enable implementation of forceful economy wide policies, such as carbon taxes and stricter cap and trade systems that currently are so hard to implement (Sandén and Azar, 2005). This will in turn speed up the transition. But, carbon pricing is not a substitute for more technology specific policies. Explicit technology politics is needed and technology, being such an integral part of the human endeavour, needs to find a place in numerous democratic fora all over the world.

Changing direction towards an industrial renewal based on solar energy and energy efficient solutions is one key piece of the puzzle. It will take courage and leadership to steer carbon locked-in economies in this direction, but a second piece of the puzzle might prove even more difficult to put in place. Continued growth, even solar based, will put increasing pressure on the ecological foundations of society. As former World Bank economist Herman Daly has argued for decades, we need to develop environmental macroeconomics, and once again start to discuss and investigate various forms of the steady-state economy (Daly, 1991). The findings of the small but growing scientific community focussing on de-growth needs to be taken seriously and the issue of how to practically manage a transition to an economy that develops but do not expand material dimensions needs to be addressed and debated in wider circles.

ACTION: THE NEED FOR POLITICAL COURAGE AND LEADERSHIP

History provides us with evidence that we may not be smarter than yeast; that we may grow at a pace we cannot control; that we might be locked-in on a runaway train, with no one capable of changing track or pulling the brakes. The global socio-technical and economic system is today more complex and complicated than ever before and it is reasonable to believe that no one has the oversight required, nor the will or power to change direction. It is not hard to envision a race to the bottom in the name of global competition. As the competition for dwindling resources gets tougher the room for political manoeuvre will shrink, making systemic collapse the only logical ending.

On the other hand, the physical means to develop a sustainable society for nine or ten billion people exist; science and technology have provided us with powerful tools to monitor and understand global change, and societal development have given the people of the world the means to discuss and engage in dialogue. It is unlikely that the required change can grow solely from the bottom up, simply because as individuals we tend to adhere to collective goals only when we feel trust and believe that everyone else will do their bit of the work. There is a need for politics, indeed for global politics, not guided by ideas of competition, expansion and distrust, but by wisdom and visions of a common future for humanity. Some powerful groups will lose ground and opposition will be strong. It will indeed take courage and true leader-

ship to embark on such a road. There will be numerous mistakes when trying, but not trying will be the biggest mistake of all. I hope that the leaders of the world, step by step will live up to the expectations of the few master's students in my class that painted a brighter future, that envisioned a transition to a more sustainable and rewarding world economy.

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INVESTIGATIONS OF UNCONVENTIONAL OIL AND GAS RESERVOIRS IN RUSSIAN GUBKIN STATE UNIVERSITY AS A BASIS FOR INTERNATIONAL COOPERATION IN OIL AND GAS INDUSTRY

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One of the important problems of oil and gas industry is discovery and development of oil and gas resources that are related to complex reservoirs. Share of such resources increases with the depth of subsoil development. Those reservoirs are defined by sharp degree of variability of lithological composition, capacity and stratigraphic volume of productive strata. Development of those objects is a difficult problem; its solving requires design of conceptually new methods and technologies.

Discovery and development of such objects is a problem of today. Development of a system for subsurface management efficiency augmentation, increase of oil recovery complex heterogenic layers will allow to rather increase the volume of extracted hydrocarbon⁴. Design of new technologies for oil and gas extraction on partially developed areas may lead to an effect comparable with exploration of new deposits.

Russian Gubkin State University has all the necessary conditions for solving such complex problems. The University has been developing large scientific and research projects with leading Russian and foreign companies for a long time. University's scientific researches and design works involve all process flows of oil and gas works: hydrocarbon search and prospecting, drilling deep wells, construction and development of oil and gas deposits on land and sea, oil and gas transportation, keeping and refinement, petrochemical industry, gasification and provision with petroleum products. Work streams supporting these flows exist in the university – creation of technological equipment, production automation and informatization, economy, industrial and environmental safety, industrial management, legal support⁵. Mentioned features provide the University with serious competitive advantages: system approach, ability to solve complex tasks in oil and gas industry. University's research team

is distinguished by open mindedness, understanding of each link's place and role for oil and gas industry and their interrelation. The University numbers several scientific schools with over 300 DPhils, about 50 of them are Honored Scientist of the Russian Federation, laureates of state prizes, presidential and government awards of the Russian Federation.

Gubkin University has been given the "National Research University" status. This allowed the University to upgrade the existing laboratory base and purchase new high-technology software and hardware complexes for solving scientific and production problems⁹.

At the present time works on creation of electronic databases for archival scientific materials accumulated during decades are being held in Gubkin University. Arrangement of own core depository is in process. The University has accumulated a large number of core examples from cuts of test wells of almost all Russian oil and gas provinces³.

The distinctive feature of the University is creation of a learning technology and conducting scientific and engineering researches on virtual oil and gas fields. Imitation technology for real scientific and production activity on deposits created in 2007-2008 is based on systemic use of the newest IT-industry achievements^{1,2}. The essence of the technology is the fact that engineers' workplaces are interconnected with high-speed computing networks and appropriate software, forming a whole system and providing a possibility of professional activity in a single information space to specialists of different services, departments and even organizations. Today in the Gubkin University such workplaces are created in terms of computer simulators and are connected in the way similar to the one used in reality. Computer simulators (automated workplaces) are situated in

University's laboratories. They are completed with situational center created in the University – Deposit Development Control Center^{6,7}. Geologists, drill men, process designers, mechanics, powermen, specialists on oil collection and preparation, specialists on deposits geologist-hydrodynamic modeling works at simulators at the same time^{8,10}. This innovative technology attracts more and more attention from the side of University's public and business-community of fuel and energy complex.

The Gubkin University has already helped its colleagues from Northern (Arctic) Federal University in creation of similar situational oil and gas fields control center. Last year University's professors and teachers conducted consultations with specialists of state corporation "Rosatom" on the subject of possibility to create virtual atomic stations. In 2012 common project with the company «Shlumberger» has been arranged; it enabled interdisciplinary students' teams and scientists to pass all the stages of hydrocarbon deposits development: from getting license field, deposit exploration, design and monitoring of the development to liquidation of the last production wells. Interdisciplinary training course in the field of gas deposits development design with use of company's «Shlumberger» integrated software has been approved. Gubkin University team is ready to share his technologies, conduct common trainings with representatives of foreign universities and companies. The main advantage of the created technology is the ability to solve various scientific and production problems together, with help of a united team in on-line mode. Tens of people with different professional knowledge and skills help each other to solve a problem that unites them all.

Due to the created and realized learning technology now it is also possible to solve problems related to development of complex natural oil and gas basins. To realize this, solving several important practical scientific and applied tasks is necessary. Solution of such tasks will allow to rather increase the ratio of oil extraction in again discovered and developed deposits. Such priority tasks include next:

- complexation of non-uniformly scaled geologist and geophysical researches (upscaling, downscaling);
- creating mathematical models that show oil and gas natural deposits' reservoir rocks and cap rocks structure basing on lithology and petrophysical re-

searches and results of wells examination;

- making 3-d geologic and hydrodynamic models considering the created mathematical models of oil and gas natural deposits' reservoir rocks and cap rocks structure;

- conducting laboratory and field experimental researches aimed to define the most adequate complex of technological and technical measures during the process of oil and gas deposits development.

Solution of problem related to non-uniformly scaled researches at oil and gas deposits' geologic and geophysical modeling allow to rather increase the adequacy of created models. The essence of the problem is brought to the fact that at the present time the research methods of geologic objects have different resolving capability and as the result – different scale – from several micrometers-parts of millimeters to tens and hundreds meters. And with it, each method makes its own contribution, gives definite information about geologic objects' structure. For example, rock crystals spatial orientation and its mineral composition define acoustic features of the whole layer. Data on acoustic features directly influence seismicity interpretation that plays a great role in modeling of oil and gas deposit. Geologic objects structure peculiarities on micro-level rather define laws of geologic bodies' structure on macro-level. During creation of oil and gas deposits models, researches on "micro-level" are often neglected. For a long time this happened because received information about rock structure on micro-level had mainly qualitative and often subjective character. Even the received information could not be used in full. With modern impetuous technology progress that allows to examine rock samples on fundamentally new level, the situation on wells core examination changes dramatically. In Gubkin University a unique set of such high-tech equipment provided with software from the leading technology producers from Japan, Germany, Great Britain, France and Belgium has been created. Purchased software and hardware complexes allow to receive and process data on geologic objects structure with different scale degree. In the University oil and gas reservoir rock structure is researched using next methods: X-ray CT scanning, various types of diffraction analysis and spectroscopy, electronic and optical microscopy and many other methods. As the result, possibility to carry out not only qualitative but quantitative researches appeared. Obtained quantitative characteristics of natural reservoirs structure

laws on micro-level had to be compared to data of exploratory geophysics, petrophysics, field wells researches larger by range.

Information obtained as the result of various geologic and geophysical researches complexation should form a base for creating mathematical models of oil and gas natural reservoir rock structure. Existing mathematical models have a rather simplified scheme and do not correspond even to peculiarities of natural reservoirs structure that are characterized by relatively simple structure. Use of non-adequate mathematical models at oil and gas deposits modeling usually leads to sharp decrease of oil extraction ration and diminution of its extracted volumes.

Conducting experimental laboratory and well researches on development process modeling is one of the most priority and demanded. It is worth mentioning that such researches are conducted far from the full volume. When conducting such researches, it is necessary to consider information on peculiarities of oil and gas reservoir rock structure on micro-level. Different-scale researches conducted in Russian Gubkin State University of Oil and Gas allow to obtain such information.

At the present time scientific laboratories of Russian Gubkin State University of Oil and Gas within the mentioned areas carry out a project on examination of large deposits with complex structure in East Siberia, Timano-Pechorskiy, Volgo-Uralskiy, Pri-kaspiiskiy and other oil and gas provinces.

As it was mentioned, learning technology of professional activity virtual space created in the University allows to solve tasks that require coordination of scientists and engineers of various specialties in on-line mode. In case of launching such project, Gubkin University may call specialists from other organizations who are interested in collaboration.

Gubkin University pays much attention to international integration. One of important forms of international collaboration is implementation of international master's programs. First of these programs was realized with French Institute of Petroleum; during its implementation 200 masters for 10 world countries were trained.

At the present time programs with universities of Norway (the University of Stavanger), the USA

(the University of Texas), Great Britain (Imperial College), Canada (University of Calgary), Germany (Freiberg Mining Academy), Sweden and Ukraine are running. Master's programs on University's main direction "Petroleum engineering" are accredited by European Society for Engineering Education. The program of University's development plans to raise the quantity of such programs up to 20 by 2015.

The University is connected by partners relations with the largest foreign oil and gas companies, among them "BP" (Great Britain), "Total" (France), "Statoil" (Norway), "CNNK" (China), "Vietsovpetro" (Vietnam), "Shell" (the Netherlands-Great Britain), "Wintershall" (Germany), "ConocoPhillips" (the USA), "Halliburton" (the USA), "Baker Hughes" (Great Britain), "Falck Nutec" (Norway), "Tokyo Boeki" (Japan), CNPC and "Sinopec" (China), "PetroVietnam" (Vietnam) and others.

High scientific level of conducted researches and modern hi-tech laboratory base allow to start collaboration with international companies in the field of complex natural reservoirs research. Basing on these projects within international learning programs, training of qualified specialists among Russian Gubkin State University of Oil and Gas as well as other world universities may be carried out.

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STUDY OF THE ALTERNATIVE FUELS: E10, LPG and PEHV

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EXECUTIVE SUMMARY

Assume Alt-Fuel is a small company which currently operating 30 medium-sized petrol cars in Australia. It would like to change to an alternative fuel to save cost and also contribute for the environment. E10, LPG and PHEV are being considered. The government provides several programs for suppliers to offer cheaper E10. E10 generates less GHGs and need no extra conversion cost. However using E10 may push up food price and it is not as efficient as petrol. The government also provides grants to LPG conversion and also to newly purchased LPG vehicles. LPG emits even lower GHGs and requires less maintenance cost once converted. The price of LPG is considerably lower than petrol. However the conversion cost will be high and the fuel efficiency is questionable. PHEV being a newly developed technology, it generates almost no GHGs and can the energy is from a mix of clean sources. The efficiency of PHEV is much better than the others provided the battery technology is matured. However the capital cost of PHEV is the highest. By considering the government policy, price, efficiency and contribution to the environment, E10 is recommended as the best alternative fuel

1. INTRODUCTION

Currently the company is operating 30 medium-sized petrol cars, travelling on average 20,000 km/year each. The Australian Automobile Association (<http://www.aaa.asn.au/issues/petrol.htm>) provides reliable price information about petrol and liquefied petroleum gas (LPG). It shows that unleaded petrol price is 139cpl on average in Australia. It is assumed each medium-sized car consumes 10 liter petrol per 100km. Therefore, the cost of petrol for each car is 2,780 dollars per year and a total of 83,400 dollars for all 30 cars per year. In addition to the high cost of petrol, the combustion of fuel also generates a considerable amount of green house gases (GHGs), such as carbon dioxide, methane and nitrous oxide (National Greenhouse Accounts (NGA) Factors,

2009). This is shown in Figure 1.1. According to Graham, Reedman and Poldy (2008) the CO₂-e emission factor for a road vehicle using petrol is 240 g/km. In order to save cost and contribute to the environment, 10 per cent ethanol blended petrol (E10), LPG and plug-in hybrid electric vehicles (PHEV) are being considered as alternatives. The current government policy and incentives regarding these alternatives are going to be discussed. The report will also address the advantages and disadvantages of each alternative.

Transport equipment type	Fuel combusted	Energy content factor (GJ/kL unless otherwise indicated)	Emission factor kg CO ₂ -e/GJ (relevant oxidation factors incorporated)		
			CO ₂	CH ₄	N ₂ O
General transport					
	Gasoline (other than for use as fuel in an aircraft)	34.2	66.7	0.6	2.3
	Liquefied petroleum gas	26.2	59.6	0.6	0.6
	Ethanol for use as fuel in an internal combustion engine	23.4	0.0	1.2	2.2
Post-2004 vehicles					
	Gasoline (other than for use as fuel in an aircraft)	34.2	66.7	0.02	0.2
	Diesel oil	38.6	69.2	0.01	0.6
	Liquefied petroleum gas	26.2	59.6	0.3	0.3
	Ethanol for use as fuel in an internal combustion engine	23.4	0	0.2	0.2

Figure 1.1 Fuel combustion emission factors -fuels used for transport energy purposes (Graham, Reedman and Poldy, 2008)

2. ETHANOL (E10)

2.1 Policy and Incentives

At the federal level, the Ethanol Distribution Program (EDP) in 2006 conducted by the Department of Resources, Energy and Tourism grants up to 20,000 dollars to reduce the installation cost to supply E10. The department conducted a program named Ethanol Production Grants (EPG) in 2002 stated that domestic ethanol producers get 38.143 cents per liter of fuel ethanol produced and this grant will be phased down from 2011 to 2015 to give ethanol a long term 50% excise discount. Most recently, the Ethanol Production Grants Bill 2011 provides further grants to ethanol producers. The detail of the

grants is shown in Figure 2.1.

Rate of grant for ethanol		
Item	If that time is:	The rate is:
1	After 30 November 2011 and before 1 July 2012	\$0.2375 a litre
2	After 30 June 2012 and before 1 July 2013	\$0.194 a litre
3	After 30 June 2013 and before 1 July 2014	\$0.1505 a litre
4	After 30 June 2014 and before 1 July 2015	\$0.106 a litre
5	After 30 June 2015 and before 1 July 2016	\$0.0625 a litre
6	After 30 June 2016 and before 1 July 2017	\$0.05 a litre
7	After 30 June 2017 and before 1 July 2018	\$0.0375 a litre
8	After 30 June 2018 and before 1 July 2019	\$0.025 a litre
9	After 30 June 2019	\$0.0125 a litre

Note: The grant is only for ethanol manufactured before 1 July 2020, even if the time for working out the rate of excise duty is on or after that day.

Figure 2.1 Rate of grant for ethanol (Ethanol Production Grants Bill 2011)

At the state level, the Biofuels Act 2007(NSW) No.23 states that primary wholesalers need to replace unleaded petrol by E10 no later than 1 July 2011 or a later date which the regulations will announce. However, this act is reviewed in 2011 and due to a shortage of ethanol the requirement for all unleaded petrol to be E10 has been deferred to 1 July 2012 (Issue Paper: Review of the Biofuels Act 2007, 2011).

2.2 Advantages

The very first obvious advantage of using E10 is the reduction of GHGs emission (Smith, Woods and Claman, 2009). As shown in Figure 1.1, ethanol combustion generates zero carbon dioxide and the amount of methane and nitrous oxide is greatly reduced for vehicles after 2004. Furthermore, if cellulosic ethanol is used the conversion process uses virtually no fossil fuels (Andress, 2002). This contributes positively to the environment. By complying with the government policy of using E10, Alt-Fuel is building a good reputation among the public and the government. The company can also save cost by using E10. Due to the heavy subsidy from the government the price of E10 is generally 3 cents cheaper than petrol. And E10 can be used in most of the cars without any modification (Andress, 2002). This helps to eliminate any extra cost of converting.

2.3 Disadvantages

The first disadvantage is that the production and transportation of ethanol is very costly, thus the price of E10 largely depends on government subsidy and it is volatile if the new government decides to support another alternative fuel. Another disadvantage is the using of ethanol will push up price of food as currently the source of ethanol is corn (Smith, Woods and

Claman, 2009). This may adversely affect some public which in turn against companies using E10. A further problem with E10 is that it provides 3% less fuel efficiency which may affect the performance of cars (Fuel Economy Study, 2005). Fuel-Testers (<http://www.fueltestkit.com/index.html>) provides recommendations for E10 vehicles. It states that E10 can cause engine damage, poor performance and wear-down parts. This will increase the maintenance cost.

3. LIQUEFIED PETROLEUM GAS (LPG)

3.1 Policy and Incentives

The Vehicle Standards Information (1998) states that the installer must give the owner of the vehicle a completed "Certificate of Compliance" to show a safety installation. It also requires every vehicle converted to run on LPG must have affixed to the front and near licence plate, a red retroreflective label with white or black lettering on a red background. Four main equipments are needed for LPG vehicles. Figure 3.1 shows the detailed requirement.

The four main component parts fitted to the vehicle are:	
a)	Fuel container for storing the liquid LPG together with valves and equipment to control the flow of LPG entering and leaving the container.
b)	Fuel lock valve (or filter and fuel lock) which prevents the flow of fuel when the engine stops.
c)	Vaporizer regulator (or converter) which regulates the outlet gas pressure in accordance with engine demands.
d)	An air/gas mixer that measures air flow and meters the flow of gas into the engine.

Figure3.1 Main component parts fitted to LPG vehicles (Vehicle Standards Information, 1998)

The LPG Vehicle Scheme (2010) provides grants to vehicles converting to LPG and also to newly purchased LPG vehicle. Alt-Fuel can get 1250-1000 dollars per car if it wishes to convert to LPG in 2012 and 2000 dollars per car if it wishes to purchase new LPG vehicles. The detail of the grants is shown in Figure 3.2. Figure3.2 Grants for converting to LPG and newly purchased

Grants for LPG conversions of registered vehicles:	
Grant	Conversion Completed
\$1,750	Between 1 July 2009 and 30 June 2010
\$1,500	Between 1 July 2010 and 30 June 2011
\$1,250	Between 1 July 2011 and 30 June 2012
\$1,000	Between 1 July 2012 and 30 June 2013
\$1,000	Between 1 July 2013 and 30 June 2014

Grants for the purchase of new vehicles fitted with LPG before first registration:	
Grant	Vehicle Purchase Complete
\$2,000	Between 1 July 2009 and 30 June 2014

LPG vehicle (LPG Vehicle Scheme, 2010)

3.2 Advantages

Firstly, LPG vehicles emit less air pollutants, in particular, it emits 120%-180% nitric oxide than petrol. And LPG engines emit 80% less ozone pre-

cursors than petrol (Cars of the Future, 2004). Secondly, LPG burns cleaner with less carbon build-up, engine wear is reduced (Demirbas, 2009). Therefore lower the maintenance cost. Thirdly, the cost of LPG is on average lower than petrol. The price is between 63cpl and 93cpl as shown on Australian Automobile Association (<http://www.aaa.asn.au/issues/petrol.htm>). Less maintenance and lower cost mean LPG is cheaper once vehicles have been converted. Finally, as shown in Figure 5 there is grants for converting to or purchasing LPG vehicles. To comply with the government the reputation of Alt-Fuel will be built.

3.3 Disadvantages

To comply with the Vehicle Standards Information, vehicles converted to use LPG need to fit some requirement which may incur extra cost. The conversion to LPG is also costly. LPGautogas (<http://www.lpgautogas.com.au/>) covers most LPG related matter and it shows the conversion cost ranges from 2500 dollars to 4500 dollars. A further problem with LPG is that it is still derived from fossil fuels. LPG is obtained as a byproduct when refining crude oil or natural gas (Singh, 2010). This does not help the environment which Alt-Fuel wishes to do. Regarding the vehicle performance, LPG vehicle only gives similar performance as conventional fuels but not better (Boyle, 2003). This means the company does not save cost on conversion to LPG.

4. PLUG-IN HYBRID ELECTRIC VEHICLES (PHEV)

4.1 Policy and Incentives

This is a new technology and therefore current policy and incentives are not available.

4.2 Advantages

First of all, PHEV effectively reduces GHGs and air pollutants at near zero cost (James, 2006). It does not depend on a single source but a diverse mix of clean renewable resources, such as, wind, hydroelectric and solar energy (Market and Simpson, 2006; Advantages of plug-in hybrids, 2009). In addition to that, PHEV has an ability to drive at least ten miles in all-electric mode, and consume no gasoline (Plug-in electric hybrid vehicle, 2007). According to Origin (<http://www.originenergy.com.au/>), one of the biggest Australian power suppliers, the current electricity price on average is 17.35c/kWh (Ex GST). The

detailed calculation of electricity cost comparing with petrol is shown in Figure 4.1. The use of PHEV is far more efficient than using conventional automobile. There is a great cost reduction with PHEV.

Conventional Automobile		
Cost of gasoline	\$2.50	\$/gal
Fuel efficiency conventional car	30	MPG
Cost per 100 miles	\$8.33	
Range (typical)	250	miles
Plug-in Hybrid Electric Vehicle		
Retail cost of electricity	0.11	\$/KWh
Charging efficiency	86.00%	
Cost of energy in batteries	0.128	\$/KWh
Electric efficiency (actual data)	0.11	KWh/km
Efficiency in miles	0.177	KWh/mi
Cost per 100 miles	\$2.26	
Size of battery	44	KWh
Range of vehicle (calculated)	249	miles
Weight of Li-Ion batteries	650	Lb

Figure4.1 Compare gasoline and electricity (Plug-in hybrid electric vehicle, 2007)

4.3 Disadvantages

The biggest problem with PHEV is that it is a newly developed technology and the efficiency largely depends on battery storage technologies, or it will still remain a niche technology (Andress, 2002). And the long-term battery performance is still unknown (Francfort and Karner, 2010). Another disadvantage is the initial capital cost. To run a PHEV, new vehicle needs to be purchased. According to Toyota (<http://www.toyota.com/>), one of the biggest world car manufactures, the hybrid price is 30-40% higher than petrol equivalent.

5. RECOMMENDATIONS

Petrol running vehicles are both costly and polluting. Therefore a change of energy source is needed. Currently, government is promoting both E10 and LPG. However LPG emits less GHGs than E10. Nevertheless, the cost of converting to LPG is essential compare to E10 which can be used without any modification of current vehicles. In addition, the performance of LPG is still questionable. The government currently has now no incentives given to PHEV since the technology is still at development stage. The sustainability of the battery performance is a problem. To conclude, E10 requires lowest input cost although the efficiency may not be as good as the other two. The GHGs emitted is reduced and this technology is currently the most stable one. Therefore it is recommended for Alt-Fuel to use E10.

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RUSSIAN AGRICULTURAL SECTOR IN THE CONTEXT OF GLOBALIZATION

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The effectiveness of the Russian economy, the creation of new mechanisms of subjects' interaction within the economic system are determined by the level of the domestic and foreign trade integration, by the competitiveness of the country's economic elements in the international market, the diversification of economic activities, based on the foreign partners' experience and other aspects.

A necessary condition for increasing the efficiency of the Russian economy is the competitiveness of its agriculture. The significance of the Russian agricultural sector (as the member of the global economic space) is caused by a number of internal and external factors. This is explained by natural interrelation and interdependence of local and regional economies in which individual development, on the one hand, depends on the conditions of the external macro-economic environment, on the other - has an influence on it.

The intensification of agriculture is needed to implement The Food Security Doctrine of the Russian Federation, which outlines a strategic goal 'to supply the country's population with safe farm products, fish and other aquatic bioresources ... and food.' A special role in ensuring domestic food security is assigned to the development of rural areas, so the increasing of their well-being is an important line of the contemporary economic policy.

Agriculture in Russia has specific positive and negative features of development. The rich resource potential of the territory can be attributed to the positive characteristics, including large areas of the arable land, the presence of unique quality black soil, cheap labor, favorable weather conditions in most parts of the country. The negative ones are a poor investment climate, the low rate of innovation, the lack of an effective logistical and social infrastructure.

The implementation of the third phase of the Federal Program "Social development of rural areas up to 2013" continues currently, its main objectives are "to improve the living standards of the rural popula-

tion by social infrastructure development and engineering arrangement ... to create conditions for the improvement of the socio-demographic situation in rural area, the expansion of the labor market in rural areas and to ensure its attractiveness." The aspects of the program are fully consistent with the actual needs of agriculture. The problem is the low efficiency of their implementation: in particular, the actual funding of the state program for the development of rural areas in 2008-2011 was carried out only by 40.1%.

Forming a new investment strategy of agricultural development, which puts agricultural producers (particularly farmers) at its centre, is a worldwide trend. This fact is emphasized in the latest FAO report "The State of Food and agriculture 2012." According to it, in developing countries share of farmers' investment in capital stock on their own prevails over the share of governmental, international donors' and private foreign investors' investments. Therefore the current state policy of agricultural development and regulation should first of all aim to create a favorable investment climate for smallholders.

The intensification of rural areas multifunctional development is in the focus of the EU's Common Agricultural Policy. Agricultural sector of local economies gets investment support not only from the state, but also from the EU budget (in the framework of numerous international programs). The structure of the EU rural development policy 2007-2013 is presented in Figure 1.

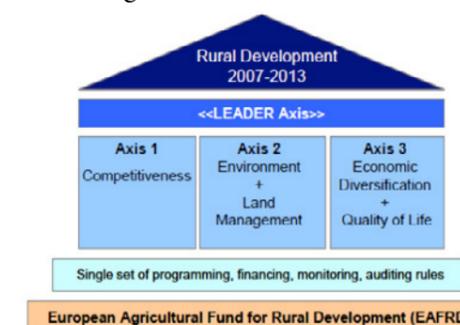


Figure 1 - The structure of the EU rural development policy 2007-2013

The optimization of the natural resources usage in Russia and in the world as a whole is the other factor that demonstrates the need for agricultural development. The analysis of statistical data allows to conclude that the agricultural potential of Russia is used incompletely. We present some figures, confirming the output.

The value added of agricultural products in the total GDP of Russia took about 4% up to 2011. For comparison, the similar index in Serbia is 34%, in Brazil - 5%, in Turkey - 9%, China - 10%, in Indonesia - 15%, and in South Africa - 2% (it should be noted that agricultural components include forestry, hunting, fishing, crops and livestock; the origin of value added is defined according to the International Standard Industrial Classification).

One of the important indicators showing the level of available resources development is the indicator of land availability (Figure 2).

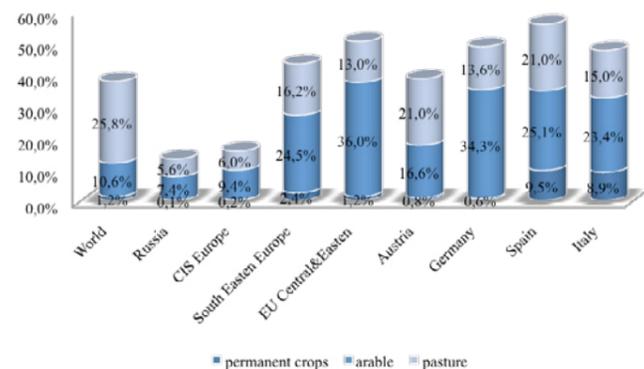


Figure 2 – Land availability, share of land area in 2009

Thus, according to Rosstat, in 2011 only 13.5% of the Russian land (the total land - 1637.7 million hectares) was involved in the agricultural sector (55.1% of farmlands is represented as arable, other agricultural lands cover 44, 9%). Worldwide, the figure is much higher - according to FAO, in 2009 37.6% of the total land was agricultural, in Russia the figure was 13.2%, in Serbia - 57.8% (total - 8.7 million ha), Austria - 38.4% (of 8.2 million hectares) in Germany - 48.8% (in total - 34.9 million hectares) in Spain - 55.5% (of 49.9 million hectares), in Italy - 47.3% (of 47.3 million hectares).

The actual yields in Russia and Eastern Europe are only 37% of the potentially possible result, while in North America - 67%, Asia - 68%, Central and Eastern Europe - 64% in Australia and New Zealand there is also a high rate - about 60% of the potential.

The development of agriculture is also a crucial factor that lets to reduce the level of hunger and poverty in the world. The current state of the agricultural sector in the world is characterized by high food prices, which largely influence the low availability of food in many parts of the world. International scientists' recent proceedings are devoted to the search for optimal solutions of these problems. In particular, during the discussions in the framework of the UN Conference On Sustainable Development "Rio +20" in 2012 was noted a high role of comprehensive agricultural development for the hunger eradication.

According to FAO estimates, by 2050 global agriculture will have to provide food for more than 9 billion of people. A significant population growth will occur in the countries where already exists a high level of hunger. In the conditions of natural resources limitation and the increasing demand for food, the agricultural development strategy of local economies should focus on improving the performance of the agricultural sector and the efficiency of natural resources.

Speaking about global objectives of agriculture and the role of Russia in their implementation, it is necessary to highlight some local problems and prospects in the development of the sector. The most significant event affecting the functioning of the Russian agriculture is the accession of WTO, officially completed in August 2012. The special condition of Russia's membership in the World Trade Organization is to limit direct government subsidies to agriculture. According to the commitments of Russia, in 2018 the amount of subsidies will officially decrease by half - to the level of \$ 4.4 billion. In fact, these restrictions will not change the situation - currently the state spends on agricultural sector less than \$ 4 billion per year.

It is important to note that there are three types of subsidies allotted for the agriculture: the so-called 'yellow', 'red' and 'green' basket. A "yellow" basket is the direct subsidies and compensation payments to farmers, promoting the extensive development of the

sector. In fact, the result of direct funding is support for the backward segments of agriculture, not the stimulation of innovation.

In the leading economies governments primarily use indirect methods of agricultural support: in the form of investment loans for the modernization of production facilities and infrastructure, products promotion, highly qualified personnel training, etc. The priority of this particular economic policy is also noted in the latest FAO report 'The State of Food and Agriculture, 2012.'

Due to the intensification of integration processes in the Russian economy there is an acute need to resolve internal and external contradictions of further agricultural development. The contradiction of economic development - it is the balance of economic challenges and benefits which is actual for functioning of the economy in concrete conditions.

The internal contradictions of agricultural development in terms of membership in the WTO are mainly represented as a balance between many issues such as waste of agricultural resources, the ineffective policy of final and intermediate goods sales, as well as the benefits from the sales market expansion, an ac-

cess to best practices of agricultural development of the others countries WTO-members.

External contradictions of the Russian agriculture's functioning are connected with simplified access to the domestic market for foreign manufacturers, service companies, as well as the entry of domestic companies in the international market. In this regard, the need to enhance the competitiveness of the Russian agricultural sector by increasing labor productivity, reducing production costs, supply chains etc. is becoming urgent.

A particularly serious problem of agriculture in Russia is the low level of the transport and logistics industry development, which structure includes subjects and objects of transport and logistics services, infrastructure, information technology.

The most reliable indicator of the transport and logistics system effectiveness, also of the competitiveness level and rank in the world is the index LPI (Logistics Performance Index), which is calculated by the World Bank since 2007. According to the ranking, in 2012, out of 155 countries, Russia has taken only the 95th position, significantly lagging behind the partner countries in G8 & G20. Selective data of the latest rating is given in Table 1.

Table 1 - International LPI results, 2012

Economy	LPI Rank	Customs Rank	Infrastructure Rank	International shipments Rank	Logistics quality and competence Rank	Tracking and tracing Rank	Timeliness Rank
Singapore	1	1	2	2	6	6	1
Hong Kong SAR, China	2	3	7	1	5	5	4
Finland	3	2	6	4	1	1	15
Germany	4	6	1	11	4	7	2
Netherlands	5	8	3	3	7	2	12
Denmark	6	4	10	8	2	4	7
Belgium	7	7	8	6	8	8	9
Japan	8	11	9	14	9	9	6
United States	9	13	4	17	10	3	8
United Kingdom	10	10	15	13	11	10	10
Canada	14	17	12	18	13	14	3
Australia	18	16	18	28	16	19	17
Italy	24	27	23	19	21	20	18
China	26	30	26	23	28	31	30
Brazil	45	78	46	41	41	33	49
India	46	52	56	54	38	54	44
Argentina	49	83	52	32	51	38	72
Russian Federation	95	138	97	106	92	79	94

The key problem of the modern transport and logistics system formation is the great expanse of the Russian territory and differentiation of natural conditions throughout the state. Thus, in the sparsely populated regions with poor infrastructure, especially in Siberia and the Far East (with the exception of port areas) there is a lack of high-quality warehouses, roads, specialized vehicles for goods delivery, so development of new logistic complex in these areas requires a very long period.

The trend of the national economy integration into the global economic space, strengthening the relationship with foreign partners that operate in more developed markets is forcing to critically review the state of the Russian distribution infrastructure. Special attention should be paid to the problems of agricultural products sales.

According to official statistics, more than half of the total agricultural production in Russia is produced by family farms and smallholders which almost do not get access to the large trade markets. Almost 90% of their products is sold 'in trays' through uncivilized forms of trade, correspondingly, small farms do not have strong incentives for development. In the EU just a few percent of agricultural products are sold via small farmers' markets, roadside trays or directly at farms.

As shown in Figure 3, in 2011 the aggregate share of farms and smallholders in total agricultural output in Russia was 52.3%.

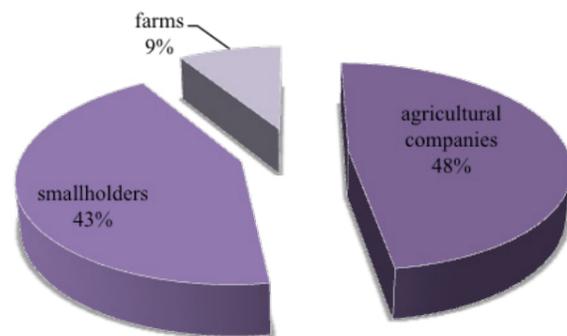


Figure 3 - Structure of agricultural output by Russian producers, at current prices, as percentage of total, 2011

Today the main elements of the distribution infrastructure in Russia are wholesale food markets, the system of agricultural cooperatives, agricultural fairs, commodity exchanges. Focus attention on the wholesale food markets and cooperatives as the most

promising elements of agricultural distribution infrastructure in Russia.

One of the first elements in modern agricultural sales infrastructure in Russia is a wholesale food market, which is a commercial enterprise, organizing purchases and sales of agricultural products, raw materials and food in certain locations and at certain conditions. Today for the majority of large farms that produce and sell a significant proportion of agricultural products costs of its distribution by individual vendors or direct delivery is lower than the sale through wholesale markets. However, agricultural production, which is produced mainly by private households, in contrast, is successfully sold through them.

A key function of agro-marketing cooperatives is to establish a direct communication between agricultural producers and markets, the implementation of their economic interests by reducing the intermediate trade links. It is important to pay attention to the experience of the EU in the development of cooperatives as an effective tool for agricultural products distribution.

The main sales channels of farm products in the EU - processing companies, wholesale and retail trade (direct deliveries from farms). Some of the products are sold by the farmers in the markets, roadside stalls. Processing enterprises is a very important sales channel of fruits and vegetables. Each year in the EU are processed around 20% of fruits and vegetables. This form of selling gained a wide circulation in France, the Netherlands, Ireland, Great Britain, Belgium, Germany. Output and quality of considerable part of agricultural products is coordinated by the processing enterprises' requirements, this is promoted by contractual system.

In modern conditions the Russian supply and sales cooperation is developed poorly, whereas in the EU countries, the USA plays an essential role. The need to revive the system of marketing cooperatives with the government support is noted in modern researches of leading scientists. Table 2 shows the range of factors contributing to the need to improve the system of agricultural cooperatives in Russia.

Agricultural development issues are traditionally in focus of G20 Summits. The communiqué of the

G20 Summit in 2012, held in Mexico, highlighted the importance of the agricultural development, improving the transparency and efficiency of the food markets (in particular, through the introduction of Agricultural Market Information System) as a factor of economic growth. Russia, as the chair of the Summit in 2013, once again puts on the agenda the need to ensure food security and solve the problems associated with poor nutrition of the population in some countries.

Being a full-fledged member of the global food market, Russia aspires to intensify the development of the agrarian and industrial complex, which key condition is the effective national and private resources mobilization. Today the particular challenge of the government consists of ensuring full support to farms as to the main investors of the sector. Financial investments are not sufficient without providing with incentives for development. Thus, today the Russian government faces a number of goals to enhance the investment climate in agriculture, in particular:

- corruption reduction;
- property rights enforcing;
- providing social infrastructure in rural areas;
- promotion of the logistics development;
- developing of the sales infrastructure for farms and smallholders;
- promotion of the agricultural cooperatives efficiency.

Table 2 - The key factors influencing efficiency of marketing cooperatives in Russia

Technical	simplification and acceleration of interaction between buyers and sellers of agricultural production
	organization of primary agricultural products processing
	creating the conditions for the formation of large consignments by combining the products produced by farmers and smallholders
	improvement of production technology and raising its standards
Organizational	strengthening of horizontal economic links between rural producers and vertical - with processors and consumers
	optimization of sales cost
	increase of production sale security
Social	improving the members' welfare
	growth of rural producers' economic independence and initiative

Besides, the central part is assigned to the state in ensuring macroeconomic stability, carrying out a stable and transparent trade policy. Effective solutions to the designated problems will allow Russia to get an upgrade path towards enhancement of the agricultural competitiveness and a more active participation in solving global economic problems faced by the world community.

This article analyzes the prospects of shale gas and its economical attractiveness, as well as its influence on energy industry in Russia and whole world.

In almost all the countries of the world, both producers and consumers of energy resources, are discussing the influence of the shale revolution on different parts of our life – be it energy security, economy or politics.

There are some several main points, uncovering the topicality of considering the problem of shale revolution.

SHALE GAS – MOVING FORWARD

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THE PHENOMENON OF “SHALE REVOLUTION” DRAMATICALLY CHANGES THE BALANCE ON THE WORLD ENERGY MARKET

Success in recovering of shale gas and oil extraction has lowered the anxiety of the international community to face the fast depleting of the deposits of hydrocarbon feed.

New technologies give us the opportunity to get access to the rich deposits of hydrocarbon materials which have been considered unextractable before.

The technological breakthrough in recovery of natural gas has raised the availability of this energy resource in the key consuming regions. The biggest producer of the shale gas – the USA, which has recently been the importer of natural gas, in the nearest years, may become the exporter of this product.

At the same time the USA drastically decreases its dependency on the import of oil. In 2012 the bare import of oil was just 7.5 million of barrels a day. According to expert judgments there is a possibility of decreasing the amounts of import to insignificant or even null indicators in 12-15 years.

THE RECOVERY OF “SHALE GAS” INFLUENCES THE INTERNATIONAL TRADE FLOWS

Resigning from the market of the biggest importers of hydrocarbon feed – the USA considerably changes the map of traditional export routes and the whole structure of the world trade of hydrocarbons.

3. THE INFLUENCE OF THE SHALE REVOLUTION ON THE WORLD ECONOMY ON THE WHOLE

It is obvious that American industry at the cost of using cheap gas and lowering the tariffs on electric power increases its competitiveness. It concerns power-hungry productions, for example, petrochemistry.

Assessing these consequences, the governments of different countries try to stimulate the investments

in the development of the technologies of unconventional recovery and transportation of gas. They create conditions for the transition to this kind of fuel for motor transport, establishments of energetics and communal facilities. But the process of expansion of the gas application sphere is connected with the problem of reconfiguration the infrastructure and the competition of other kinds of feed.

Thus we can make a conclusion that it is necessary to accurately trace the changes that happen on the world energy market including the changes in energy balance, infrastructure, delivery routes and technological development of the field.

Shales are the most abundant form of sedimentary rock on Earth. They serve as the source rocks for hydrocarbons migrating into permeable reservoirs and act as seals for trapping oil and gas in underlying sediments. Until recently, the oil and gas industry generally regarded them as nuisances to be tolerated while drilling to target sandstone and limestone reservoirs. But geologists and engineers have begun to view a specific type of shale—organic-rich shale—with a newfound appreciation. It endowed with the right characteristics, organic-rich shales have the potential to serve not only as sources of hydrocarbons but also as reservoirs to be produced. Finding and producing gas from shale formations, initially a North American phenomenon, has become a global pursuit for many exploration companies.

The deposits of shale gas three times outnumber the deposits of conventional gas that is why its active engineering and bringing to the markets will have a great lowering influence on the formation of price on gas. Two thirds of the deposits are concentrated at the territory of the United States of America and in CIS countries. In the Russian Federation, according to the OAO (Joint Stock Company) Gazprom data, there are about 83,7 billion m³ of shale gas, the biggest part of which is concentrated in several big reservoirs. Gas from each of them is unique by capacity and age as well as by the conditions of bedding and is perspective for recovery only under certain conditions.

The main stimulus for engineering of alternative gas reserves and mastering the corresponding technologies of its recovery were the investigations and discoveries in the field of innovation horizontal drilling and hydraulic fracturing of formation, which enabled not only to effectively recover gas from unconventional deposits but also drastically reduced the cost of their engineering.

Organic-rich shale deposits with potential for hydrocarbon production are referred to as both unconventional reservoirs and resource plays. Unconventional gas reservoirs refer to low- to ultralow-permeability sediments that produce mainly dry gas. Reservoirs with permeability greater than 0.1 mD are considered conventional, and those with permeability below that cutoff are called unconventional, although there is no scientific basis for such a designation.

According to a more recent definition, unconventional gas reservoirs are those that can be produced neither at economic flow rates nor in economic volumes unless the well is stimulated by hydraulic fracture treatment or accessed by a horizontal wellbore, multilateral wellbores or some other technique to expose more of the reservoir to the wellbore. This definition includes formation composed of tight gas sands and carbonates, as well as resource plays such as coal and shale. The term resource play refers to sediments that act as both the reservoir and the source for hydrocarbons. Unlike conventional plays, resource plays cover a wide areal extent and are not typically confined to geologic structure.

Producing hydrocarbons from shale deposits is nothing new, the practice predates the modern oil industry. In 1821, decades before the first oil well was drilled, a commercial shale gas well was drilled in Fredonia, New York, USA. By the 1920s, the world's most prolific natural gas production came from similar shale deposits in the nearby Appalachian basin. The methods used then for exploiting gas shales little resemble current practices. Operators drilled vertical wells that produced low flow rates. However, successful production of natural gas from the Appalachian basin proffered hope for those who later sought to tap the Barnett Shale and similar resource plays.

Development of the Barnett Shale traces its roots to 1981 when Mitchell Energy & Development Cor-

poration drilled a well exclusively for the production of gas from shale. There was no instant gratification, 20 years of drilling and completion innovation, along with increases in commodity pricing, created the environment that brought the play commercial viability.

Hydraulic fracture stimulation was the first technology to unlock the gas trapped in shales. This practice creates permeability in rocks where very little exists naturally. Fracturing shale from vertical wells produced high initial production flow rates, followed by rapid falloff. Operators realized that more contact with the reservoir was needed to avoid these rapid declines. Thus, along with hydraulic fracturing, the second enabling technology—the ability to drill extended-reach horizontal wells—allowed contact with significantly more reservoir rock than is possible from vertical wellbores.

The production process comprises of six main steps:

- Site development and preparation, which involves building access roads, production facilities and well pads.
- Vertical drilling to a depth of several thousand metres, where shale formations exist.
- Drilling horizontally from the end of the vertical well, sometimes with several horizontal wells extending in several different directions, once the vertical well is at the appropriate depth.
- Hydraulic fracturing of shale formations, using a fracturing fluid comprising of about 99.5 per cent water and sand, plus 0.5 per cent chemical additives.
- Recycling or the disposal of the wastewater that was used in the hydraulic fracturing process and any naturally produced water that is brought to the surface.
- Well completion and operation, the latter lasting up to a decade or more.

Despite hydraulic fracturing's strong record of safety and efficacy, there are some environmental concerns surrounding the technique:

1. “Shale gas drilling takes up a larger land-use footprint than does conventional energy production.”

Although shale gas production takes place deep underground, the practice requires some alteration of the surface land. Wells have to be built, as do access roads and production facilities. However, thanks to the technique known as horizontal drilling, the actual land-use footprint required to produce natural

gas from shale is dramatically smaller than that required to produce traditional oil and gas, and electricity from wind and sun.

2. “Hydraulic fracturing can have adverse effects on drinking water.”

The process of hydraulic fracturing for shale gas production involves drilling vertical and horizontal wells thousands of metres under ground and injecting water, sand and additives into the shale formations to prop them open and extract natural gas. Some people believe that because the wells pass through aquifers to reach the shale, and because water and chemical additives are injected into the wells, drinking water sources could be affected by drilling and hydraulic stimulation of the shale formations, when done properly, are extremely remote.

3. “Hydraulic fracturing uses enormous quantities of water.”

Water is a key input for shale gas production. It can take about 11 million litres of water to hydraulically stimulate a well. Undoubtedly, that’s a large amount of water, and it has raised concerns about possible depletion of local water supplies and the need to regulate water usage.

4. “Hydraulic fracturing fluids contain dangerous chemicals that aren’t disclosed to the public.”

Hydraulic fracturing fluid is the key to opening up fissures in shale formations and extracting natural gas. About 90 per cent of that fluid is water and about 9,5 per cent is sand. The remaining 0.5 per cent of the fracturing fluid contains additives – many of which are present in regular household products, cosmetics and foods.

5. “Hydraulic fracturing and associated wastewater disposal causes earthquakes.”

Hydraulic fracturing for shale gas production involves drilling wells deep underground, injecting large quantities of water-based fracturing fluid in stages and then disposing of fluid – often underground. These activities have raised concerns about possible seismic events in nearby communities.

6. “Disposal of wastewater harms the environment.”

After a hydraulic fracturing stage has been completed and the pumping pressure has been relieved

from the well, water begins to flow back to the well-head. This “flowback” is a mixture of the original hydraulic fracturing fluid – containing less than one per cent of chemical additives – and any natural formation water – containing dissolved constituents from the shale formation itself. The disposal of this wastewater and produced water has been the cause of some concerns.

7. “Air emissions related to shale gas production are worse than those created by burning coal.”

When evaluating the overall merit and viability of any energy source, many people focus on the greenhouse gas emissions related to the production of that energy. Methane emissions from natural gas extraction, particularly shale gas, have been getting significant attention in recent months.

8. “Shale gas extraction is not regulated.”

According to some environmental organizations, shale gas opponents and media reports, shale gas production is largely an unregulated industry. This misconception can lead to concern that shale gas producers are not acting in the best interest of the public at large or are even breaking laws.

In development of the shale gas the stumbling block is water. In the hydraulic fracturing process for one deposit of gas one needs about 17 million liters of water. For reference: in the process of coal mining one needs the half of this amount, in oil extraction – about 15%. In the end, only 30% of the used water returns to the surface. Usually the salt water is used as the usage of industrial water would increase the cost by at least 20%. Today the possibility of water reuse in further engineering of other deposits, reduction of number of chemicals, used in this technology, to reduce the risk of contaminating the soil, is being investigated.

In the times of formation of the US shale gas industry no one really cared about the ecological issue. The recovering companies assured the government that they took all measures to prevent any ecological problems. For some time they appeared beyond the control of following the measures. Oil spill in the Gulf of Mexico and the tremendous damage to ecology made the lawmakers and publicity have a closer look at the nature-saving aspects of work of energy concerns.

Around the globe, companies are aggressively pursuing shale resource plays, hoping to find the next Barnett Shale. But developing and producing from these enigmatic resources require more than just finding organic-rich shales and hydraulically fracturing them. As the shale gas revolution gains momentum globally, exploration companies are discovering that an integrated approach is essential to success. Learning from past experiences and continually improving methodologies may not guarantee success, but its likelihood is greatly improved.

It is necessary to take into consideration the difference in the force of the public opinion in Europe and the USA. Europe is more populated and it is difficult to find areas for engineering. One can assume that local communities will be more critical towards such projects. Thus active development of shale gas industry in Europe in the nearest future is unlikely.

The Barnett Shale of central Texas, USA, is recognized as the play that initiated the recent interest in developing shales as producing reservoirs. This development represents a fundamental shift in the way exploration companies consider resource plays. The two main enabling technologies that have made shale plays economical are extended-reach horizontal drilling and multistage hydraulic fracture stimulation. However, operators have discovered that there is much more to producing gas from source rocks than drilling horizontal wells and hydraulically fracturing them.

Engineers and geologists studying shale gas resources find that having a greater understanding of a reservoir can lead to process adaptation and refinement of techniques. It is important to integrate data from many sources and at many scales to optimally drill, complete and stimulate wells to produce hydrocarbons from their source rocks.

In the nearest future the development of alternative gas industry is more likely in the countries experiencing the scarcity of energy resources and able to economically stimulate new developments, ignoring or taking little interest in the protests of local communities, for example in China or India.

It is unlikely that in the foreseeable future Russia will conduct full-scale engineering of shale gas and bring it to the oversaturated world markets, exerting

additional pressure on the prices and giving its clients additional arguments for price revision.

As you can see, the problem of shale gas now has become highly relevant for the further development of energy, hydrocarbon and non-hydrocarbon feed.

Recent discoveries in this area in different countries provide a solid foundation for improving the technology and techniques of production of shale gas.

The initial basic research to develop new technologies for the development of shale gas will considerably expand the geography of natural gas production in the world to develop new oil and gas areas, to develop new methods for the preparation of various products from a wide variety of feed shale.

Among other countries, prospects of development shale gas production in Russia is very high. Already now are conducted grass-root exploration, research and creation of new technology of development. Undoubtedly, this will lead to accelerated energy development for extraction of minerals.

This article reviews lessons learned from 30 years of shale development and looks at some of the tools used to analyze shales. I believe that the shale revolution is something positive, a chance for all of us to launch technologies, intensify competitiveness, make our countries more energy secure, and reduce costs.

Innovations Based on Inspiration

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INNOVATIONS TECHNOLOGY & SCIENCE

Abstract: Innovations based on inspiration are mostly the results of some small ideas. However, this kind of innovation also has its own irreplaceability in the modern society, as it is usually more related to our daily lives. Therefore, it is of great importance to have a classification of its innovations the principles by which they are designed.

Key words: innovation inspiration classification direction

1. INTRODUCTION

When talking about inventions and innovations, many people will think of the kind of work that always goes on in the high-end laboratories with hundreds and thousands of people working together for a long time. However, inventions and innovations are not just a matter of institutes and researchers. A great number of innovations, which we here call “innovations based on inspiration” temporarily, do not really need a profound series of knowledge or very advanced experimental devices. On the contrary, they are often just a result of a small idea. But its effect cannot be denied. In many cases, such a small idea could play an important role in the whole society.

We use a water-saving for example. As we can experience in our daily lives, the closetool has brought great convenience to us. However, it also causes a great waste of water. According to a survey conducted in Kunming, China not long ago, as much as 40% of the water consumption of the entire family is taken by the using of the closetool.¹ Because of this, a kind of water-saving closetool came into being. On the one hand, it improved the structure of its flushing part so that it can accomplish the same task with less water.² On the other hand, a series of flushing level are settled so that the user can select the best one due to different cases.

Compared with the large-scale innovating work, this kind of innovation has its own irreplaceable position in the society.

Firstly, such inventions are usually very practical, for they get their inspirations mostly from daily lives, and its purpose is often to solve some of the most

common day-to-day problems. Also, the solution is usually simple, affordable and realistic. Hence, such innovations could be timely put into the market. And it is sure to have a fixed group of fans.

Secondly, such innovations have an extensive resource. As it does not often require high experimental conditions and high-class knowledge, many people can participate in this process with their own ideas. be based on their own ideas to create. The diversity of creators leads to the diversity of innovations. Therefore, a wide range of the society would be covered or involved.

That is what we are talking about today. I read about over 300 recent innovations of this kind³ and give an analysis and classification to them before writing this article. In the following sections, I would like to share my ideas about the directions as well as the tendencies of these innovations with you.

2. INNOVATIONS BASED ON PRODUCT

2.1 Modifications of existing products

2.1.1 Modifications of details

Such innovations concentrate on the modification of some details, which have nothing to do with the main function of the products, but would cause unpleasant situations sometimes. The modifications, according to their methods, can be divided into two groups.

One group is committed to give a transformation of the original product. For example, the traditional solid gum, as we know, has a shape of a cylinder. Just because of this, it will be very difficult to wipe the glue into some narrow gaps. According to this situation, a company gives a transformation on it. They cut off a half of its head part by the diagonal to create a slope on its top, so that now it can be easily used in a narrow space. The improvements of funnel can be also considered as an example. As we know, in our daily lives, most of the funnels are conical, but we could easily get from the principle of physics that the speed of flow will be greatly affected due to the imbalance of the pressure. However, a company modified the shape of the funnel into pyramid

so that it can better balance the pressure of air inside the container and outside, and thus speeding up the flow.

The other group tries to design new products exactly aiming at the modifications of certain details we have mentioned before. The innovation of shutter sticker is a typical example. A lot of us will have such kind of experiences that the shutters of cameras will always get slippery when using and thus missing many valuable moments. As different cameras are manufactured by different companies, skilled in different aspects and loved by different people, it will be impossible to solve this problem using the method we have just mentioned. So, this time, this method gets its place. A company develops a shutter sticker, which could be pasted on nearly any type of cameras and increase the friction.

2.1.2 Modifications of traditional process of certain activities

Some activities, due to the limitations of traditional equipment or traditional process, often contain some inconvenient or unpleasant parts. Such innovation is specially prepared for these occasions. For example, when trying on clothes in a shop, for a certain dress, we will have to try on many times to pick the color, which is surly very troublesome. The recent innovation of an intelligent dressing mirror improved this annoying process. Every time trying on clothes, the system of the dressing mirror will automatically take a picture and give out pictures with all the possible colors of the clothes on you according to the picture taken at first. This innovation can greatly reduce the tedious process and thus leave the customers more time and energy to buy more from the shop.

In addition, a new blood pressure meter also shares the same idea. As we know, the process of measuring blood pressure with the traditional equipment is quite uncomfortable and inconvenient, which leads to many antipathies of measuring blood pressure. However, with this new blood pressure meter, the only thing one has to do during the measurement is to keep one finger on the instrument a few seconds, and he will get the result immediately. This innovation can be widely used in daily health care for people.

2.1.3 Expansion of functions

For a certain product, particular people will always have an expectation of a more powerful function in particular aspects. That is where this kind of innova-

tion gets its source. The expansion of functions of iPhone and iPad is a very typical example in this regard, and we just take one as an example. When using iPad, many people will notice the shortage of its sound, which is quite single and unclear, with a strict limitation of loudness. Based on this, a company designed a shell for iPad, which plays a protective role as well as a loudspeaker to provide a higher quality of sound.

Another innovation focuses on iPhone's camera. Due to structural constraints, the iPhone camera has very limited a shooting angle, which makes it difficult to take pictures from some certain views. To solve this problem, a company designed a "shot", which is only a basic use of the reflection principle of plane mirror, to give the camera a view of the space parallel to its screen.

2.2 Specialization of product

2.2.1 Crowd oriented

Particular group of people will have similar expectation of products. And this kind of innovation is just based on this thought.

Some are designed for some special preferences. For example, some people watch TV when always like to be overly close to TV when watching it, but this behavior is surly a great damage to eyes. For this fact, a company designed a kind of TV. This TV uses a special technology to make sure that only when the distance of the TV viewer and the television is appropriate can the image on the screen be clearly got. This design can effectively help people with this bad habit protect their eyes.

Also, age is also an important factor for the difference of requirements. For example, the general features for a large group of old people are bad eyesight, a preference for simplicity and a potential of emergency of health. According to these, a type of mobile phone called "senile phone" comes into being. This is a phone with just very primary functions like giving calls, sending text messages, constructing address book and so on. The operations are extremely simple, and the keys of the phone are several times size as large as the usual ones. In addition, the phone also joins a function of SOS. When the senile encounter an emergency, such as a heart attack, alone at home, the SOS button could be of great use. As soon as the button is pressed, very noticeable voice will be given out to ask for help. Also, at the same time, several messages will be sent to the phone set in advance. This phone sets an accurate

orientation to the senile and thus is greatly welcomed when put into the market.

2.2.2 Situation oriented

Some innovations are designed to meet the particular need of a certain situation, where it is likely to have some little disturbing problems.

A typical example is the innovation of Bluetooth sticker. Many times in daily life, we are likely to encounter such a scene that the keys, scissors or gloves, which always seem to be within eyes, will lost their traces just the moment you need them. For this annoying situation, the Bluetooth sticker is designed. Just paste one piece on the item that is about to "escape" and we could get its location all the time by searching the Bluetooth signal coming out of the sticker. Also, a few cents' price has made it possible for the commercialization of this innovation.

A new design of camera could be another good example. Many of us will have the experience that when a group of people go through an activity together and intend to take a group picture, the person holding the camera will always be excepted, which often leaves a pity. However, that is what this kind of camera is designed for. Besides the shot in the front, there is also an extra shoot in the back. When taking a group picture, both shots will be working and the camera will "insert" the figure of the camera-holder into the picture. Although it is still not as good as a holistic photo, it can eradicate the pity of not having everyone in a way.

2.3 Integration of functions

2.3.1 Integration of similar functions

In many cases, to achieve the same goal, we have many means, but each would have its own strengths and weaknesses. This kind of innovation is meant to gather these different means, allowing users to choose the best mean to use according to the specific case they meet.

A good example should be the design of the dual-use keyboard. As we know, there are two important means of input of modern computer, by keyboard or touch screen. The keyboard provides a good feeling for touching and a good structure to speed up writing while the touch screen has a more direct way for operation and a more flexible structure for adaptation. Each of them has its highlight due to different scenarios. Therefore, the keyboard we are talking about make a

combination of these two modes. The front side of it is an ordinary keyboard while the back side of it designed to be a touch screen. So the users are able to switch between the two modes according to diverse cases.

2.3.2 Integration of related functions

Often, a variety of equipment is needed in a certain activities where they complement each other to achieve a series of functions. However, carrying so much will many times disturb us a little bit. It is for this kind of problem, that the innovations based on the integration of related functions come into being. These products aim at a specific type of activities, trying to make a combination of as much functions needed in the activity as possible. A newly-designed sports kettle shows this idea. Many would have the experience that when going out for sports, not many people would like to take a lot with them. On the contrary, many would rather go with only bare hands if possible. Usually, a kettle is necessary, but some trivial things, like the keys or the bus card, are also needed. However, many times, we will have difficulty dealing with these little items for it will be very annoying to do sports with a lot of things always lagging you behind. But this kettle gives a way to solve the problem. An interlayer is prepared in the middle part of the kettle which is a perfect place for the rest of those items when you are playing.

3. INNOVATIONS BASED ON PSYCHOLOGY

Being needed and purchased is the essential destination of products, and also, the ultimate pursuit of the commercialized innovations. Therefore, realizing and catering to the mind of consumers are imperative for designing products. There is a branch of modern psychology called "design psychology" which concentrates mainly on this aspect.⁴

However, if we think deeply into this area, the studies could be divided into two directions. One focuses on the factors a person gives out as a customer, while the other tries to figure out the characteristics of the customers just as a member of the modern society, for all men in the society are sure to be a customer one day. The first topic has been considered over and over again, and plenty of theories have been developed. Hence, we will focus mainly on the second topic. We start with some successful innovations of this aspect and try to have a discussion of some of their thoughts in common.

3.1 Longing for nature

Through the rapid development of the industrial society, the cold machines and manufactures have been everywhere around us. And the indifference coming out of the society has become increasingly obvious. The American sociologist Toffler describe it as “very depressed, confused, and full of the spirit of religious sacrifice supermarkets”. With the spreading of the discontent of the suppression of freedom coming from the highly developed industrial society, one tendency to return to nature becomes increasingly popular.⁵ And a series of innovations based on this trend also come into being soon afterwards.

3.1.1 Adding to the atmosphere of nature

Many long for nature, but still have to live in the modernity and bustle of city. Innovations of this kind aim exactly at this crowd. By copying something of nature and adding them to the daily atmosphere of those people, these innovations can take a natural sense into the atmosphere and thus ease their spirit.

One example of this is the grass tapestry. The design of this product is extremely simple, for it is just one tapestry made of artificial turf. However, such little and simple idea can transform a tiring living room into some place replete with freshness, quietness and sense of spring. It can give you a chance to touch the nature without even stepping out of your house.

3.1.2 Making chance to communicate with nature

The people we are going to talk about are pretty lucky compared with those we have just talked about because they have the chance to get approach to nature. However, these people often find it difficult to get close to nature because of the lack of courage or skills. And that is what these innovations all about. Through clever ideas, the designers make people get connected with nature and feel the charm of it without even realizing.

The design of a special pair of shoes reflects this characteristic. This pair of shoes is made of woven steel wire meshes in it. The materials are carefully selected and the size of the meshes are precisely calculated so that it can protect the feet by keeping away glass, blade or some sharp parts of the plant one may have under his feet. Also, the fantastic vents can give one a chance to feel the cold brook, soft sand and hot rock. Imagine how enjoyable it could be when you put on such a pair of shoes and walk in nature.

3.1.3 Using natural elements to cover up the modern features

Being all day in the city, and inundated in all kinds of modern items, many people are sure to get bored. However, living in the modern world, it is impossible to get rid of all the modern products. So, some designers make a compromise, adding some natural elements to cover the sense of modern of the product. These innovations, on the one hand, retain the functionality of modern products; on the other hand, are shaped and manufactured as close to nature as possible, which could reduce the sense of disturbing people are likely to get when using the products.

The design of a kind of keyboard made good use of this idea. The functions of this keyboard have no difference with the ordinary ones but its keys made of wood and surrounded with artificial turf. Just imagine, during writing, one can listen to fingers tapping on the wood and feel the grass greeting to the palm. Wasn't it enough for calming down and having a meditation?

3.2 Longing for dream

All people will have their own dreams. Some may come from a fairy tale we heard in the childhood, which seems to be pretty far from the reality; others may just be a whim that accidentally flashes into our minds, which even we ourselves sometimes are not quite aware of. But usually, there will be potential expectations inside us to make them come true. Based on this, a series of innovations are developed.

3.2.1 Dreams from daily lives

Every time we are forced to do something that we are unwilling to do, there are always small expectations coming into our minds. For example, getting up in the morning, a lot of people will have this kind of expectation in the bottom of heart: “How fantastic it would be if the bed can get itself settled!” Or when getting off the train, fed up with tiredness, walking slowing down the street with a heavy suitcase behind, many will expect: “how wonderful should it be if I can have the suitcase following me automatically?” Now, some of these little dreams are being achieved by the development of science and technology as well as the intelligence of human being. For instance, a company designs a bed that can automatically get itself settled. Every time getting up, just press a button to give a command of making itself up to the bed. And a mechanical structure by two sides will make

up the bed in a set of fixed procedures. In addition, there is another company who designed a suitcase which will automatically follow the owner, like a loyal dog. After setting, the case will search for signals from owner and follow him closely. Based on real life, these innovations have an advantage of seizing the interests of customers, and thus more probable to win the market.

3.2.2 Dreams from fairy tales

These dreams, actually, are also dreams from daily lives and are very likely to pop up at some occasions in our lives. However, as most of us obtained these ideas in a way of “given”, we single them out as a new part.

Let's take a simple example. I believe that many people have heard the fairy tale about invisible cloak and are longing to get such a magic stuff. Also, some will regard it as nonsense. However, not long ago, a report disclosed that the U.S. military force used the highly reflective material to create a real invisibility cloak. With the incredible equipment, soldiers can be completely hidden inside the environment. Although the manufacturing of this invisible cloak may be very complex technically, we can still have the confidence to believe that the dream from the bottom of heart plays its integral role in the process of creating.

3.3 Searching for individuality

With the development of the society, the public has become increasingly aware of the sense of individuality, and the demand for this is also growing. In this case, products meeting the needs are more likely to have a resonance for customers and thus win the market. The following three kinds of innovations are just based on this fact.

3.3.1 DIY (Do-It-Yourself)

Everyone has the desire to prove themselves. And accomplishing a piece of work through their own hands is absolutely a perfect approach. For this reason, DIY is becoming more and more popular these days all around the world. However, the traditional DIY will need plenty of time as well as a certain series of knowledge, which are in many cases not easy to reach. Based on this status quo, a series of products are born. These products have finished the most complex parts of the entire DIY process in advance, leaving the simple and interesting parts to users. By these products, one can get enjoyments as well as sense of accomplishment during their operating.

The design of a hand-cranked popcorn machine reflects this thought. As part of the project of “low-tech factory”, this machine seizes the eyes of a large amount of people this year. Its main idea is to clearly present the “complex” process of the transformation from a corn to a popcorn through simple device. During the whole process, the only work for the user is to continuously move the handle, driving the flow path to move on. Although the efficiency of one popcorn a time is absolutely not proper for manufacture, it is still a good chance for entertainment.

If you are even too lazy to move the handle but still want to experience the pleasure of DIY, the following innovation of a rocking chair is definitely a good choice. As is known to all, to drive a rocking chair swinging, some energy input is needed. However, as we do not even notice such energy output sometimes, can we by the way do something else by the same principle? That is what the designer of the rocking chair considers about. Above the rocking chair are some very simple mechanical structures which can be weaving a beautiful hat during the swinging of the chair. It can accomplish a hat just within a few minutes' swinging. Try to imagine such a situation when you are lying in the rocking chair, occupied with quiet, looking up occasionally to watch your own fruit shaping up. Isn't it enjoyable?

3.3.2 Showing of uniqueness

Another way to look for a sense of individuality is to show one's uniqueness from others. However, when appearing distinguished in the circumstance, not a lot of people would like to look ostentatious. In a nutshell, people need a showing off in silence.

We can find variety of examples in this aspect, and we take a new tie as a representative. We know that people in sedentary jobs, especially the white-collars, are always required to wear a tie to work. The tie could be a wonderful prop to achieve our goal. However, due to the characteristics of the job, the color, pattern and the appearance are always limited. So, we will have to find some other ideas. Generally, many white-collars will bring some drinks to work which is usually regarded as a part of rest in working clearances. A company, however, sees the opportunity in it and develops a new kind of tie, which inserts a beverage bag inside. When at work, the tie shows no difference with the ordinary ones. However, when it comes to time for rest, everyone taking out their drinks, what could be more attractive when you insert a straw into your tie and take a big mouthful?

3.3.3 Demanding of private space

It is the nature of man to ask for a private space for himself. However, with the society going forward, it gets more and more difficult to achieve. On the one hand, with the propulsion of socialization, the interactions between people have been gradually increasing, which means that there are less and less space kept for individuals. On the other hand, we do not want to leave an impression of hard-to-reach in the face of the people who sometimes get too close to you. Therefore, looking for a method to protect the private space without hurting the feelings of other people has an imperative meaning. And that is what the innovations below are working at. Through cleverness and advanced technologies, it unobtrusively builds up a private space for users.

Here I would like to take a new type of screen as an example. The innovation is developed by University of Bristol, UK. Its appearance is extremely ordinary when compared with others. However, it does contain something special. This screen uses a technology called "multi-view display" which gives different contents according to different views. Only people sitting in the certain location can see the exact image. This innovation cleverly prevents the dilemma we talk about before, and thus are more likely to become popular among customers.

3.4 Longing for communication

Spatial distances between people are decreasing with the high-speed development of the modern society. Telephones, Internet and other tools seem to make the process of communication easier and easier. In parallel with this, however, the mental distances between people are growing further and further. Some people are afraid of being hurt, and thus refuse to take the initiative to communicate with others. Others lack experience, which have an appearance of not knowing how to start a communication with people not familiar with. In this case, people are getting cold and detached and unapproachable increasingly. But we cannot ignore that it is the nature of human race to communicate with other people. Contradictions of the two are always troubling people in the modern world. And therefore, communication has become one of the major themes of the society.

There are quite a lot of innovations around this topic, and we select two typical ones as examples.

As for the status quo that many people are too shy to start a conversation, a company designed a set of dishes called "dishes for conveying emotions". This set of dishes is constituted by a small dish together with a large one that holds it. There is a small mark on the edge of the small plates with the pattern of a red heard and the words "I WANT" beside it. Meanwhile, on the edge of the big plate outside the small one, a wide range of needs, from food and drinks like coffee and ice cream to actions like play kiss, are listed. When having a meal together, people can rotate the small plate inside, making certain sentences to convey the emotions to each other, which could be a good start of a conversation.

Another innovation is based on the fact that communications on the Internet are in a way taking the place of the real ones. However, as we know, physical contacts can be never replaced by other feelings. According to this fact, a company designed a vest that connects the network with the real world. This vest is linked with the Internet. When someone "Like" the photos, logs or video of the user's on line, the vest will automatically inflated itself to offer the user a feeling of "hug". What's more, if the person on the other side wears the same kind of vest, the user can send the "hug" back by the same process. By offering more physical contacts, it can help drive away the loneliness inside one's heart.

CONCLUSION

As we can see, the design of these can be classified into many groups of principles. And for a certain innovation, it is more likely to be based on a combination of some of them. The directions of this kind of innovations are diverse, for different people will care about different aspects. However, all these directions are for the same belief, of helping man live a better life.

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FERROELECTRIC AND ELECTRON TRANSPORT PROPERTIES IN EPITAXIAL BaTiO₃/Pt HETEROSTRUCTURES

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Abstract: The novel non-volatile random access memory concept using the so called ferroelectric tunnel junctions exploits the electroresistance change which is controlled by changes in the electrostatic potential profile across the junction upon polarization reversal of the ultrathin ferroelectric (FE) barrier layer. In this work, heteroepitaxial BaTiO₃/Pt bi-layers were grown by pulsed laser deposition onto MgO (001) substrates in a single vacuum cycle. Ferroelectric properties in BaTiO₃/Pt heterostructures and electron transport properties of Cr/BTO/Pt junctions with a sub- μm Cr top electrode were characterized by piezoresponse and conductive atomic force microscopies, respectively. The tunneling electroresistance change by a factor of ~ 30 for opposite polarization directions is clearly demonstrated thus indicating the potential for the memory applications.

INTRODUCTION

Ferroelectric (FE) materials have been studied extensively for several decades because of their potential for technological application. For a long time the critical thickness for retaining FE properties was believed to be in the 10-100 nm range. However, further experimental and theoretical investigations showed that FE may persist even for film thicknesses of a few unit cells under appropriate mechanical and electric boundary conditions. The non volatile random access memory concept of ferroelectric tunnel junction (FTJ) takes advantage of an ultrathin FE layer serving as a barrier between two metal electrodes, and the resistance switching is realized via a

pure electronic mechanism involving FE polarization reversal. In case of sufficiently thin (of the order of a few nanometers) film, conduction electrons can quantum-mechanically tunnel through the FE barrier. By flipping the polarization of the FE barrier it is possible to change an internal electronic potential profile and hence alter the transmission probability and produce tunneling electroresistance (TER) effect. Giant TER effect in FTJs have been theoretically predicted [1, 2] and experimentally observed, particularly employing a 3-nm thick BaTiO₃ (BTO) ferroelectric barrier [3, 4].

The realization of FTJ relies on the thermodynamic stability and switching polarization in ultrathin FE films. The problem of stability has been studied both theoretically and experimentally [5, 6]. The equilibrium polarization state strongly depends on extrinsic factors such as film substrate stress and screening conditions. It has been shown that in-plane compressive strain due to the film substrate lattice mismatch leads to a significant increase of spontaneous polarization and phase transition temperature in BTO films [7]. These results have opened the way for the practical implementation of FTJ.

Recent experimental works clearly demonstrate the realization of FTJ by employing ultrathin heteroepitaxial BTO films as FE tunnel barrier and using either a conductive tip on a bare BTO surface as a top electrode [3, 4] or more recently real capacitors [8, 9]. Usually, single crystalline conductive complex ox-

ides (SrRuO_3 , doped SrTiO_3 and $\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3$) are used as bottom electrode. Alternatively, the Pt/BTO system is another promising approach. Due to the favorable lattice mismatch ($a_{\text{BTO}} - a_{\text{Pt}} / a_{\text{Pt}} \approx 1.8\%$), an ultrathin heteroepitaxial BTO layer on Pt is under biaxial compressive strain which produces tetragonal distortion and ensures that FE polarization is aligned in the direction perpendicular to the surface [10]. In addition, it is predicted that FE properties of ultrathin BTO film are enhanced due to chemical bonding at Pt/BTO interface [11].

In this work, the growth of ultrathin Pt/BTO heteroepitaxial structure on single crystal MgO substrate is reported. Retaining FE properties of the BTO film down to 3 nm on Pt underlayer and spontaneous downward (toward Pt bottom electrode) polarization of the as-grown BTO layer is demonstrated. Electron transport through Cr/BTO/Pt FTJ in real capacitor geometry with top circular Cr pads 800 nm in diameter is investigated. The prepared FTJ exhibits tunneling electroresistance change by factor of ~ 30 for opposite polarization directions.

EXPERIMENTAL

BTO/Pt heterostructures were grown on commercial (MaTeck GmbH) MgO (001) single crystal substrates by pulsed laser deposition (PLD) in a setup with a base pressure $P \approx 8 \cdot 10^{-8}$ Pa by using two YAG:Nd lasers operating in the Q-switched regime on the 2nd harmonic ($\lambda = 532$ nm) with pulse duration 18 ns, energy per pulse $E = 77$ mJ, repetition rate $\nu = 50$ Hz and on the 4th harmonic ($\lambda = 266$ nm) with pulse duration 7 ns, energy per pulse $E = 65$ mJ and repetition rate $\nu = 10$ Hz, to ablate Pt and BTO targets, respectively. The epitaxial Pt underlayer with 10-15 nm thickness was grown at $T = 300^\circ\text{C}$ in ultra high vacuum (UHV) on MgO (001) substrates subjected to annealing at $T = 600^\circ\text{C}$ in oxygen ($P_{\text{O}_2} \approx 2.5$ Pa) prior to deposition. 3 nm strained heteroepitaxial BTO films were grown on top of Pt in the same vacuum cycle from a sintered stoichiometric BTO target at $T = 550^\circ\text{C}$ at oxygen pressure $P_{\text{O}_2} \approx 0.03$ Pa and further annealed at $T = 550^\circ\text{C}$ for 30 min. at $P_{\text{O}_2} \approx 4$ Pa. The structural properties of thus grown BTO(001)/Pt(001)/MgO(001) heterostructures have been reported previously [12].

The common technique for examination of FE properties at the nanoscale is piezoresponse force

microscopy (PFM). However, the investigation of FE thin films faces some difficulties, such as low piezoresponse. The latter problem cannot be solved by increasing the driving voltage, because of the large electric field induced in FE thin film. It is therefore critically important to use resonant technique. It is worth noting that in this case both piezo-, electrostatic and electromechanical responses are amplified. Nevertheless, the electrostatic and electromechanical contributions can be reduced by using stiff cantilevers (around 10 N/m) since both are inversely proportional to the cantilever stiffness. Another drawback of the technique is the contact resonant frequency shifting during the measurement which was revealed during the analysis of rough samples. For this reason, the resonance-enhanced PFM is an appropriate technique for the investigation of the smooth thin FE films only. Moreover, to restrict electrostatic and electromechanical influences the resonant PFM were carried out at the frequency slightly below resonance ($f \approx 630$ kHz). PFM studies were performed using a commercial atomic force microscope NTegra Aura (NT-MDT, Russia) and conductive diamond-coated rectangular silicon cantilevers DCP11 (NT-MDT, Russia) with a typical length of 130 μm and stiffness of 5.5 N/m. The FE properties were characterized by pulsed hysteresis loop measurements with a 500 ms width and 600 ms pulse period on both the bare BTO surface and through the top Au/Cr electrodes.

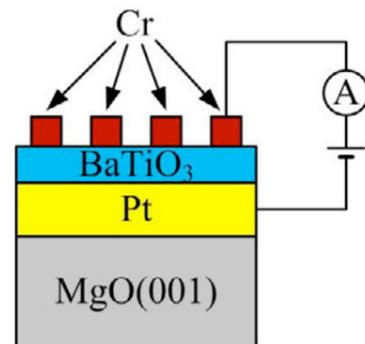


Figure 1. Sketch illustrating the geometry of the experiment for AFM studies of ultrathin BaTiO₃ film

To investigate ferroelectric and electron transport properties of BTO in a real capacitor device geometry, polycrystalline Cr circular pads were fabricated on top of the BTO surface by electron beam physical vapor deposition at room temperature through a Si₃N₄ membrane based shadow mask 100 nm in thickness. The set of holes in the mask 800 nm in diameter were defined by the focused ion beam (FIB)

technique (Fig. 1). To provide stable Ohmic contact between the tip and the top capacitor electrode commercial DCP 11 conductive tips were adjusted, particularly, the cantilever tip sharpness was increased by FIB and Pt conductive coating (~ 200 nm) was deposited by chemical vapor deposition afterwards.

RESULTS AND DISCUSSIONS

To demonstrate the switching domain behavior of thin BTO film bidomain pattern has been fabricated by scanning the film surface in contact with a biased tip (the bottom Pt electrode was grounded) at ambient conditions. External $2 \times 2 \mu\text{m}^2$ square with upward polarization was created by applying $V_{\text{tip}} = -2.5$ V. Internal $1 \times 1 \mu\text{m}^2$ region in the center of the larger square was switched to downward domain state by the same voltage with the opposite polarity. Out-of-plane PFM amplitude and phase images are presented in Figure 2. Dark regions in the PFM amplitude image indicate domain walls between regions with opposite polarization because of PFM amplitude reduced to zero at the domain boundaries. Such pattern forms as the tip is driven by two oppositely oriented domains cancelling each other when they are 180° out of phase. PFM phase image confirms that bidomain pattern is successfully created. The comparison between cantilever phase oscillations of polarized areas and as-grown bare BTO surface as well as the presence of the domain wall between external upward domain and as-grown BTO unambiguously evidences the spontaneous downward (toward Pt underlayer) polarization state of the as-grown BTO thin film.

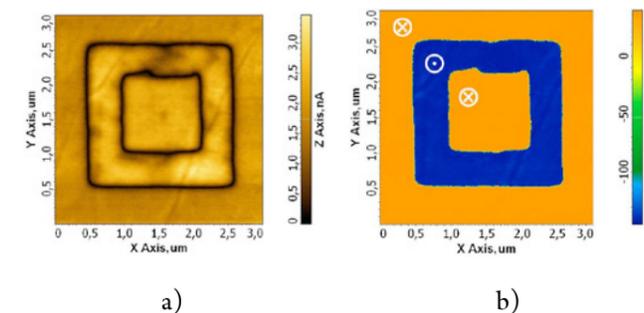


Figure 2. a) Out-of-plane PFM amplitude and b) phase image of a polarization pattern produced by scanning the BTO film surface with the tip under 2.5 V

Sputtered sub μm Au/Cr circular pads 800 nm in diameter are shown in Figure 4c. Local hysteresis and butterfly loops measured through the top elec-

trode exhibit typical characteristics of FE polarization switching (Figs. 4 a and b). These results evidently confirm the presence of the ferroelectricity in BTO ultrathin layer embedded in a capacitor. From the hysteresis loop, the coercive field $E \sim 10^3$ kV/cm for a 3 nm thick BTO epitaxial film grown on Pt underlayer is estimated.

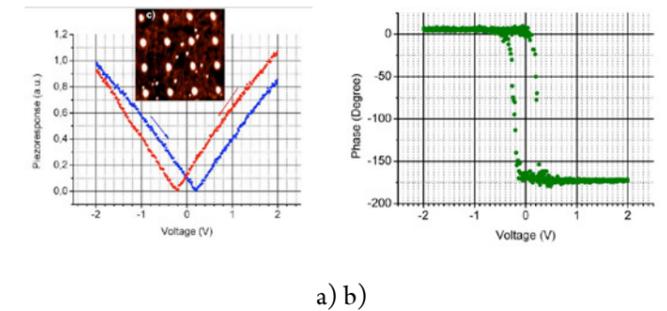


Figure 4. Local a) butterfly and b) hysteresis loops measured through Au/Cr top electrodes c) sputtered sub μm Au/Cr circular pads 800 nm in diameter

Electron transport properties were studied by measuring I - V characteristics for antiparallel domains. Polarization switching was realized by applying $V_{\text{switch}} = 2.5$ V of opposite polarity to a top electrode during ~ 1 s. I - V characteristics were taken in the range ± 200 mV not to disturb the polarization state of the domain. I - V curves recorded for generated antiparallel domains in Figure 5 show a non-linear behavior typical for the conductance in tunnel junctions and a dramatic change in resistance. The resistance changes by almost 30 times for 3 nm BTO tunnel barrier in Cr/BTO/Pt structure upon polarization reversal. These remarkable results clearly illustrate the giant TER effect in Cr/BTO/Pt FTJs.

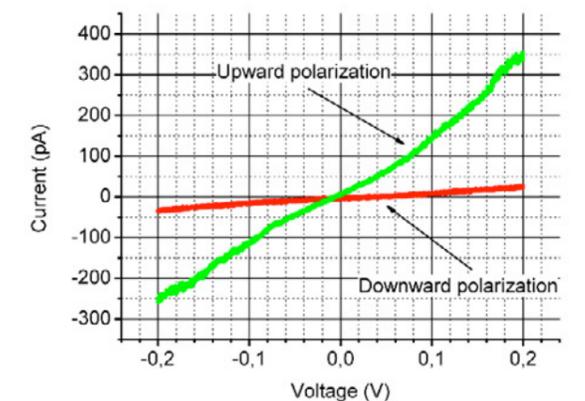


Figure 5. Experimental I - V characteristics recorded on the Cr/BTO/Pt tunnel junction for opposite polarization directions

CONCLUSION

We have demonstrated the ferroelectric properties of heteroepitaxial BTO layers on Pt underlayer grown on a single-crystalline MgO(001) substrate. Furthermore, we prove that the FE functional properties of BTO thin film down to 3 nm retain in a Cr/BTO/Pt capacitor. The TER changes by almost 30 times for opposite polarization directions in Cr/BTO/Pt FTJs with 3 nm tunnel FE barrier has been achieved. The obtained results are of importance in view of possible integration of FTJs into memory devices.

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MOBILE TECHNOLOGY FOR HEALTH CARE TO ASSIST DEVELOPMENT

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One of the great challenges for the development, well-being and progress of the global community is the problem of providing timely, affordable and qualified medical services for the population of low- and middle-income countries. In this respect, the threat for the population can be both noncommunicable and communicable diseases. Given the fact that the majority of political declarations by national governments and international organizations are devoted to the issue of communicable diseases, the author of this report finds it reasonable to consider, in the first place, the problem of extension of noncommunicable diseases in low- and middle-income countries. This approach aims at developing the most effective and the least expensive countermeasures for this very kind of threat.

According to the World Health Organization (WHO), 36 million of the 57 million global deaths were due to noncommunicable diseases, with over 80% in the developing countries. 55% of cancer diagnoses and 64% of deaths from oncological diseases are registered in low- and middle-income countries. Moreover, according to the WHO experts' opinion, in the 21st century one million people can die from smoking that is considered to be the cause of at least 30% of all the deaths from cancer. And 80% of smokers live in low- and middle-income countries.

Noncommunicable diseases in these countries and oncological diseases in particular bring about a dramatic growth of medical costs, which, in its turn, increases the financial vulnerability of families and reduces the chances to spend their income on good-quality food and education. Moreover, a long-term disability for work and permanent payment of cancer treatment costs make many families bankrupt and result in social isolation. Total economic costs due to premature deaths and long-term disability for work caused by oncological diseases alone amount about \$1.16 trillion being about 2% of total global GDP.

REASONS FOR THE EXTENSION OF NONCOMMUNICABLE DISEASES IN THE DEVELOPING COUNTRIES

Before identifying the most effective countermeasures for the abovementioned challenges, a number of important reasons that continue contributing to the extension of noncommunicable diseases and high rate of mortality caused by them in low- and middle-income countries seem worth mentioning.

As a rule, politicians and brainpower of developing countries draw attention to the issues of population poverty and national governments lacking funds to control the extension of noncommunicable diseases. And it is, no doubt, true. If we review the global costs of preventing oncological diseases, the most dangerous kind of noncommunicable diseases, then we see that low- and middle-income countries account only for 5%. However, we deal with a number of reasons, including political, economic, social and psychological ones.

There is no need to emphasize the importance of setting priorities for the state policies in healthcare. In many developing countries such priority is preventing the extension of communicable diseases only, whereas the issues of preventing the extension of noncommunicable diseases, in particular cancer, are not addressed well enough even taking into consideration the limited funds available. This results in a sufficient imbalance of funds distribution. The reasons for such approach in some countries of Asia, Africa and Latin America are psychological and based on the following stereotypes:

- there is no need for cancer treatment and prevention since in low- and middle-income countries the cancer rate is low;
- most low- and middle-income countries cannot afford the costs of cancer prevention, detection and treatment;
- cancer prevention, detection and treatment are not possible because low- and middle-income countries do not have enough human and material resources;

- cancer prevention, detection and treatment in low- and middle-income countries are not reasonable because they take resources that can be used to prevent the extension of communicable diseases as well as diseases that can be treated with better results.

The abovementioned factors significantly influence the issue of medical services affordability in many developing countries. It also includes lack of specialized infrastructure and national programmes aimed at cancer prevention, detection and treatment. For example, Honduras with its population of eight million people has less than 20 oncologists. As for Ethiopia, there are 4 oncologists for over 80 million people. In many countries of South Asia, the hospital admission costs for patients with cancer are 160% higher than for patients with communicable diseases that require treatment in hospital.

Addressing the psychological aspect by defying the abovementioned stereotypes is of crucial importance for defining the adequate countermeasures.

The differences between communicable and non-communicable diseases are gradually losing importance. Some kinds of cancer common for low- and middle-income countries are caused by uncured infections.

Many treatment and prevention measures are less expensive than it is believed. Thus, 26 of 29 key drugs for treatment of the most common curable kinds of cancer are no longer protected by patents in low- and middle-income countries, so the cost of drug therapy is relatively low. In addition, the total cost of the drug therapy required to meet the needs of children under the age of 14 suffering from the most common kinds of cancer in these countries is about \$ 115 million. For low-income countries it became possible to reduce by 90% the price of vaccines against the human papilloma virus and hepatitis B, which cause some kinds of cancer.

According to the WHO experts, the financial problems can be partially minimized by including the measures on early detection of cancer into the programmes developed and funded by national governments and international organizations aimed at poverty alleviation, protection of mother and child's health, HIV/AIDS prevention, etc. In this respect it is important to take into account that the total loss of labour efficiency caused by cancer exceeds the estimated costs of its prevention, detection and treatment.

RESPONDING TO THE CHALLENGES

Given the political, economic, social, psychological and technological problems of low-income countries, the response to the existing challenges should be development of effective and low-cost early detection techniques for noncommunicable diseases, in particular oncological diseases, by using mobile technologies.

They include telehealth as well as compact portable mammographs and tomographs designed by young Russian scientists.

In this report, telehealth is considered as a reliable distant instrumental detection of diseases and collection of patient health data, which can make it possible to:

- eliminate some organizational problems in connection to the successful implementation of the policies aimed at the development and restructuring of healthcare authorities in developing countries
- improving the links between local hospitals and large national medical centers as well as leading global medical centers
- provide continuous professional development for doctors and nursing personnel from remote regions of the country
- reduce morbidity and mortality by improving disease prevention, detection and treatment as well as healthcare management.

There can be a great demand for telehealth both in larger territories (Brazil, Argentina, etc) and in remote territories (islands of Indonesia, Philippines, etc). Using the telecommunication channels to provide medical services can help many developing countries that have few doctors per inhabitant and no medical infrastructure in rural areas.

It has been already mentioned above that a number of developing countries desperately lack oncologists. Moreover, these countries and also some others do not have any possibilities or have very limited possibilities to invite the specialists from abroad. In such situations, it seems reasonable to use telecommunication channels to provide consultations of local doctors with leading specialists of large global medical centers. It is also possible to transmit medical graphics over a distance, which makes such consultations more effective.

There are examples of the effective usage of telehealth in low- and middle-income countries for cancer detection and treatment. Establishing channels between a medical center in Memphis, the USA, and local hospitals in Salvador made it possible to increase the survival rate of children suffering from acute lymphoblastic leukemia from 10% to 60%.

Under the conditions of dire resources shortage, the development and implementation of programmes aimed at promotion of telecommunication in the poorest countries of Asia, Africa and Latin America can make it possible for the local medical staff to carry out chemotherapy after consultations with foreign specialists even if there are no local oncologists.

Thus, one of the key areas in giving help to developing countries by the largest world's economies, international and nongovernmental organizations and business community must be starting more projects to provide their medical institutions with telecommunication channels using the Internet and satellites.

The report suggests considering the development of a UN programme that includes establishing a specialized international medical center whose specialists will use telehealth to provide help to healthcare authorities of developing countries. Such project should involve participation of the leading specialists in early detection and treatment of the most dangerous non-communicable diseases, who will act as the specialized center staff on a staff turnover basis.

Dissemination and active usage of telehealth means in the developing countries may bring about the creation, in cooperation with the World Health Organization, of a database that includes advanced practices in this area.

However, telehealth being an important means of improving healthcare system efficiency in low- and middle-income countries, cannot all by itself ensure carrying out the appropriate early detection of dangerous noncommunicable diseases, including oncological diseases. The effective tools for early detection of oncological diseases can be compact portable mammographs and tomographs designed by young Russian specialists.

Thus, multifrequency electrical impedance mammograph detects malignant tumors at their early stag-

es and also detects non-neoplastic diseases. The key advantages of electrical impedance detection methods are absolute harmlessness of the test, high descriptiveness of the test, simplicity of the procedure and small size and low cost of the equipment. The harmlessness of the electrical impedance mammography method allows using it for screening examination and tests of young women. And the portability of the equipment allows using it in the regions where there is no fixed equipment at all. All these factors can contribute to the dissemination and effective usage of this disease detection equipment in many developing countries.

The development and implementation of navigational detection systems can also be an adequate response to the challenges. It is accounted for by the fact that one of detection methods is computer aided analysis of medical tests that is based mainly on digital codes. Therefore, any detection equipment should include such navigational system. This will help to facilitate the visual detection of the disease regardless of the doctor's experience and skills and will reduce the possibility of detection errors because the image is acquired by using a complex electronic, digital and computer equipment and the data are interpreted by the doctor based on his/her personal opinion.

The participation of the Russian Federation in the global healthcare is constantly growing. It includes not only participation of Russian representatives in such recognized international forums as high-level meeting of the United Nations General Assembly on prevention and control of noncommunicable diseases but also direct help to developing countries.

For example, the Russian Federation appropriated \$36 million for the programme aimed to help the developing countries to control noncommunicable diseases. Given the impact of noncommunicable diseases on the mother and child's health, our country, being a member of the "Big 8", developed a five-year programme on decreasing infant mortality in the developing countries and appropriated \$75 million for the programme.

I really hope that some funds contributed by the Russian Federation as well as by other leading states of the world and international organizations to help the developing countries will be used to develop mobile technology for healthcare in the poorest countries of Asia, Africa and Latin America.

IMPACT AND SIGNIFICANCE OF AEROSPACE SCIENCE POPULARIZATION TO REGIONAL AND INTERNATIONAL RELATIONS - TAKING CHINA AS AN EXAMPLE

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Abstract: Focusing on China as an example, this paper discusses and analyzes the potential interrelation and impact between aerospace science popularization and political relations. Around this theme, this paper stretches out to make observation of impact and significance of aerospace science popularization in two levels---regional and international. Through detailed discussion of two China's case with Hong Kong and the U.S, this paper finally get the conclusion that aerospace popularization has initial values to avoid political difference, religious conflicts and idea divergence, but to achieve national reconciliation. In addition, cooperation like aerospace popularization organizing by government and multinational corporation values more to the human society rather than military competition, and it need more attention and force to promote aerospace popularization.

Keywords: Aerospace Science Popularization, Multinational Enterprise, Regional and International Relations,

1. INTRODUCTION

Since 1960s, it has been witnessed that more and more nations flew into sky and began to explore space¹. Meanwhile, the profits and influence that the innovation and technology of aeronautics and astronautics bring to the human society have become gradually important to each nation and area in the world. With the accelerating globalization going hand in hand with aerospace development, the immense effect of aerospace industry becomes increasingly prominent to regional and international relations, on account of its distinct and significant economic and military functions.

Hence, rational development and utilization in aerospace hold considerable realistic significance in the fields of protecting international security and peaceful development, promoting global govern-

¹ John J. Klein, Space Warfare: Strategy, principle and policy, London and New York: Routledge, 2006

ance and regional integration, and serving mankind common interests. However, while most attention to impact of aerospace industry to international relations is concentrating on the economic and military level, the unique function of aerospace industry in national diplomacy are rarely noticed, especially in promoting political dialogue, strengthening regional and national emotion communication. In this paper, taking China as an example, discussion is focused on the national diplomacy attaining by aerospace science popularization, which is always leading by governments or multinational corporations. Then, analysis is stretched out to the impact of aerospace science popularization to regional and international relations.

2. AEROSPACE POPULARIZATION IN REGIONAL LEVEL-CHINA AND HONG KONG

2.1 Status quo of regional relation between Chinese mainland and Hong Kong

In the contemporary epoch, under the background of deepening globalization, regional relations---a barometer of interests in neighborhood---has gaining increasing attention by governments in the world, which have the direct bearing on regional integration. Hence regional relation is of the utmost importance to a thriving area and peaceful and developing world situation. However, a piece of paper would not build good relations in an area and bury difference. Positive regional relations actually needs political mutual trust and especially favorable mutual sentiments to build exchanges, dialogue between people---executives of economic and cultural communication and interaction.

Hong Kong, as a special administrative region of China and the best example of "one country two system" policy, has maintained its flexible capitalist economic system since its return to China. The bilateral ties between Chinese mainland and Hong Kong, is

growing to be one of the significant regional relations in the Asian-pacific area in 21st Century. Since the reform and opening-up of China, Hong Kong is the essential resource to delivery overseas talent to support a development of Chinese mainland. Nowadays, Hong Kong is still the largest foreign investment source as well as the largest investment destination of Chinese mainland. According to the China's General Administration of Customs, in the past 2012, Hong Kong replaced Japan and grew to be the fourth-largest partner of Chinese mainland with the bilateral trading volume is expected to reach 341 billion USD, accounting for 8.5% of China's total trade this year.

However, even Hong Kong has leaded such significant economic and political relations with Chinese mainland. Favorability in Hong Kong about Chinese mainland is not as high as it expected to be. Rift arose with the difference of economic system and social values between each other, particularly when the event that mainland residents fall over each other to delivery children in Hong Kong become more serious.

2.2 Aerospace popularization leading by Chinese government

While Chinese mainland and Hong Kong might have some values gap; aerospace communication and popularization activity is still the most effective and successful bilateral exchange between Chinese mainland and Hong Kong. Since the successful launching of "Shenzhou V Spacecraft" in 2003, Beijing has established series regular aerospace popularization activity in Hong Kong, helped by the aerospace rage triggered by the success of "Shenzhou" spacecraft. The aerospace popularization activity covers from air show to science camp, from interaction between astronauts and young students to workshops between space experts and university professors^{2,3,4,5}. The following table briefly shows the key activities containing in the aerospace popularization activity in Hong Kong mainly organizing by Chinese government after the launching "Shenzhou" manned spacecraft of since 2003.

Table 2.1 Aerospace popularization activity in Hong Kong mainly organizing by Chinese government

Year	Event	Aerospace popularization Activity in Hong Kong	Participants	
			Mainland	Hong Kong
2003	Shenzhou V Launching	·Flag-raising ceremony ·Public speech in city hall ·Aerospace Exhibition ·Face to Face with citizens	·Astronauts ·Aerospace Experts ·Government Officers	·Students ·Citizens ·Scientific and technic workers ·Celebrities
2005	Shenzhou VI Launching	·Experts panel discussion ·Face to Face with elementary students ·Joint performance by astronauts and stars	·Astronauts ·Aerospace Experts	·Students ·Citizens ·Scientific and technic workers ·Athletes ·Celebrities
2008	Shenzhou VII Launching	·Aerospace Exhibition ·Face to Face with college students and elementary students ·Joint performance by astronauts and stars	·Astronauts ·Aerospace Experts	·Students, ·Citizens, ·Scientific and technic workers ·Celebrities
2012	Shenzhou IX Launching	·Aerospace Exhibition ·Face to Face with elementary students and citizens especially women ·Panel discussion with college students and experts ·Science camp for elementary students	·Astronauts ·Aerospace Experts ·Students	·Students ·Citizens ·Scientific and technic workers ·Celebrities

From the above material, we can find the following characters and trend of this aerospace popularization activity:

- This aerospace popularization activity has a wide range of people coverage in Hong Kong, including residents from different classes and ages.
- Activity content has gradually changed to focus on science and cultural exchange and caring more about ordinary citizens, especially youth, rather than the former accomplishment propaganda.
- Activity form grows to be more diverse and interaction between youth in the two regions wins more attention and promotion.
- Such aerospace popularization offers unique opportunity for each other in professional cooperation.

Comparing to the report of other cultural exchange between Chinese mainland and Hong Kong by Hong Kong media, such aerospace popularization activity would always win far more passionate attention. For example, over 4000 free tickets to the face to face activity between astronauts, space experts and Hong Kong citizens always went in no more than one hour. Even people would have different perspective to the launching of spacecraft itself or to the relating aerospace popularization; it is undeniable that the science popularization activity has drawn the attentions of all social circles in Hong Kong. The aerospace popularization, makes people do not concern too much about the difference of social values and political beliefs, but focus on the pure science and technology, which makes it easier to build communi-

² The state council information office of P.R.C, announcement of "Shenzhou V" deputation's visit to Hong Kong, 2003

³ The state council information office of P.R.C, announcement of "Shenzhou VI" deputation's visit to Hong Kong, 2006

⁴ The state council information office of P.R.C, announcement of "Shenzhou VII" deputation's visit to Hong Kong, 2008

⁵ The state council information office of P.R.C, announcement of "Shenzhou IX" deputation's visit to Hong Kong, 2012

cation and interaction from between well-educated scholars to ordinary people. Another remarkable point is that, significant high-tech accomplishments like launching manned spacecraft are always more exciting and breathtaking than success in daily life field, thus its relative activity are more easily to promote national identification, which might be one of the reason for the space rage in Hong Kong.

In summary, from the case between Chinese mainland and Hong Kong, communication created by aerospace popularization is not only apt to avoid sensitive problems, but also to find the common interests between each other to improve regional relations.

3. AEROSPACE POPULARIZATION IN INTERNATIONAL LEVEL-CHINA AND U.S

3.1 Status quo of regional relation between China and U.S

International relations, as one of the most significant reference for each country to make domestic and diplomatic policy, have penetrated to all areas of human society while supporting by much broader applicable theory. As space environment are owned by all human-beings, experts in aerospace laws maintain that any aerospace problems are essentially issues of international relations. In turns, it can be observed that all those aerospace-relating issues will have associating impact to the international relations.

As the western mainstream media illustrated⁶, the bilateral relations between China and the USA are the most important international relations in the 21st Century. A constructive cooperating relation based on mutual respect and mutual benefits not only can serve both countries interests, but also is a positive power to promote a peaceful and thriving world.

3.2 Aerospace popularization leading by multinational company---Boeing

Supported by multinational corporation Boeing Company, "Soaring with Your Dream" is a technology and engineering oriented aerospace popularization program to build sustainable growth and encourage the study of science and technical subjects in Chinese schools.

Launched in 2008, this program has been consecutively implemented 4 years until 2012. According to incomplete statistics and Boeing Citizenship Report 2011⁷, since the successful launching of this program in Beijing, more than 45,000 elementary school students were able to have access to professional aviation science courses and experienced designing, building and flying a model aircraft. The program initially started with more than 200 science teachers from 172 elementary schools in Beijing, then was expanding to Xi'an in 2011, Tibet and mountain area of Shanxi in 2012. Until the first half of 2012, more than 898 science teachers have attended more than 28 available aviation knowledge training through this program and they have opened aerospace courses for students with a teaching period adding up to 17071 hours. Meanwhile, 52000 aircraft model and study materials were released and the program courses have become school-based curriculum in more than 200 elementary school⁸.

Now, "Soaring with your dream" program contains mainly four sections:

- Course section: Introducing students aircraft industry development in the nearly a century, as well as classification of aircrafts, flying theory and basic aerodynamics.
- Hands-on activity section: Developing creative students with practical and researching ability through design build and fly model aircraft.
- Tour section: Acquainting students with aerospace history and popular science knowledge through aviation summer camps and aviation exhibitions especially designed for students.
- Competition section: Cultivate students' creativity to combine practice with knowledge they learned to solve practical problems.

Predictably, Boeing would be successful in China, since this company does not regard the nation just as a promising market but also as a place to develop suppliers and invest in the country's people and their communities. In fact, such aerospace popularization program leading by multinational corporations has built a communication bridge not only from company to market, but also from country to country, which can be observed from the following material.

⁷ BOEING MANAGEMENT COMPANY, 2011 Corporate Citizenship Report, 2011

⁸ China Civil Aviation, The 2012 "Soaring with Your Dream---Boeing Aviation Science Education Activities" launched in Beijing, Beijing, 2012(6)

According to our small-scale survey of 11 questions among around 300 students in three elementary school benefited from Boeing's aerospace popularization program in Beijing, we have attained information about students' perspective to the Boeing company and relating China-U.S relation, concluded in the following table.

Table 3.1 Result of small-scale survey to participants of "Soaring with your dream" program

Question	Summary of Answers	Note
1. Do you know the Boeing Company?	99% of the Students choose "Yes" while the other 1% students choose "No".	2 options of yes and no
2. How do you learn about the Boeing Company?	65% choose the option "from the 'Soaring with your dream'", 23% choose "from media or internet" and 12% choose else	
3. Do you know Airbus Industries?	76% of the Students choose "Yes" while the other 23% choose "No".	2 options of yes and no
4. Boeing or Airbus, which company and their aircrafts do you prefer, please list your reasons.	68.5% choose "Boeing" while the rest of 31.5% choose "Airbus"	71% among the students who choose Boeing mentions that the aerospace popularization program as a reason while students who choose Airbus render answers of wide variety from aircraft appearance to travelling comfort
5. Would you like to engage in work relating to aerospace industry?	32% of the Students choose "Yes" 47% choose "No idea", and the rest 21% choose "No"	
6. Would you like to buy aircrafts from Boeing Company if you engage in civil aviation work in the future?	83% of the students choose "Yes" while the rest choose "No"	2 options of yes and no
7. Please indicate the locating country or area of Boeing's headquarters as well as Airbus's.	87% of the students give answers that Boeing is from the U.S, while 43% gives Europe as the answer to Airbus.	All the Other answers that haven't be counted have nothing to do with U.S or Europe.
8. How's your impression to the American teachers of the "Soaring with your dream" program	89% of the Students choose "Positive", 8% choose "No idea", and the rest 3% choose "Negative"	
9. How's your impression to the American people	58% of the Students choose "Positive", 5% choose "No idea", and the rest 37% choose "Negative"	
10. If you have a chance to study abroad, while would you like to go?	74% of the students write the U.S as their answer, while the rest renders answer focused on Europe, Oceania and East Asia.	Open-ended question. No one wrote Latin America or Africa as their answer.
11. Would you like to make contributions to the relation between China and the U.S	87% of the Students choose "Yes", 10% choose "No idea", and the rest 3% choose "No"	

Although the sample's coverage is a little narrow, the result is still surprising when bilateral relations between China and the U.S are rather complicated because of each other's distinct history and culture.

From the above result, we can get several pre-suppositions:

- Most of those students who will be engaged in aviation or space work, they would hold favorable impression to the Boeing Company.
- Most of the participants would have associating favorability to the U.S and its people when showing great impression to this program.
- Perceivably, elementary students show great interests to this aerospace popularization program as

Boeing provide them so much omnidirectional access to aviation which is very rare in high-tech fields. Actually people, especially youth and children are prone to be attracted by high-tech like aerospace technology since it's always reserved as commercial or national secrets. Thus, any knowledge or news related to high-tech would psychologically much easier to be accepted and make people satisfied on account of its rarity, as well as to build trust and promote favorability between people.

Hence, the success of Boeing's aerospace popularization program actually is also the success of the U.S⁹, since it will sale out more planes and relative products while high-tech trade takes high proportion in the national revenues, and the U.S enjoys associating great impression from participants of this program. The most important elements of international relations---economic interests and cultural emotional interest are realized by multinational corporations through inconspicuous aerospace popularization.

4. CONSEQUENCE ANALYSIS AND REVELATION

From the past space race in cold war period to nowadays aerospace cooperation and militarization current of space, it is not difficult to find that aerospace issues have a tight relationship with politics. Actually, almost every aviation and space activities aims for certain political reason, and is motivated by political and country's needs. Hence, there is no wonder that military element is concentration since the beginning of the aerospace age. However, excessive emphasis on space might blind us to other beneficial fields in aerospace industry, especially the trend and motivation of international aerospace cooperation.

Stretching from the above case of aerospace popularization in regional and international level, we can observe the following point:

- Aerospace popularization, as pure science and technology communication, is separated from nationalism and political sentiment, which makes it easier to establish dialogue and interaction between people of different political pursuit, religious belief and social values.
- Appropriately high-tech communication through aerospace popularization is conducive to

⁹ Sheng Bin, American New Strategy of Asia-Pacific Regional Integration and China's Policy: An Insight of Development of Trans-Pacific Strategic Economic Partnership, Nankai Journal(Philosophy, Literature and Social Science Edition), Tianjian, 2010(4)

⁶ BBC NEWS, Clinton seeks stronger Asia ties, 2009

national reconciliation, national identification.

- Aerospace popularization is the stepstone to the regional or international professional cooperation.
- High-tech like aerospace technology is more attractive to ordinary people, especially to the youth, who are the mainstay to develop future international relations.
- Communication connected with high-tech like aerospace popularization are more easily to break emotional barrier, as well as to build trust and promote favorability between people of two countries.

Hence, aerospace popularization between regions and nations should not be neglected as simple education program or part of cultural exchange. A vigorous promotion of aerospace popularization is of utmost pragmatic significance to build constructive regional and international relations.

CONCLUSION

With increasing numbers of nations mastering the technology to exploit space, human society is obtaining more benefits from aerospace technology and activity. Countries around the world have increasingly realized the significance of aerospace technology. However, blindly military considerations in aerospace industry will only lead the world back to the path to war¹⁰. Meanwhile, tremendous expenditure and sophisticated technological reserve make no country can get great achievement in aerospace industry alone¹¹. To the contrary of military competition, aerospace popularization in regional and international level, as one form of space cooperation, has subtle and profound impact to regional and international relations. Aerospace popularization has initial values to avoid political difference, religious conflicts and idea divergence, but to achieve national reconciliation. Therefore, though may face lots of challenges, international cooperation on aerospace issues should become the inevitable choice and trend, and aerospace popularization should get enough attention on account of its unique and significant values to regional and international relations.

¹⁰ Roger.Maurice Bonnet, International Cooperation of Space and China, International Talent, Beijing, 2011(5)

¹¹ Reng Shufang,Li Hui, An Open Chinese Space Industry Helpful For International Cooperation——An Interview with IAF President

PREVENTING UNWANTED EVENTS WITH POWER OF SOFTWARE

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INTRODUCTION

Software cannot be separated from our daily lives. It is so involved that it can cause serious accidents. This essay first discusses two major types of losses in our lives which are related to software, including several case studies. Measures can be taken to address those problems are considered in the next chapter. Next, an ongoing research on one of the measures conducted by the author is introduced, followed by the conclusion.

Death and Injury

Heavy equipment nowadays is controlled with software such as factory robots and power plants. Hence, software defects can lead to death and injury of people.

Case Study: Fukushima Nuclear Power Plant

Fukushima nuclear power plant experienced a serious incident in March 2011 at a massive earthquake, followed by an overwhelming tsunami. The shock broke down its cooling system, and that caused a rise of temperature in the reactors, followed by explosions of them. This series of accidents resulted in diffusion of radioactive materials into the atmosphere and the ocean.

There are three major causes for the unwanted event. Firstly, the power plant was not designed to cope with such a massive earthquake, which was reported to happen once in a thousand years. Secondly, effective measures were not taken immediately after the accident. The operators could not come close to the plant to cool down the plant manually due to the nature of radioactive. The electricity company had no choice but to dispatch few of their technicians into the plant with insurance for their exposure to the radioactive. Thirdly, decisions were made rather slowly because the government officials and the executives of electric power company lacked knowledge and leadership.

There is considerable room for software to contribute for this sort of accidents not to occur. What if the plant had prepared a protection system for emergencies connected with earthquake monitoring centers, the system software stopped the reactors any sooner,

and any more decisions were made automatically according to prepared criteria.

Financial Loss

Software systems can also cause critical financial losses. Most of financial transactions in the world are done on computers, and cash is barely used when it comes to large transactions. Therefore, once a transaction system stops, it causes a significant loss.

Case Study: Tokyo Stock Exchange

Tokyo Stock Exchange, one of the three biggest stock exchange markets in the world along with London and New York, stopped its exchanges in the middle of the trading hours in January 18, 2006. The system could not handle too many people selling their stocks of IT companies. On the day before, an IT company called Livedoor had a criminal investigated by the police for illegitimate stock transactions. This incident was shocking for many Japanese people who were highly involved in stock dealing at that time for two reasons. Firstly, the economy in Japan was recovering from the severe recession since 1989. Secondly, Livedoor was attracting many individual shareholders like many other young enterprises. This event largely affected a loss of 40 billion USD of market capitalization in the whole Japanese market in a few days.

There were two causes for this incident. Firstly, stockholders had no time before the start of next trading hours after the investigation so that everyone tried to sell their stocks in loss of information and analysis. If they had broadcasted that Livedoor was illegal on Friday instead of Thursday, the stockholders could have a second thought on the weekend and might have stopped themselves from rushing to sell their stocks. Secondly, the stock exchange system was too old to deal with the increasing number of trades. Stupidly, the system was only capable of dealing with 4.5 million transactions a day even though there were 4.0 million daily transactions.

POSSIBLE MEASURES

There are several different perspectives to reduce

such accidents related with software systems: ergonomics, risk analysis, elaborate security requirements, and quick recovery. These four options are going to be discussed with a glimpse on preceding researches.

ERGONOMICS

Ergonomics could be considered to improve software systems in this aspect. Ergonomics is an academic discipline to design equipment and devices suitable for human body and its cognitive abilities. Software systems designed with consideration for human factors will reduce their risks of unwanted events because software systems function only when their operators work as expected. For example, a system which requires manual monitoring of every 5 minutes would easily fail in proper operation because the chances are high that the operators would be distracted by phone calls, visitors, and sleeps.

There has been research from this point of view. For example, mechanical products have been focused to apply human factors and ergonomics (Robert et al. 2012). They created a methodology of design with aid of computer modeling and simulation. With the methodology, designers can test their ideas on the computer screen in accordance with human body factors so that they can save design cost by not creating heaps of fail prototypes.

However, it has been implied that human factors are not generally considered in the engineering field (Madni 2009). Madni suggests three steps for ergonomics in engineering to be practiced: to structure knowledge of human performance to incorporate human factors into software systems, to inform the industry that human-system integration is valuable, and to change the way of thinking of those who are involved in software and system engineering.

RISK ANALYSIS

Risk analysis can enhance the quality of software systems. Ideally, all risks should be considered and suitable measures taken when software systems are implemented, but it is impossible because time and money used for to design and implement a system are always limited. Therefore, a best way to make the most of the limited amount of resources is to rank the risks according to their level of danger so that the system can avoid most unwanted events.

There would be a discussion on how to rank risks. If financial loss is considered as the scale, risks of system

breakdown will be the highest. If burdens on the environments are considered, risks of poisonous chemical leakage will take the place. In case human lives are the first priority, risks for human safety will be the most important.

A framework to create cost-effective system has been proposed (Asnar 2010). Asnar has implemented a working system for risk analysis. The framework suggests alternative solutions for a risk, and evaluates and assesses the solutions against the risk. This research has made significant results and therefore promising.

ELABORATE SECURITY REQUIREMENTS

It is also important to fully implement security functions. Security functions are based on security requirements in the requirements specification of the system. Hence, it is meaningful to analyze the security functions to be implemented and clarify what security requirements are needed.

There are roughly three approaches to address this matter. Firstly, formalized style of security requirements can help comprehension of others. It would be better that many people write their security requirements in the same style rather than each of them writes in different style. Secondly, the whole process of generating security requirements from security functions could be automated with aid of computer so that we do not have to bother ourselves to consider whether there is still any missing requirement or not. Thirdly, security requirements can be manually double-checked by colleagues of the author, and this is the easiest method to practice among the three.

QUICK RECOVERY

Software systems ought to recover as soon as possible by themselves on shutdown. It is because no matter how well a software system is designed and implemented, it is inevitable for it to shutdown when electricity is accidentally cut or the system is physically damaged.

For all computer systems that work on electricity can be secured with optional battery in terms of energy. This method is broadly practiced because it is easy to implement. However, at the power plant accident featured in a previous chapter, the optional battery for the cooling system did not work because it was damaged by the tsunami. Therefore, it is better to have multiple battery or protection for the battery to secure the system.

In terms of data protection, a technology called RAID is widely practiced and has been successful. It is to prepare multiple hard drives for data of one drive's amount. With this technology, the system records its data into more than one drives at the same time, and when one of them breaks and the system cannot access the drive, the system still can the same data in other drives.

It is also important to clarify the cause when the system breaks down so that its operators can take effective measures if the system cannot fix the problem automatically. The Tokyo Stock Exchange had a sudden shutdown in another time and the operators could not fix it for hours because they did not know how the system stopped at the first place. In fact, they have updated the software, but the older one remained, and both two software applications ran and edited a same database.

RESEARCH OF THE AUTHOR

My research aims to reduce defects of security requirements description in Security Target. Security Target is a style of security documents formalized by an international organization, Common Criteria.

My research topic targets one of the perspectives named Elaborate Security Requirements. I am particularly interested in this area because computer automation can contribute in this field the most. In the other areas, computer contribution would be limited to some extent.

I aim to achieve the elaborate security requirements with aid of Security Target because it is formalized, and therefore, computer automation could easily applied. In order to achieve this, two main goals have to be set. Those are natural language processing and formal concept analysis. For computer to understand what is written in Security Target, the natural language used to write the document has to be analyzed first. Thereafter, all the components of the document have to be conceptualized, or structured in accordance with the information of components.

I target those two main goals because there is room of connecting this technology with other computer automation in requirements specification. For example, a requirements elicitation method called GORA (Goal-Oriented Requirements Analysis) has been proposed. In this method, the user set a goal to be achieved, and

break down the goal into several sub-goals. After several times of this procedure, the user can obtain small goals simple enough as requirements.

With aids of GORA, an automatic requirements elicitation method has been researched. Security Target is, as mentioned before, easy to conceptualize because it is a formalized style of documentation. Therefore, if GORA and the structured knowledge obtained from Security Target are combined, there is a possibility for an automatic requirements elicitation method (Saeki 2009).

My research topic is mainly about how to process natural languages in the Security Target documents, and how to analyze the information obtained from the natural language processing. For the former part, the methodology to be used will vary depending on the language used.

CONCLUSION

Unwanted events caused by software defects could be serious. This problem can be approached from several ways and some of them have been successfully researched and practiced. Among those areas, I have chosen elaborate requirements elicitation to address. For future work, I would like to successfully implement my ideas and improve software security in the society.

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THE ART OF VIRTUALIZATION SECURITY

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INTRODUCTION

The use of virtualization technologies allows gaining a number of advantages over the “physical” approach, including, in particular, efficient resource utilization, a possibility to quickly deploy new applications, reduction of equipment operation costs, etc. As a result, today virtualization is one of the most important and fast-developing trends in enterprise computing.

The main problem slowing down the speed of spreading this approach in Russia is the need to configure the infrastructure in accordance with the requirements established by regulatory authorities, which initially were not intended for virtualization. This fact makes the transition towards a new infrastructure type difficult, in particular, in working with personal data. Finding a solution to this problem would contribute to applying virtualization and trigger working out of a specialized framework regulating the issue of data security in virtual environments, which will “open the doors” to this technology.

The aim of this research work was to formulate well-grounded principles of ensuring virtual infrastructure security and to develop a product on their basis. This solution allows settling the problem of complying with current requirements established by regulatory authorities and serves as a foundation for a new regulatory framework.

VIRTUALIZATION OVERVIEW

This article focuses on the form of virtualization known as full virtualization. According to¹ in full virtualization, one or more operation systems (OS) and the applications they contain are run on top of virtual hardware. Each instance of an OS and its applications runs in a separate virtual machine (VM) called a guest operating system. The guest OSs on a host are managed by the hypervisor, also called the virtual machine monitor (VMM), which controls the

flow of instructions between the guest OSs and the physical hardware, such as CPU, disk storage, memory, and network interface cards. The hypervisor can partition the system’s resources and isolate the guest OSs so that each has access to only its own resources, as well as possible access to shared resources such as files on the host OS. Also, each guest OS can be completely encapsulated, making it portable. Some hypervisors run on top of another OS, which is known as the host operating system.

There are two forms of full virtualization (figure 1): bare metal and hosted. In bare metal virtualization the hypervisor runs directly on the underlying hardware, without a host OS. In the other form of full virtualization, known as hosted virtualization, the hypervisor runs on top of the host OS. Hosted virtualization architectures usually also have an additional layer of software (the virtualization application) running in the guest OS that provides utilities to control the virtualization while in the guest OS, such as the ability to share files with the host OS.

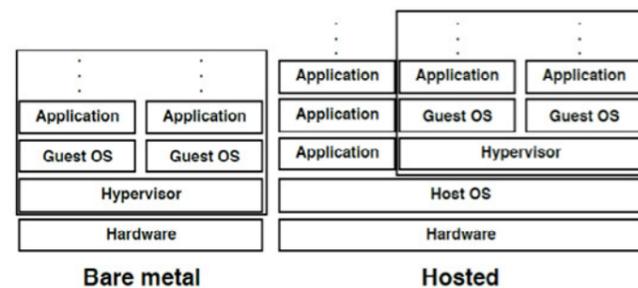


Figure 1. Virtualization Architectures

According to a report of Gartner analytical company dated 2012², nowadays the three leaders include such solutions as VMware vSphere, Microsoft Hyper-V and Citrix XenServer (figure 2). All of them are bare metal. For that reason in this work the preference was given to this very architecture.



Figure 2. Magic Quadrant for x86 Server Virtualization Infrastructure

VIRTUALIZATION SECURITY

The popularity of virtualization led to the development of a market of security tools for these technologies. A growing number of manufacturers offer their solutions for virtual environments. However, many of these are not adapted, which leads to a loss of advantages provided by virtualization. Moreover, the protection logic implemented in these data security tools often does not take into account new elements of virtual infrastructure, such as the hypervisor or the virtual environment management system. As usual, the best solution will be a combination of ideas taken from classical and adapted approaches³.

Finally, How to Protect?

According to the regulatory document of the Federal Service for Technical and Export Control “Automated systems. Protection from unauthorized access to information. Classification of automated systems and requirements to data security”⁴, in order to ensure the security of data processed in multi-user automated systems, in which information of different confidentiality levels is processed and (or) stored simultaneously and not all users have equal rights of access to all information of the automated system, three security subsystems should be implemented:

the integrity control subsystem, the access control subsystem and the registration and accounting subsystem.

The requirements connected with the *access control and the registration and accounting subsystems* are not considered in this work, because they are expressly represented in the regulatory framework and do not need any comments. The only aspect to be taken into account in their respect is the application of these requirements to new elements, such as the hypervisor and management services.

In order to formulate the list of requirements to the integrity control subsystem we need to separate logic levels of work with virtual infrastructure and the elements contained in each of them.

Considering the architecture of three leading bare metal solutions allows pointing out the following abstractions: the hypervisor, the VMs processed on it and the services managing the virtual infrastructure.

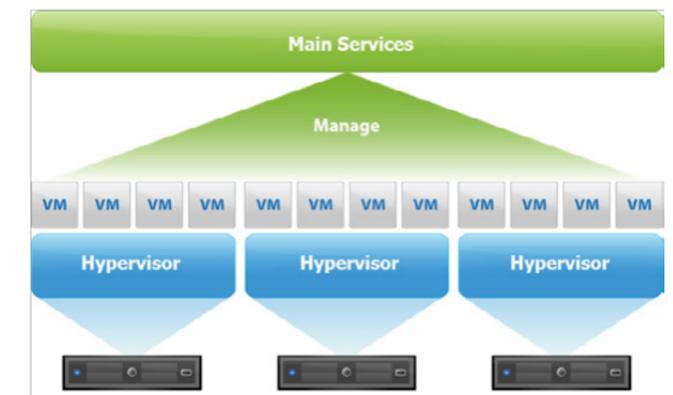


Figure 3. Architecture of Virtual Infrastructure

In its turn, in order to obtain a possibility to work inside the VM, the following steps should be taken^{5,6,7}: switching physical servers -> starting up the main OSs (the hypervisor OS / OS with management services) -> switching management services -> sending a signal of switching the VM -> processing the signal by the hypervisor -> switching the VM.

On the basis of the formulated object types and the stages of system startup, the following levels can be separated:

0 level – “foundation” contains physical equipment

⁵ Chaubal C. The Architecture of VMware ESXi. (n.d.). Retrieved January 2, 2013, from http://www.vmware.com/files/pdf/ESXi_architecture.pdf

⁶ Technical and Commercial Comparison of Citrix XenServer and VMware vSphere. (n.d.). Retrieved January 2, 2013, from http://www.citrix.com/site/resources/dynamic/salesdocs/Citrix_XenServer_Vs_VMware.pdf

⁷ Hyper-v architecture. (n.d.). Retrieved January 2, 2013, from [http://msdn.microsoft.com/en-us/library/cc768520\(v=bts.10\).aspx](http://msdn.microsoft.com/en-us/library/cc768520(v=bts.10).aspx)

¹ National Institute of Standards and Technology. (2011). Guide to Security for Full Virtualization. (Special Publication No. 800-125). U.S. Department of Commerce

² Bittman, Weiss J., Margevicius A., Dawson P. (Jun. 2012). Magic Quadrant for x86 Server Virtualization Infrastructure. Retrieved January 2, 2012, from <http://www.gartner.com/technology/reprints.do?id=1-1B2IRYF&ct=120626&st=sg>

³ Ugarov. D. (2012) Approaches to virtual infrastructure security // Complex data security. Security of information technologies. Materials of the XVII International conference, Moscow, 2012. p. 248

⁴ Federal Service for Technical and Export Control of Russia. (1992). Regulatory document. Computer equipment. Protection from unauthorized access to information. Indexes showing the degree of security from unauthorized access to information

1 level – “core” contains the hypervisor and the OS for management services

2 level – “service” contains the services managing the infrastructure

3 level – “VM” contains virtual machines

Currently in non-virtualized systems startup and work in a trusted environment are possible due to hardware and software complexes (HSC) consisting of a trusted startup hardware module and access differentiation software interacting with each other. The basis of these complexes is the principle of step-by-step control (*in order to control data on the i -th logical level of their representation, the use of procedures of the $i-1$ -st level preliminary checked in terms of their integrity is needed*). Since this approach was long ago adopted by regulatory authorities, an obvious and certainly right solution will be to extend this approach and apply it in virtual environments.

Since the work of an OS does not depend on the environment, in which it runs, the only additional requirement is to work out a technology of control the transition from the 2nd to the 3rd level. This requires trapping the request for switching the VM, checking its integrity and sending the signal to the hypervisor in case of a positive result. Trapping the request is a purely technical task, and its solution depends on provided API and reverse engineering skills. In fact, the task resolves itself into settling the question of VM control.

A VM is a set of files, which, unfortunately, varies depending on the product. However, these files can be divided into two categories:

1) Static – i.e. the files, which do not change when switching the VM, and change only in case of introducing changes to the configuration. For example, the equipment configuration file (.vmx/.xml) into the BIOS file (.nvram).

2) Dynamic – i.e. the files changing in case of switching the VM. These files include the VM hard disk images (.vmdk/.vhd).

In making a comparison with the physical world it becomes obvious that in order to control the VM, it is enough to control static files and critical files within the dynamic hard disk images. Note that the same tasks (*though for “real” devices, not for virtual implementation in the form of files*) are already performed by the trusted startup hardware module. Thus, it is

needed to additionally implement a similar solution at a higher level in the form of software. The work with virtual hard disks is also a purely technical task, as there exist relevant specifications^{8,9}.

Moreover, while working with dynamic files one needs to take into account two aspects:

1) Work with snapshots – in this case it is necessary to control the files not only in the current state of the virtual disk, but also in all previous saved states.

2) Switching the VM into the suspend state. In this case a file is created, being a dump of the core memory, which leads to two potential problems: first, after its creation it is necessary to block any addressing to this file until the full calculation of checksum (and this can last very long, since the maximum supported size of the internal memory for a VM currently makes up 512GB); second, a dump can contain passwords and other important data, which makes it very vulnerable. Thus, the best solution is to prohibit the use of this VM state.

As a result, meeting current criteria of the regulatory authorities does not require introducing new paradigms, which is not right, since the companies, in fact, may provide solutions, without having considered specific characteristics of virtual environments in full. This once again proves the necessity to introduce amendments to the regulatory framework, which would specify general requirements to environment characteristics.

Final Requirements to Integrity Control Subsystem

The obtained results obviously show that the integrity of the software environment at all levels, as well as the integrity of all security modules, should be ensured in the virtualization infrastructure.

1. Before booting the virtualization server the integrity of the following elements should be ensured:

- 1) Equipment of the server
- 2) BIOS of the server
- 3) Files of the hypervisor
- 4) Security tools installed on the hypervisor

⁸ Virtual Disk Format 5.0. (n.d.). Retrieved January 2, 2013, from http://www.vmware.com/support/developer/vddk/vmdk_50_technote.pdf?src=vmdk

⁹ Microsoft Corporation. Virtual Hard Disk Image Format Specification. (1th ed.). (2006)

2. Within virtual machines the integrity of the following elements should be controlled:

- 1) Static files of the VM
- 2) Files of the guest OS
- 3) Security tools installed on the guest OS

3. Within management servers the integrity of the following elements should be controlled:

- 1) Equipment of the server/ BIOS of the server
- 2) Files of the OS
- 3) Files of the system managing the virtualization infrastructure
- 4) Security tools installed in the OS

4. The integrity of machines with additional virtualization infrastructure services should be ensured in a similar way to virtual machines in case they are installed in the VM, and in a similar way to management servers in case they are installed in the physical servers.

Practical implementation

The practical result of this research work is a hardware and software complex for the most popular virtualization solution VMware vSphere 5. It includes the greatest amount of the existing groundwork related to physical environments and minor improvements at all levels (figure 4).

Notes: VMware hypervisor is called “ESXi”, and the main management device is called “vCenter” (to be installed on Windows Server 2008 R2)

0 level – using of a trusted startup hardware module on all servers being used (TSHM - trusted startup hardware module for IBM-compatible PCs) – necessary additional requirements: support of GPT (GUID Partition Table) and ext (Extended File System)

1 level – using of an access differentiation device in the OS with vCenter, adding of an access differentiation device to the hypervisor (in case of ESXi including, in particular, hardware identification in accordance with an USB token implemented with the help of a pluggable authentication module)

2 level – adding to the hypervisor of a security module trapping management signals and controlling the integrity of the VM and the management console on vCenter, which helps to control the security system.

3 level – using of an access differentiation device in the OS installed in the VM (using hardware identification to be performed via the terminal client).

Peculiarities of implementation:

1) The security system is fully integrated in the virtualization infrastructure and does not require additional servers or virtual machines.

2) All the advantages of virtual environments (except for the suspend state) remain available.

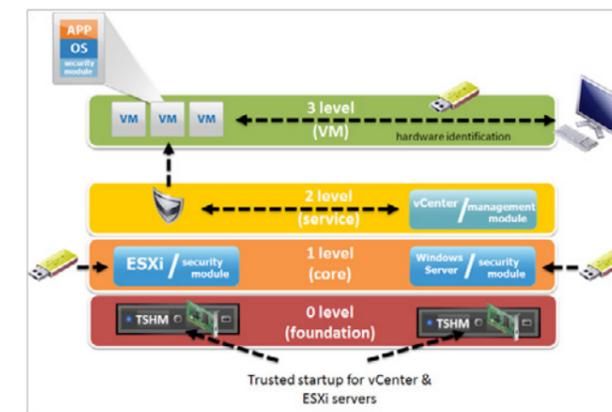


Figure 4. Architecture of the Solution Developed for Solutions Based on the Bare Metal Approach

CONCLUSION

The set task has been fully resolved so far. The solution built in accordance with the established requirements has been implemented and certified. Moreover, today in the Russian market there are two certified tools (which apply to the leading solution in this sphere) ensuring virtual infrastructure security (one of which is described in the article), and this allows to speak about competition and, as a result, about positive and dynamic development in this sphere. What remains is to improve the developed approach and apply it to solutions provided by other companies, as well as to wait for amendments in the regulatory framework.

FUTURE WORK

Alongside with the development of virtualization technologies, more and more public cloud services have recently appeared (IaaS, SaaS, PaaS). Basing on this fact one can assume that some customers will refuse to build their corporate data processing centers in the nearest future and will use the services rendered by cloud providers. One should be prepared to this, and it is high time to start examining solutions based on the virtualization products considered in this work.

SMOOTHING ELECTRICITY CONSUMPTION IN UNIVERSITY OF TSUKUBA WHICH IS BETTER SYSTEM, SEMESTER OR TRIMESTER?

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Recently, many countries and cities are pursuing a low carbon emission society. In the trend of the times, educational facilities such as campus are requested to be renovated for a low carbon emission. We analyzed the electricity consumption data in University of Tsukuba and constructed a multiple regression model, then delivered a proposal, which is especially focused on peak cutting to reduce the consumption. Although there are many papers related with the electricity consumption, most of them focused on the hardware approach. In this paper, we focused on "school schedule system," which means semester, trimester and so on, and estimated the result in a quantitative way. "School schedule system" is an original approach that could only take by educational facilities. In conclusion, we got a model whose coefficient of determination is 0.82. We also found that it is possible for us to save 10 million yen one year on electricity consumption.

INTRODUCTION

Currently, society is the flow of low-carbon. In "Energy Technology Perspectives, ETP2010" published in July 2010, the International Energy Agency (IEA) stated clearly that a shift for electrification of energy use is required to reduce CO₂ emission by half compared to current situation¹.

Also in Tsukuba City, Japan, where our University of Tsukuba is located, various players such as citizens, businesses, universities, research institutes, and government worked together, launched "Environment Tsukuba City Promotion Committee." The committee formulated the plan "Tsukuba Environmental Style." In the plan, it stated that the city aim to reduce CO₂ emission by half. In order to achieve these goals, the efforts to reduce CO₂ emissions of each player are essential.

There are 16,540 students and 4,508 faculty members in University of Tsukuba². So it accounts for a big proportion in Tsukuba City where a little less than 220,000 people are living. In the trend of low-carbon society, the efforts are required educational institutions such as universities, which is a large-scale facilities in the city. In this paper, we will consider a reduction in power consumption in University of Tsukuba.

When we think of power savings, I would like to emphasize the importance of peak power cutting. After 3.11, the Great East Japan Earthquake in Japan, because every nuclear power plants stopped, power failure has been worried about in summer. Due to large power consumption by air conditioning, summer is the highest power consumption of year. From a social standpoint, cut-down the peak power of the year is very important.

In addition, there is also an incentive to reduce the peak power consumption for the university. Power Company and university has made a contract for the sale of power as follow.

$$\text{Annual Electricity Bill} = \text{Basic Fee} + \text{Energy Charge}$$

As shown in Table 1, peak power determines about 1/4 of annual electricity bill. The term "peak power" in this context refers to the largest 30 minutes power consumption of the year. You can find that the reduction of peak power consumption is also very important when we consider the saving electricity bill in the university.

Table 1 Breakdown list of electricity bill

	BASIC FEE	ENERGY CHARGE
DETERMINANT FACTOR	Peak power	Total power consumption of the year
AMOUNT OF MONEY	350 million yen	1,110 million yen
ACCOUNT FOR	24%	76%

Source: Facilities Department, University of Tsukuba

We were able to get the date of an electricity consumption on the entire campus in Tsukuba. We analyzed it to construct a multiple regression model. Then we simulated the economic effect by changing school schedule system, for example, changing semester to trimester system, moving summer vacation and so on by using the model.

LITERATURE REVIEW

There are many papers which aimed at reducing the power consumption. For office buildings, Suzuki et al has showed quantitatively an energy saving impact by high-efficiency office automation equipment, improvement of control system, and so on³. Also, Kawaraguchi et al has showed quantitatively the relationship between an electricity consumption by air conditioning and building specific at convenience store⁴. As seen above, many papers focused on measuring hardware approach for reduce the electricity consumption. Therefore we could not find a paper focused on software approach. In this paper, it can be said that there is a unique novelty; we simulated and showed the impact of long term vacation quantitatively, which only educational facility has.

OBJECT FACILITY: TSUKUBA CAMPUS, UNIVERSITY OF TSUKUBA

In this paper, we set an object facilities to reduce the electricity consumption to Tsukuba Campus, University of Tsukuba. Because of the vast area, it is an important facility in the city.

General Information⁵

Site area **2.6 km²**
Total area of the building **0.7 km²**
Number of students **16,500**
Number of faculty **4,500**



³ T. Suzuki, et al. 1995. Energy saving of office building. Power Economic Research No.34, pp.3-16
⁴ Kawaraguchi, et al. 2005. Research for energy-saving in convenience store. Academic lecture of Annual Meeting Architectural Institute of Japan summary. Pp.361-362
⁵ P.G. Hoel. 1976. Elementary statistics 4th ed. John Wiley & Sons Inc

MULTIPLE REGRESSION ANALYSIS OF POWER DATA

We conducted a multiple regression analysis of daily power data in Tsukuba Campus. The following regression model is obtained. Used data are shown in Table 2.

$$\text{PowerConsumption[MWh/Day]} = 215.1 + 11.0 * [MaximumTemp. - 28] + 1.1 * [15 - MaximumTemp.] + 13.80 * \left(\begin{matrix} \text{During school term} & 1 \\ \text{Vacation} & 0 \end{matrix} \right) + 75.6 * \left(\begin{matrix} \text{weekday} & 1 \\ \text{holiday} & 0 \end{matrix} \right)$$

As explanatory variables, following indexes are used.

$[MaximumTemp. - 28]$ Represents the effects of cooling. On a day below 28°C, this index takes 0.

$[15 - MaximumTemp.]$ Represents the effects of heating. On a day above 15°C, this index takes 0.

$\left(\begin{matrix} \text{During school term} & 1 \\ \text{Vacation} & 0 \end{matrix} \right)$ Dummy variable.

$\left(\begin{matrix} \text{weekday} & 1 \\ \text{holiday} & 0 \end{matrix} \right)$ Dummy variable. It takes 1 on weekday, takes 0 on holiday. But, we treat 12/29, 30, 31 and 1/1, 2, 3 as holidays.

Table 2 List of used data

	POWER DATA [MWH/DAY]	MAXIMUM TEMPERATURE [°C]	UNIVERSITY'S YEAR-ROUND SCHEDULE	CALENDAR
SOURCE	Facilities Department, University of Tsukuba	Japan Meteorological Agency, Web page	University of Tsukuba, Web page	Calendar in 2009 and 2010
LOCATION OR RANGE	Tsukuba Campus	Sugano, Tsukuba	University of Tsukuba	Japan
TIME SPAN	19 October, 2009-18 October, 2010 (1 year)			
NUMBER OF THE DATA USED IN ANALYSIS	361 We used the data, except the days of power blackout and the days have no weather data in the 365 days.			

When we pay attention to the regression model, we can find that coefficient of "weekday or holiday" is relatively high. It means that whether or not on weekdays has a significant impact on the power consumption of the university. This would fit our sense. Because we would expect that the power is not used so much when there is no one on campus.

Table 3 Regression Statistics

Coefficient of Determination R ²	0.817
Corrective Coefficient R ²	0.814
Standard Error	20.1

¹ International Energy Agency. 2010. Energy technology perspectives 2010

² Syllabus University of Tsukuba information ver.2012 University of Tsukuba

On the other hand, we can find that the constant term is very high. It means that the university constantly consumes a significant amount of power without relation to whether or not the existence of people.

Among the explanatory variables, the variables related with temperature are not possible to change artificially. Also, "weekdays or holiday" is predetermined. "During school term or Vacation" is, however, able to manipulate artificially as long as the university decides to change the school schedule system.

SIMULATION

Treating the variable "During school term or Vacation" as a policy variable, we simulate the electricity consumption on the university.

Semester System V.S. Trimester System

University of Tsukuba has adopted trimester system which divide a school year to 3 terms. But many other universities have adapted semester system which divide to 2 terms. Then, we simulate semester and trimester by the model and find out which is better system, in terms of electricity bill of the university.

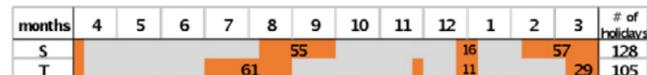


Figure 2 Annual Calendar of Semester and Trimester

Figure 2 shows annual calendar of semester and trimester. The periods drawn by orange are terms in long vacation. We use the annual schedule of University of Tsukuba as a reference for trimester, that of University of Hiroshima as for semester.

Table 4 Comparison Chart (converted to electricity bill)

		TRIMESTER	SEMESTER	TRIM.-SEMES.
ENERGY CONSUMPTION	Total Power Consumption [GWh/year]	101.9	101.6	-
	Peak Power [MWh/day]	347.8	361.6	-
ELECTRICITY BILL [MILLION YEN]	Basic Fee	348	362	+14
	Energy Charge	1,111	1,107	-4
	Total	1,459	1,469	+10

Analysis results are shown in Table 4. We can find that if university change the trimester system to semester, the electricity bill would increase 10 million yen. Looking minutely, regarding energy charge, semester is lower because semester has an advantage

which has more holidays than trimester. On the other hand, trimester has lower basic fee since trimester's peak power is lower.

From the above results, in the case of 2009, we could say that trimester is better than semester from the viewpoint of the election bill.

Ideal School Schedule System

Based on the previous analysis, then, we find out the ideal school schedule system.

Peak power days in the past 10 years under current trimester system were plotted in Figure 3. A part colored in light blue is the term of summer vacation of trimester. There exists the year in which the peak power day come in September and it is not able to be covered with summer vacation. Therefore, I propose to extend summer vacation until September 11, that is determined by reference to the peak power day in 2003; the slowest peak power day in the past 10 years. In order to accommodate the number of holidays in current trimester, the length of spring, autumn, and winter vacation is shorten, in replacement of extension of summer vacation.

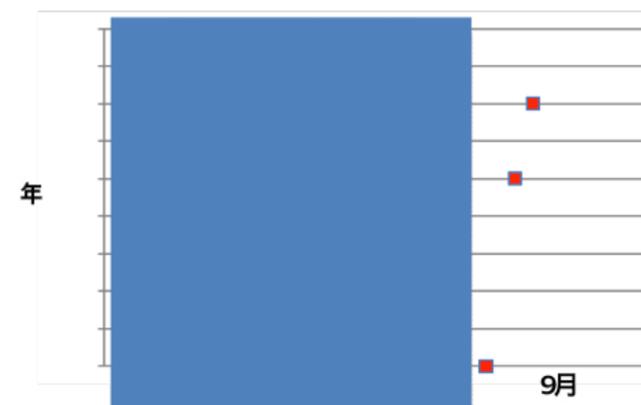


Figure 3 Peak Power Day in trimester system

From now on, we call this school schedule system "LSV," which stands for Long Summer Vacation. LSV and current trimester are shown in Figure 4.

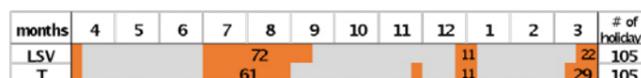


Figure 4 Annual School Schedule in LSV and Current Trimester

Result of Simulation

We simulate the electricity bill on the past 10 years, using LSV and current trimester system. Table 5 shows the comparison result of them. Because both of them have the same number of holidays, the energy charge does not change. We can see that to change the school schedule system to LSV, the electricity bills in 2003, 2005, and 2009, are able to reduce them around 10 million yen.

CONCLUSIONS AND CHALLENGES

We focused on the university, which is a large-scale facility in the city, and showed the impact of reducing power consumption by software approach. This paper is written for a low carbon society. Considering the reduction of power consumption in a large-scale facility alone is equivalent to considering the partial optimization in society. It may not necessarily match the optimal situation of the entire society, which is total optimization. In the future, considering optimal situation in the city as a whole, or country as a whole, including the university. We must considering total optimization of our society as a whole.

Table 5 Effect of LSV

Year	Changes in Electricity Bill	
	(Trim →	LSV)
	[million yen]	
2001	0	
2002	0	
2003	-10	
2004	0	
2005	-11	
2006	0	
2007	0	
2008	0	
2009	0	
2010	-9	

APPLICATION OF COMPUTATIONAL MODELING AS THE MOST ECONOMICALLY EXPEDIENT APPROACH IN SEISMIC EXPLORATION OF OIL- AND GAS-FIELDS

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Presently exploration seismology is one of the most reliable methods to find oil- and gas-fields and prepare the ground for deep drilling. Ongoing researches are aimed to determine the structure of geological formations and give estimation of hydrocarbon placement possibility. Traditional exploration seismology methods are based on initiation of seismic waves by explosions or other sources. Using special equipment response signal from the ground carrying information about its composition is received. Because of complexity and high costs of these field works, numerical simulation can be used to develop methods for seismic data interpretation.

Nowadays oil and natural gas are major sources of fuel. Their importance for modern society is hard to overestimate. Many years of experience in development and search hydrocarbon fields show that in many cases oil is located in fractured layers. These layers are placed in depth of several kilometers and consist of a lot of small fractures. Unfortunately, it's not easy to get information about the properties of these zones. Of course, one can drill a well (Figure 1) and try to get out the sample. However, this way is too expensive. The cost of drilling is always a significant part of the oil industry costs. It can reach 50-60% of company consumption for production development. For example on Timor low-depth oil wells cost of \$ 9 million. And on Philippines offshore cost of many wells is up to \$ 25 million. Expenses of Lukoil in West Africa for one oil well reach \$ 300 million. The cost of drilling in the sea is much higher than on land due to specific conditions of the work organization. Thus search of oil reservoirs by well drilling is too expensive for practical application. So it's necessary to carry out a large amount of preparatory works. The significant part of these works makes up seismic exploration.

Exploration seismology is one of the seismology directions, which serves to determine the deep struc-

ture of the geological medium without its immediate deep drilling. In its methods elastic wave are excited artificially. They allow studying the medium, identifying mineral deposits and obtaining the geological information for engineering purposes. Receivers reading the response waves are placed on the surface. Using time of receiving and the response wave front form one can estimate the depth and dimensions of various geological layers, approximately determine their structure, physical and chemical characteristics. The use of seismic exploration results in complex with another geophysical data gives information about structure and distribution of various type reservoirs.

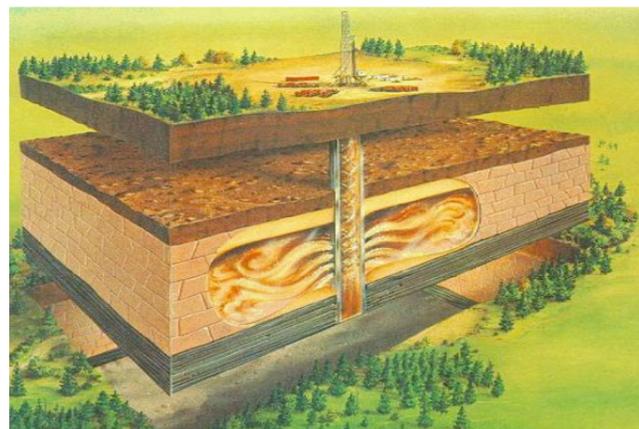


Figure 1. Scheme of oil-production well

The important role in seismic exploration in oil-production domain indicates its widespread use. Significant part of oil companies is based on the seismic data interpretation results for the test wells places determining. Despite the fact that this method is not direct, the probability of successful results is more than sufficient to cover the costs for seismic works.

For the oil industry cavities and fractured layers exploration have crucial importance. Domains of different fracture dimensions deserve special study. Also distribution of fractures in the structure plays a vital role in the resulting response.

Methods of exploration seismology are developed with use of field experiments, physical modeling in the laboratory or numerical simulation. The last method requires less economic costs and time. But the accuracy of the results is comparable with physical experiments. Numerical simulation provides the ability to change various settings of geological structures easily. One can vary the elastic parameters of the medium; change the geometrical dimensions of the fractures and cavities. Field and physical experiments in laboratory don't provide such abilities like that or require significantly more investments. Computational simulation has crucial value in modern exploration seismology. It allows to significantly decrease spends for ground structure determination. Also this approach gives results in a form more convenient for processing in comparison with methods of traditional exploration seismology. Duration of numerical experiments depends on the powerful of used computer systems. And costs for modern supercomputers are quickly recovered by large amount of simulations implementations. Thus the numerical simulation can greatly facilitate the solution of exploration problems, significantly optimize oil production.

At the Computer Science Department of MIPT by scientific advisement of RAS corresponding member professor Igor Borisovich Petrov the software complexes to solve exploration seismology problems as well as to visualize and process the results were developed. Simulation of physical processes in Earth's interior is very specific and complex area of science that combines sections of mathematical physics, geomechanics, numerical methods and computer science. So sufficiently accurate grid-characteristic numeric method¹ was developed to solve this range of problems. This method takes into account the physical factors of wave processes researching in exploration seismology problems. Unstructured computation meshes allowing the most free simulation domain form were used. Also there is software for convenient visualization, which lets observe seismic waves propagation in 3D-spaces and 2D-planes as well as on synthetic seismograms using by geologists. Examples of this visualization are presented on Figure 2. Because of the results are obtained in digital form it's convenient to processing. So there are several programs to perform some operations with these data.

¹ Magomedov K.M., Kholodov A.S. The construction of difference schemes for equations of hyperbolic type on the basis of characteristic ratios // Computational Mathematics and Mathematical Physics, 1969, Vol. 9, N. 2, pp. 158 – 176

For example, one can sum results of different computations, allocate and distinguish responses from different geological structures, perform automatic recognition of them.

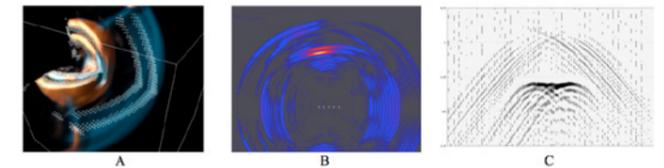


Figure 2. Examples of seismic exploration results visualization: A – 3D-space visualization, B – 2D-plane visualization, C – synthetic seismogram visualization

Now let's consider the most interesting results of computational modeling. Firstly, fracture layers were modeled². On Figure 3 one can see process of plane wave front propagation through single gas-saturated fracture.

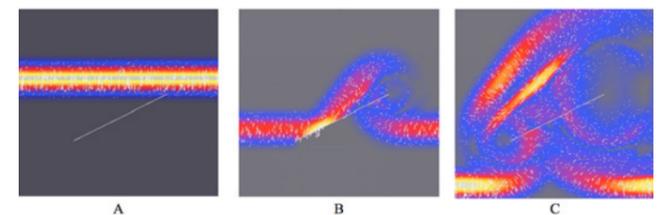


Figure 3. Process of plane wave front propagation through single gas-saturated fracture. A, B, C are different moments

It is worth noting that behind the fracture shadow zone is formed, which does not penetrate the oscillations from the incident wave. This is especially well observed on Figure 3-B. This effect is called the screening effect and corresponds to zone in the shadow invisibility on the seismogram obtained on surface. On Figure 3-C we observe longitudinal and shear reflected from fracture waves, which carry interesting for geologists and oil-engineers results.

Also similar fracture can be fluid-filled, in particular oil-filled. Results for this case are represented on Figure 4. Here longitudinal reflected wave is faint and information is carried by shear waves. Significant part of incident wave passes through the fracture.

² Kvasov I.E., Pankratov S.A., Petrov I.B. Numerical study of dynamic processes in a continuous medium with a crack initiated by a near-surface disturbance by means of the grid-characteristic method. // Mathematical Models and Computer Simulations, 2011, Vol. 3, N. 3, pp. 399 – 409, DOI: 10.1134/S2070048211030070

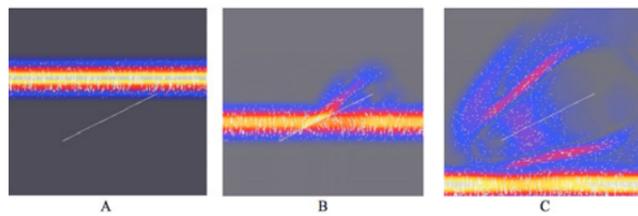


Figure 4. Process of plane wave front propagation through single fluid-filled fracture. A, B, C are different moments

Near-vertical or sub-vertical fractures, that is fractures with almost vertical relatively ground surface orientation, are of special interest. For example Bazhenov's formations placed under the most part of West Siberia include systems of similar elements. Bazhenov's formation is compressed portion of the clay, which has turned into silica. It is located at the junction of the upper layer of the earth and so-called "Foundation". Production in the Bazhenov's layers was never performed, although scientists have noted that there are large reserves of oil. So single sub-vertical fractures and their formations were simulated³.

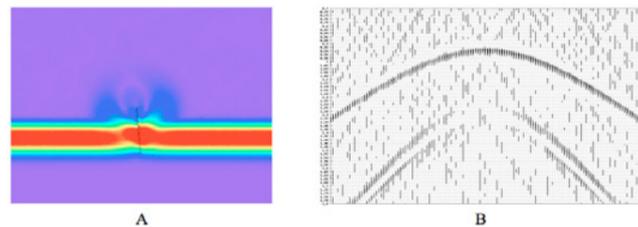


Figure 5. Response of single gas-saturated sub-vertical fracture. A is absolute value of velocity visualization, B is seismogram shown statement of receivers on surface

Let's consider wave front propagation through single sub-vertical fracture. In direction to the ground surface only waves reflected from top of fracture spread. These waves detect by seismo-receivers. On Figure 5 2D-plane visualization (A) and synthetic seismogram (B) for the case of gas-saturation are represented. It's worth noting that on seismogram the response of fracture is well observed.

Similar results one can obtain for more practical interesting case of fluid-filled fracture (Figure 6).

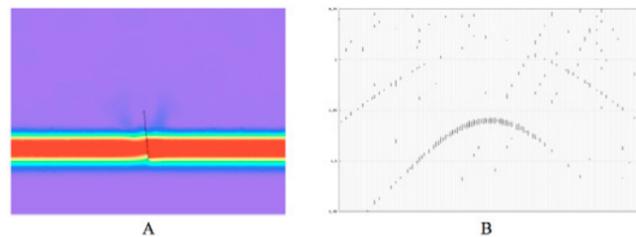


Figure 6. Response of single gas-saturated sub-vertical fracture. A is absolute value of velocity visualization, B is seismogram shown statement of receivers on surface

Special practical value has systems of these fractures (Figure 7). Their computation is significant part of the Bazhenov's formation problem solution.

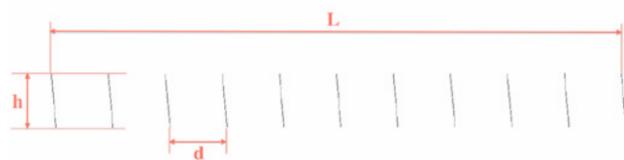


Figure 7. Example of subvertical fracture system (cluster) with main researched dimensions

On Figure 8 wave response from system (cluster) of sub-vertical parallel fractures is represented for gas-saturation and on Figure 9 one is for fluid filling. On pictures one can see the reflected from every fracture waves to reflect repeatedly from neighboring fractures. This process occurs multiple times until the waves are attenuated. In the result we can observe the wave response propagated to ground surface with multiphase periodical structure. This response is clearly visible on seismogram (Figures 8-B, 9-B).

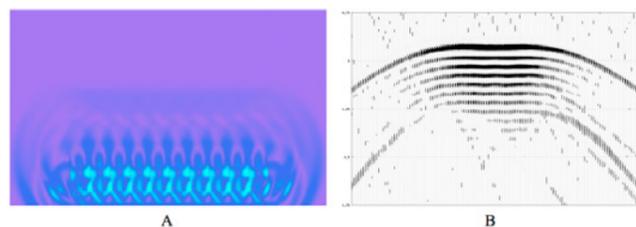


Figure 8. Response from cluster of gas-saturated sub-vertical fractures. A is absolute value of velocity visualization, B is seismogram shown statement of receivers on surface

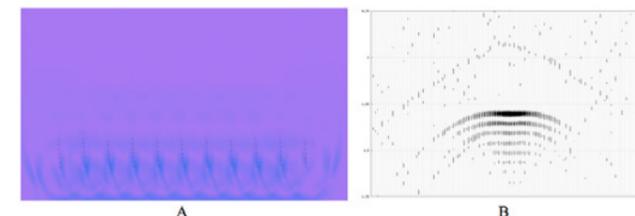


Figure 9. Response from cluster of fluid-filled sub-vertical fractures. A is absolute value of velocity visualization, B is seismogram shown statement of receivers on surface

Also methods were developed to determine structure and geometrical dimensions of such fracture formations. Wave responses dependences on cluster dimensions were obtained in result of numeric experiments. Based on these dependences oil engineers can find out horizontal (L on Figure 7) and vertical (h on Figure 7) dimensions of system as well as distance between its fractures (d on Figure 7). With use of these data one can estimate volume of oil or gas contained in cluster.

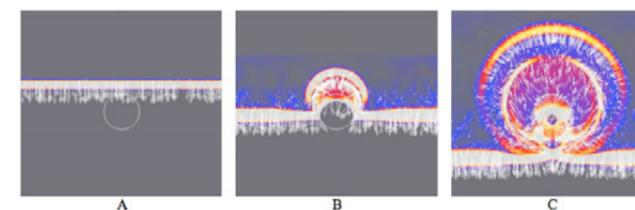


Figure 10. Wave front propagation through single gas-saturated cavity

Another important gas container is cavity. Results for it were obtained and represented on Figure 10. Here we observe reflection of significant energy part from borders. One can distinguish longitudinal and shear parts of response. Wave front of response has spherical form and spread to ground surface where can be detected by seismo-receivers.

Reflection from cavities cluster was the same way modeled and shown on Figure 11.

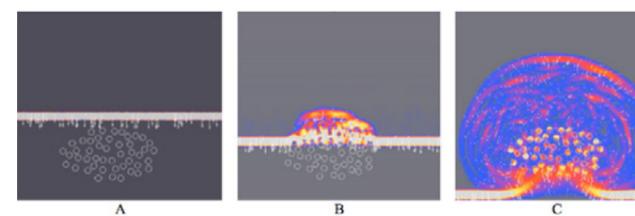


Figure 11. Wave front propagation through cluster of single gas-saturated cavities

The important feature of geological medium is multilayer structure⁴. It must be taken into account in exploration seismology research. Process of near-surface explosion propagation through multilayer medium and graph of response are shown on Figure 12. Multilayer influence on the results for fractures and cavities was studied³, and methods to distinguish different wave responses were developed.

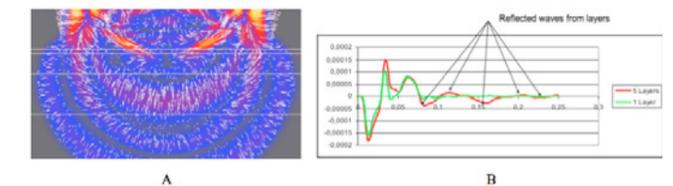


Figure 12. Near-surface explosion propagation in multilayer geological medium (A) and graph of response from receiver under point of explosion

Thus by numerical simulation important results were obtained. Structure of the most popular geological oil- and gas-contained formation such as systems of fractures and cavities was correlated with the wave responses of them. The results allow beginning the next stage of Bazhenov's formation stored colossal oil reservoirs research.

To conclude one can say, that importance and necessity of numerical simulation application in exploration seismology is going to increase in nearest future. It's because of necessity to solve more complex problems. Now the number of problem which solution is possible only with use of numerical simulation is quite big, and in future it's going to grow.

³ Leviant V.B., Petrov I.B., Muratov M.V. Numerical simulation of wave responses from subvertical macrofractures system // Seismic technology, 2012, Vol. 9, N. 1, pp. 5 – 21

⁴ Kvasov I.E., Pankratov S.A., Petrov I.B. Numerical simulation of seismic responses in multilayer geologic media by the grid-characteristic method. // Mathematical Models and Computer Simulations, 2011, Vol. 3, N. 2, pp. 196 – 204, DOI: 10.1134/S2070048211020062

PHOTOCATALYTIC WATER SPLITTING: Challenges for Materials Chemistry

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Abstract: The sustainable generation of energy is arguably the biggest challenge facing society today. Investment into energy research is considerable (e.g. ~€2.5 billion in EU FP7), with one key goal being the capture of solar energy. One promising approach, inspired by photosynthesis, is the use of photocatalysts to generate solar fuels. These can include hydrocarbons from CO₂ reduction and hydrogen from water splitting. Hydrogen is an energy dense and clean fuel in its own right but is also valuable as a chemical feedstock and for CO₂ conversion to hydrocarbons¹. While considerable advances have been made in photocatalyst design, efficient visible light catalysts are still a major challenge. *Furthermore, any feasible large-scale system must be based on abundant materials and facile fabrication processes.* This is emphasized in a recent White Paper prepared by the UK, US, Japanese, German and Chinese Chemical Societies². They state the need for, “new catalysts and materials from low-cost, earth-abundant elements that can be used to build affordable, sustainable solar energy transformation and storage systems”.

CURRENT ENERGY SITUATION

It is clear from world energy data (Figure 1), that the primary source of fuel for energy production comes from fossil resources, including coal, peat, oil and natural gas. This has obvious implications in terms of limited resources and also greenhouse gas emissions. The last few decades have shown some shifts to alternative sources, mostly due to a substantial growth in nuclear energy (0.9% to 5.8%). However in the light of recent nuclear disasters such as the Fukushima power plant explosion, the future for nuclear energy is politically uncertain. Certainly, despite substantial advances in technology for renewable energy, this still represents a very minor contribution to global energy production. Another issue is the increasing global demand for energy. With rapidly increasing population and also fast economic

growth in many parts of the developing world, global energy consumption is projected to rise by as much as 50% by the year 2030³. Even without consideration of climate change, this staggering rise in demand is expected to exceed our ability to generate energy by conventional fossil-based methods.

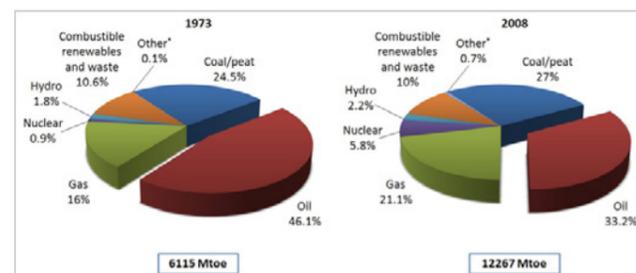


Figure 1 Global total primary energy supply by fuel for 1973 and 2008 in Mtoe (million tonnes of oil equivalent)⁴

*Other includes geothermal, solar, wind etc

SOLAR ENERGY

The sun provides, “more energy in 1 hour to the earth than all of the energy consumed by humans in an entire year”⁵. Given this astonishing fact it is not surprising that governments all over the world now consider the harvesting of solar energy to be a priority. Several approaches exist, the most well-known being the direct conversion of sunlight into electricity through photovoltaic devices. These are certainly one of the most widely implemented solar technologies. However, existing technologies are not without problems, primarily the high cost and difficulty of producing high-purity silicon. Furthermore, sunlight is not constant and so to ensure a reliable national power supply an energy storage system is required. This cannot just be a daily charge-recharge cycle. For energy security most countries require a storage buffer e.g. Germany currently maintains a constant 90 day oil supply. Any future large-scale solar energy scheme will have to be intimately connected with energy storage strategies.

³ ‘World Energy Outlook 2010’, 2010, International Energy Agency, Paris
⁴ ‘2010 Key World Energy Statistics’, 2010, International Energy Agency, Paris
⁵ N. S. Lewis, D. G. Nocera, Proc. Nat. Acad. Sci. 2006, 103, 15729

Perhaps the simplest approach to the capture and storage of solar energy is the direct use of biomass – allowing natural photosynthesis to convert solar energy into stored chemical energy in the form of organic plant matter. This has of course been practised in a simple form for millennia through burning wood as a fuel. However, the large-scale generation of ‘bio-fuels’ from biomass is controversial, due to concerns about efficiency, changes in land use and competition with food crops⁶. Certainly, there have been substantial advances in non-land biomass sources such as algae and also the conversion of agricultural waste products into chemical fuels. Despite this, it is difficult to imagine that biofuels will be the primary future energy source. Another approach to energy storage is batteries. However, current technology does not have the energy density* or stability for large-scale long-term storage. Furthermore, there are concerns about the use of toxic elements or the depletion of limited elemental resources such as lithium.

Arguably the most promising method for both harvesting and storing solar energy is through the direct use of sunlight to generate ‘solar fuels’. Chemical fuels offer a much higher energy density than batteries and can be stored for use either in stationary power plants or in vehicles. This can be achieved in two ways:

1. Coupling a photovoltaic cell with an electrocatalytic device e.g. electrolytic cell for water splitting (Fig. 2).
2. Direct use of sunlight to drive a chemical reaction such as water splitting via a ‘photocatalyst’, in much the same way as plants use sunlight to convert carbon dioxide and water into energy-rich carbohydrates.

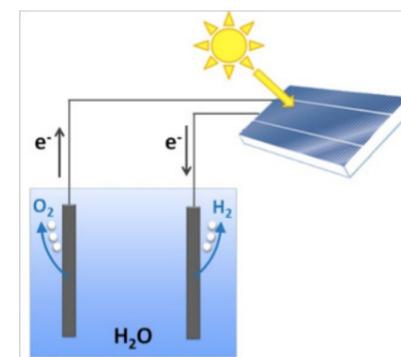


Figure 2 Photovoltaic unit coupled with an electrolysis cell for water splitting

* Energy density is simply the amount of energy that can be stored per unit volume of a material

⁶ H. Michel, Angew. Chem. Int. Ed. 2012, 51, 2516

FUNDAMENTALS OF PHOTOCATALYTIC WATER SPLITTING

In green plants, adsorption of light drives charge separation in key enzyme centres and subsequent electron and proton transfer leads to the synthesis of the biological energy carriers ADP and NADPH (Fig. 3). These are then used to transform atmospheric carbon dioxide into carbohydrate molecules. Some ‘artificial photosynthesis’ systems attempt to mimic this overall process, i.e. converting water and carbon dioxide directly into oxygen and a hydrocarbon such as methane or methanol. However, this requires transfer of a large number of electrons and so many systems focus on one side of the photosynthetic process: water splitting ($2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$).

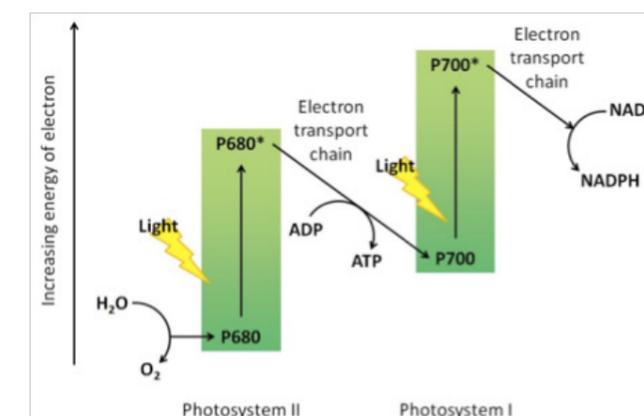


Figure 3 Simple schematic of the ‘Z-scheme’ of photosynthesis in green plants

The simplest approach to photocatalytic water splitting uses light-absorption to excite an electron in a semiconductor from a filled valence band to a vacant conduction band (Fig. 4a)⁷. The excited electron drives reduction of H⁺ to H₂ while the positive hole drives oxidation of water to O₂. In this case, the primary challenge is to achieve a band gap that is narrow enough for visible-light excitation, since many common semiconductors are UV-light active and can therefore only utilize ~4% of solar energy⁸. Furthermore, the bottom of the conduction band must exceed the proton reduction potential of 0.0 V vs NHE at pH 0 (-0.41 V at pH 7). Also, the potential of the valence band must be greater than the oxidation potential of water of +1.23 V vs NHE at pH 0 (+0.82 V at pH 7). This requires an overall theoretical band gap of ~1.23 V.

⁷ K. Maeda, T. Takata, M. Hara, N. Saito, Y. Inoue, H. Kobayashi, K. Domen, J. Am. Chem. Soc., 2005, 127, 8286

⁸ M. D. Herdandez-Alonso, F. Fresno, S. Suarez, J. M. Coronado, Energy Environ. Sci., 2009, 2, 1231

An alternative system uses two smaller band-gap semiconductors with an intermediate electron shuttle (Fig. 4b)⁹. This is analogous to the 'Z-scheme' of natural photosynthesis. One advantage of this double-excitation is that water splitting can be driven by lower energy visible light which comprises a much larger part of the solar spectrum. Furthermore, the band positions of each semiconductor can be separately tailored for oxygen and hydrogen evolution. In both single semiconductor and Z-scheme cases, efficient photocatalysis depends on multiple factors, including a high surface area for electron transfer across the semiconductor-water interface and good crystallinity to minimize electron-hole recombination. Most photocatalysts also require a cocatalyst to reduce overpotential, facilitate electron transport and catalyze gas evolution.

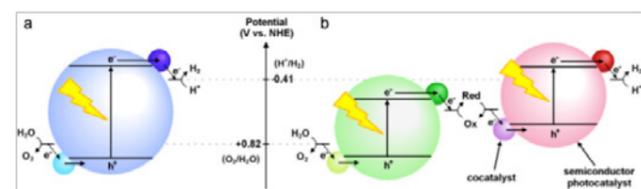


Figure 4 Photocatalytic water splitting using (a) a single semiconductor and (b) a 'Z-scheme' system

MATERIALS CHALLENGES FOR WATER SPLITTING

Many inorganic materials have been investigated for photocatalytic water splitting¹⁰. The most famous of these is TiO₂, which was discovered in 1971 to drive water splitting into hydrogen and oxygen¹¹. However TiO₂ absorbs light in the UV region of the spectrum and so one of the main challenges since the discovery of TiO₂ photocatalysis has been to identify photocatalysts that use the visible range of the spectrum (and are thus suited to operating in normal sunlight). One way to achieve an optimized band gap and band positions is through so-called 'band-gap engineering'. This can be achieved through synthesis of solid solutions or by doping semiconductors with other elements such as metals *e.g.* SrTiO₃ or heteroatoms *e.g.* Titanium oxynitride (TiON). These methods are very effective, but resulting defects in the structure can lead to increased electron-hole recombination. Semiconductors can also be sensitized with dyes or coated with metal nanoparticles for plasmon-

induced charge separation¹². Alternatively, the introduction of surface disorder has been used to enhance light adsorption¹³. Even if the challenges of adequate light energy adsorption are overcome, it may still be difficult to drive overall water splitting and, in fact, many examples in the literature use a sacrificial hole or electron scavenger to achieve only H₂ or O₂ evolution. After charge separation in the semiconductor, the next challenge is to use the separated charges to drive a reaction before they recombine, resulting in a substantial loss in efficiency.

One strategy for enhancing charge transfer is to use a cocatalyst. The aim of this is to reduce the electrochemical overpotentials that are associated with the multiple electron transfers of water oxidation and reduction (Fig. 4). Cocatalysts are normally prepared as very small nanoparticles on the semiconductor surface and this increased surface area can facilitate electron transfer from the semiconductor to the water and enhance gas evolution. This can also help to reduce electron-hole recombination. Cocatalysts for water oxidation are generally based on RuO₂ or IrO₂, whereas noble metals are preferred for hydrogen evolution. One key area of research is the replacement of these materials with cheaper and more earth-abundant alternatives such as WC¹⁴ or Co-oxyphosphates¹⁵.

Another important factor in preparing photocatalytic materials is the size and morphology. Nanomaterials generally have a high surface area and the small particle size can help to reduce electron-hole recombination. This is quite simply because the photogenerated charge carriers have less distance to travel through the material before they reach the electrolyte interface. Furthermore, an increased surface area can maximize light adsorption and also the number of active surface-electrolyte sites. Tuning the nanostructure size and shape has also been shown to affect the band energies and so can be used to enhance performance in solar water splitting. Specialized nanostructures such as aligned nanotubes can also be important in maximizing surface area for light adsorption and gas evolution.

⁹ K. Maeda, M. Higashi, D. Lu, R. Abe, K. Domen, J. Am. Chem. Soc., 2010, 132, 5858

¹⁰ F. E. Osterloh, Chem. Mater. 2008, 20, 35

¹¹ A. Fujishima, K. Honda, Nature 1972, 238, 37

¹² Y. Tian, T. Tatsuma, J. Am. Chem. Soc. 2005, 127, 7632

¹³ X. Chen, L. Liu, P. Y. Yu, S. S. Mao, Science, 2011, 331, 746

¹⁴ A. T. Garcia-Esparza, D. Cha, Y. Ou, J. Kubota, K. Domen, K. Takahashi, ChemSusChem, 2013, DOI: 10.1002/cssc.201200780

¹⁵ Y. Surendranath, M. Dinca, D.G. Nocera, J. Am. Chem. Soc. 2009, 131, 2615

A major challenge in photocatalytic water splitting is achieving simultaneous hydrogen and oxygen production. For example, many current reports generate hydrogen using a sacrificial hole scavenger rather than oxidizing water to oxygen. While a sacrificial reagent can be useful for optimizing one side of the water splitting reaction, it is unsustainable for large-scale systems. In addition to achieving overall water splitting, separate collection of hydrogen and oxygen is essential to avoid creating a potentially explosive mixture. It is possible to separate the gases post-synthesis but this requires additional energy. Photoelectrochemical cells have been extensively developed which use two separate electrodes for hydrogen and oxygen evolution (Fig 5a). These typically coat single crystal or polycrystalline semiconductor films on a conductive substrate *e.g.* indium tin oxide. However an external potential is normally required to achieve water splitting in these systems. While this could be provided by a photovoltaic cell, a single system would be simpler and so could minimize energy losses. An alternative approach uses a photochemical diode, combining n- and p-type semiconductors either in an electrolysis cell or through a conductive intermediate layer (Fig 5b)^{16,17}. This is analogous to the 'Z-scheme' system described above. One issue with these systems as opposed to particulate or powder photocatalysts is the limited surface area for solar energy capture. It should be noted that one further advantage of this spatial separation of the oxygen and hydrogen evolution sites is that it may help to reduce unwanted back-reactions.

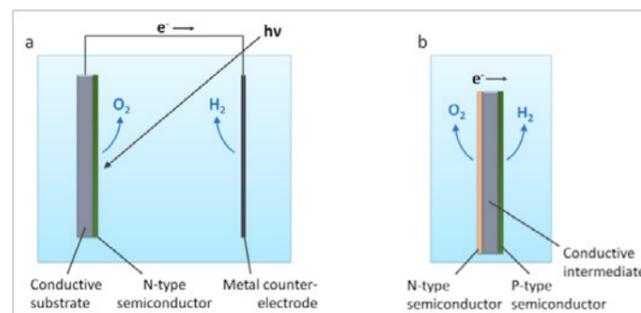


Figure 5 (a) Schematic of photoelectrochemical cell with a single photocatalytic electrode and (b) a photochemical diode

¹⁶ K. Rajeshwar, J. Appl. Electrochem. 2007, 37, 765

¹⁷ M. G. Walter, E. L. Warren, J. R. McKone, S. W. Boettcher, Q. Mi, E. A. Santori, N. S. Lewis, Chem. Rev., 2010, 110, 6446

ENHANCED HYDROGEN PRODUCTION VIA STEAM REFORMING

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Abstract: This paper describes the design of Ni/SiO₂ catalysts obtained from a phyllosilicate precursor that possess high activity and stability for bio-ethanol steam reforming to sustainably produce hydrogen. Sintering of metal particles and carbon deposition are two major issues of nickel-based catalysts for reforming processes, particularly at high temperatures; strong metal-support interaction could be a possible solution. We have successfully synthesized Ni-containing phyllosilicates by an ammonia evaporation method. Temperature programmed reduction results indicate that the metal-support interaction of Ni/SiO₂ catalyst prepared by ammonia evaporation method (Ni/SiO_{2p}) is stronger due to the unique layered structure compared to that prepared by conventional impregnation (Ni/SiO_{2i}). With the phyllosilicate precursor nickel particles highly disperse on the surface; remaining OH groups in the unreduced phyllosilicates promote nickel dispersion and carbon elimination. We also show that high dispersion of Ni and strong metal-support interaction of Ni/SiO_{2p} significantly promotes ethanol conversion and H₂ production in ethanol steam reforming. Ni/SiO_{2p} produces less carbon deposition compared to Ni/SiO_{2i}; for the latter a surface layer of Ni₃C formed during the deactivation.

INTRODUCTION

Energy is an indispensable element in our everyday lives. Nowadays most of the energy comes from fossil fuels, a nonrenewable energy source emitting tons of carbon dioxide, which have induced severe greenhouse effects. Meanwhile, the rapid development of society in the 21st century needs great demand of energy supply, which leads to a surge in the utilization of fossil fuels and severe pollution of the environment. It spurs the development of green and renewable energy. Production of energy from biomass has the potential to lower greenhouse gas emissions compared to the combustion of fossil fuels, because the CO₂ released during energy conversion is consumed during subsequent re-growth of biomass. Among numerous approaches for producing renew-

able energy from biomass, reforming is a classical and efficient method. Bio-ethanol steam reforming (ESR) for hydrogen production has attracted much attention since bio-ethanol is sustainable, cheap, easy to handle, low in toxicity, and thermodynamically feasible to decompose. The ESR process can yield a concentration of 60% - 84% of H₂ containing CO, CO₂ and CH₄ as byproducts. As the products of ESR are mainly hydrogen rich gases, they have been used in conventional internal combustion engines or gas turbine to provide power or heat. However, it would be more desirable to use fuel cells to convert hydrogen energy into electricity efficiently and cleanly. When H₂ is applied for fuel cells, the byproducts should be purified by water gas shift and CO preferential oxidation to eliminate CO. The conversion of oxygenated hydrocarbons into hydrogen appears to be advantageous for stationary applications, such as producing hydrogen as a reactant for chemical processes, supplying hydrogen for fuel cells (e.g., a battery charger), or producing hydrogen as a feed to an electrical generator operated using an internal combustion engine.

Investigations on understanding of the nature of ESR catalysts have been burgeoned due to the increasing interests in hydrogen fuel cells. The ESR catalysts mainly include supported base-metals (e.g., Ni, Co, Cu) and noble-metals (e.g., Pt, Rh, Ru, Pd, and Ir). Although noble-metal-based catalysts exhibit excellent activity and stability in ESR, their large scale application is limited primarily due to the high cost and low reserve of the active metal. Thus, the development of a non-noble catalytic system with desirable activity and stability would be an important step in making the ESR more economically feasible. Among base metals, supported Ni catalysts have been widely examined considering its superior ability in C-C, C-H, C-O bond cleavage and dehydrogenation. High dispersion of nickel nanoparticles is crucial for highly efficient conversion of ethanol and H₂ production since it can provide more sites for C-C, C-H bond activation. However, nickel catalysts suffer from sintering of the metal particles and carbon deposition, which causes the catalyst deactivation

and reactor plugging. One possible solution is to engineer catalysts with strong metal-support interaction that could suppress sintering and carbon formation.

In order to improve the metal-support interaction, several unconventional structures have been studied, e.g., hydrotalcites and perovskites. It has been demonstrated that Ni/LaAlO₃ and Ni/SrTiO₃ showed high catalytic activities among the Ni/perovskites and longer-term stabilities than the conventional catalyst. However, these materials usually has a relatively small specific surface area. The application of novel preparation routes to produce silica-based catalysts has been reported to enhance metal-support interaction, particularly for silica supported Ni catalysts. A two-step procedure for the preparation of Ni/SiO₂ (2:1 nickel phyllosilicates (PS)) catalysts was reported exhibiting enhanced interaction between Ni and SiO₂. It has also been reported that the PS phases formed have a strong interaction with Ni species due to the layered PS structure. The silica supported nickel materials prepared by deposition-precipitation and ion exchange methods possess considerable amount of PS phases. Two types of Ni-containing PS are typically obtainable with different Ni to PS molar ratios (i.e., 2:1 and 1:1). The 2:1 Ni-PS (i.e., Ni₃Si₄O₁₂H₂) contains about ~36 wt.% Ni, whereas the other one has a formula of Ni₃Si₂O₉H₄ with ~46 wt.% Ni. In Ni 1:1 PS, each layer consists of one tetrahedral sheet (Si coordinated to four oxygen atoms) and one octahedral sheet (Ni coordinated to six oxygen atoms or hydroxyl groups). In the case of a 2:1 PS layer structure, one octahedral sheet sandwiched between two tetrahedral sheets.

This paper describes the synthesis, characterization, and utilization of Ni/SiO₂ catalysts for the steam reforming of ethanol. Ni-containing PS was prepared by the ammonia evaporation (AE) method as catalyst precursors, and the reduced catalyst (denoted as Ni/SiO_{2p}) was compared with that prepared by the conventional impregnation (denoted as Ni/SiO_{2i}) in ESR at 400-700 °C. XRD, TEM, and IR were used to characterize the structure and morphology of Ni-containing PS; BET, TPR, XRD, and TEM were used to characterize the textural properties and nature of metal-support interaction, crystalline phase and nickel dispersion of the catalyst. We had also performed the stability test at 400 °C and 600 °C to understand the cause of difference in stability of the catalysts.

RESULTS AND DISCUSSION

Characterization of the calcined Ni/SiO₂ catalysts

BET surface area of Ni/SiO_{2i} catalyst decreases slightly after impregnation. The Ni/SiO_{2p} possesses larger BET surface area, pore volume, and average pore diameter than Ni/SiO_{2i}. The pore shape of Ni/SiO_{2p} is "slit-like", whereas that of Ni/SiO_{2i} is "spherical". The pore size distribution curves derived from the desorption branch using the BJH algorithm show that they are both mesoporous. The pore size of Ni/SiO_{2i} is in the range of 2 - 8 nm compared to 2 - 40 nm for Ni/SiO_{2p}.

XRD patterns of Ni-containing PS show that diffraction peaks at 5.8°, 19.4°, 26.7°, 33.7°, 39.7°, 53.2°, 60.9° are attributed to the (001), (100), (103), (110), (200), (210), (300) facets of 2:1 PS, respectively. TEM images of Ni-containing PS confirm the formation of characteristic layered structures of Ni-containing PS.

IR spectra of Ni/SiO₂ catalysts show the vibration bands at 460 cm⁻¹ and 800 cm⁻¹ are attributed to the Ni-O-Si vibrations and the tetrahedral Si-O mode vibrations, respectively, which appeared in both Ni/SiO₂ catalysts. The vibration band at ~670 cm⁻¹ ascribed to the δOH vibration is observed for Ni/SiO_{2p}, characteristic of the well-formed PS structure.

Characterization of the reduced catalysts

TPR profiles of the Ni/SiO₂ catalysts show that the reduction peak at ~360 °C can be ascribed to the reduction of NiO particles. The reduction peak at 500 °C is attributed to the isolated Ni²⁺ ions grafted to surface groups from silica, while Ni²⁺ ions in bulk phyllosilicates are reduced at 550-900 °C, depending on the crystallinity. The main reduction peak of Ni/SiO_{2p} at higher temperature compared to Ni/SiO_{2i} indicate a stronger metal-support interaction of Ni-containing PS. The reduction extent of Ni/SiO_{2p} is 92 %, while that of Ni/SiO_{2i} is 99 %.

Upon reduction, Ni/SiO_{2i} possesses good nickel crystallinity, and the crystal size of Ni particles is ~20 nm calculated by the Scherrer equation from the Ni(111) plane. Comparatively, Ni-containing PS phase is still present in the XRD patterns of Ni/SiO_{2p} and the Ni peak is very weak, implying fine dispersion of Ni species on the support. The improved dispersion of Ni in Ni/SiO_{2p} over Ni/SiO_{2i} is in accordance with the result of H₂-chemisorption.

TEM micrographs of the Ni/SiO₂ catalysts upon reduction show that spherical nickel particles are well dispersed on Ni/SiO_{2p}, while the nickel particles have a wide size distribution on Ni/SiO_{2l}, implying that Ni/SiO_{2p} has a better dispersion over Ni/SiO_{2l}. There was the PS structure remained in Ni/SiO_{2p}, implying that nickel was not fully reduced after 1 h reduction at 700 °C. The δOH vibration and OH stretching vibration peaks were also observed for Ni/SiO_{2p} upon reduction but with less intensity, suggesting that the PS structure is partly broken down. This is in accordance with TPR results and earlier work that Ni-containing PS cannot be fully reduced when reduction temperatures is lower than 700 °C. Nickel particles in Ni/SiO_{2p} have a much smaller mean particle size (~ 3.3 nm) compared to Ni/SiO_{2l} (~ 20.4 nm), consistent with the results obtained from the XRD spectra. The difference in particle size could be due to the stronger metal-support interaction in Ni-containing PS that also leads to high dispersion of nickel particles.

Activity and stability test of Ni/SiO₂ catalysts

For a fixed catalyst, TOF of ethanol increases with temperature. TOF of ethanol and H₂ selectivity on Ni/SiO_{2p} is higher than that of Ni/SiO_{2l} at low temperatures (e.g., 400 °C). Notably, H₂ selectivity first increases with an increase in temperature to 600 °C, and then decreases upon further increasing temperature. Here, ethanol conversions were all lower than 100%, and for a fixed space velocity, ethanol conversion increases with temperature. For a fixed reaction temperature (e.g., 500 °C), CH₃CHO selectivity on Ni/SiO_{2p} is lower than that on Ni/SiO_{2l}, indicating a higher C-C bond cleavage reactivity of Ni/SiO_{2p}; wherever CO selectivity on Ni/SiO_{2p} is lower than that on Ni/SiO_{2l}, CH₄ and CO₂ selectivity on Ni/SiO_{2p} is higher than that on Ni/SiO_{2l}, which implies that WGS and methanation activity on Ni/SiO_{2p} is higher. This could be owing to the high surface area of active nickel species of Ni/SiO_{2p}.

The stability of the Ni/SiO₂ catalysts were tested at 400 °C and 600 °C. When the reaction was carried out at high space velocities and 400 °C, ethanol conversion on Ni/SiO_{2p} keeps at ~80% after 30 h reaction, and H₂ selectivity keeps nearly intact, indicating the good stability of Ni/SiO_{2p}. Comparatively, Ni/SiO_{2l} suffers severe deactivation with ethanol conversion decreasing from 100% to ~40% after 30 h reac-

tion and selectivity of C₂-C₃ compounds (e.g., CH₃CHO, CH₃COCH₃) increasing to ~20%. We also note that selectivity of H₂ and CO₂ increases slightly after 15 h accompanying with a decrease in CO selectivity, probably due to that WGS is more efficiently at low ethanol conversions. When the ethanol conversion was low, less carbon containing products was produced and thus more active sites remained for WGS. Since both catalysts deactivate, the catalyst is not very suitable in ESR at 400 °C. However, at 600 °C, Ni/SiO_{2p} shows full ethanol conversion without a significant change in the product distribution during the entire 60 h testing period, while ethanol was partially converted after 40 h reaction on Ni/SiO_{2l}, which gradually decreased to ~90%. CH₃CHO was also produced after 55 h reaction.

Characterization of used Ni/SiO₂ catalysts

XRD patterns of Ni/SiO₂ catalysts after the stability test show that nickel, amorphous SiO₂, and quartz phases all appear in both Ni/SiO₂ catalysts. Surprisingly, the crystal size of nickel of Ni/SiO_{2l} decreases to ~10.0 nm and ~12.4 nm after the reaction, whereas that of Ni/SiO_{2p} slightly increases. Ni/SiO_{2p} remains its plate-like structure, and the nickel particle size increases to ~5.8 nm and ~5.7 nm after the 400 °C and 600 °C tests, which is in accordance with our XRD results. However, for Ni/SiO_{2l} nickel particles were enveloped by either amorphous carbon or graphite upon the reaction, and the particle size of nickel decreased to about 10.1 nm and 12.0 nm after 400 °C and 600 °C test, respectively. This could be due to the formation of nickel carbide species from severe carbon deposition, which further induces particle reconstruction and break down large nickel particles into smaller ones. But this is not a proof that Ni/SiO_{2l} has capacity of anti-sintering, since it has severe carbon deposition surround the nickel particle. However, since Ni₃C and metallic Ni have similar diffraction peaks, it is not very likely to clearly distinguish the formation of Ni₃C via XRD patterns.

In order to further clarify the cause for the decreased nickel particle size and the severe deactivation on Ni/SiO_{2l}, HRTEM images have been carried out. Indeed, Ni₃C species are around nickel particles on Ni/SiO_{2l}, whereas nickel particles were still well dispersed on Ni/SiO_{2p}. It is very likely that the strong metal-support interaction between Ni and PS resists Ni₃C formation. Ni₃C has been reported to form in

reactions involved hydrocarbons, e.g., methanation and steam reforming. A model has been proposed for carbon filament growth on supported nickel catalysts, in which nickel carbide formed first and would induce the particle reconstruction and severe carbon deposition. In our reaction conditions, Ni₃C formation decreased nickel particle size through the nickel particle reconstruction.

Carbon deposition after stability test was also determined by TGA measurements. Carbon deposition rate was calculated from weight loss of catalyst after temperature programmed oxidation divided by catalyst weight and reaction time. The carbon deposition on Ni/SiO_{2l} is more severe compared to Ni/SiO_{2p}, which is in accordance with TEM results. While the carbon formed after 400 °C test was whisker-like carbon (DTG weight loss peak lower than 600 °C), 600 °C test led to the formation of graphite species, confirmed by DTG results. Carbon deposition is mainly induced by methane decomposition on our catalysts; considering high methane concentration and feed velocity of ethanol at 400 °C compared to that at 600 °C, an increased amount of carbon deposition at 400 °C was observed.

CONCLUSION

We have shown that the Ni-containing PS with layered structure can be obtained via the conventional AE method. The prepared phyllosilicate catalysts have several characters: (1) unique layered structure; (2) presence of Ni(OH)₂ in the reduced catalysts; and (3) enhanced binding of Ni species. These properties contribute to the stronger metal-support interaction and higher nickel dispersion compared to Ni/SiO_{2l}, which accounts for the improved reactivity and stability of the Ni/SiO₂ catalyst on ESR. Remaining OH groups on Ni/SiO_{2p} upon the reduction facilitate elimination of carbon species deposited during the reaction. The severe carbon deposition induces Ni₃C formation, thus lead to the reconstruction of nickel particles and deactivation of the Ni/SiO_{2l} catalyst. We have also proposed a reaction scheme on Ni/SiO_{2p} reflecting that the effect of PS structure on the reaction pathways. However, we need to point out the amount of remained PS structure in the reduced Ni/SiO_{2p} cannot be tuned in a controllable manner based on the preparation method we employed, and thus further improvement on the synthetic method of catalysts would be desirable.

ACKNOWLEDGMENTS

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NUMERICAL MODELING OF SEISMOLOGY AND AIRCRAFT INDUSTRY PROBLEMS

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INTRODUCTION

There is no doubt that the earthquake resistance of the residential buildings and industrial structures like nuclear power plants, open pits and hydroelectric power plants has an enormous importance and it is an issue of a great interest. In this work the seismology problems are considered. We are solving the problems of their earthquake resistance. For the sake of this the earthquake explosion problem in the geological medium is solved. Then we consider the residential buildings and the industrial structures like heterogeneous medium and determine the possible zones of destruction with the help of high-precision and physically correct numerical modeling.

A lot of us are afraid of flying. So the question of the aircraft composites' strength is interesting and useful. We examine the problems of the aircraft composites for the possible zones of destruction to be determined. For the sake of this we consider composites like heterogeneous medium with multiple layers. The comparison of the numerical experiments with the physical ones gives brilliant coincidence. And the series of high-precision and physically correct numerical experiments provides the findings needed.

The aim of this work is the numerical modeling of the seismic and aircraft industry problems. For this purpose the program system is developed. Grid-characteristic method on structured and unstructured tetrahedral hierarchical meshes using multiple time step, the high-order interpolation is developed and used in this program system. This method has the precise formulation of contact and boundary conditions and is suitable for the physically correct solution of the seismology and aircraft industry problems in complex heterogeneous media with a large number of inclusions (multiple layers, cracks, cavities, etc.). All algorithms are parallelized on high-performance computing systems for the problems to be solved with real problem definitions.

EARTHQUAKE NUMERICAL MODELING

The figure 1 shows the earthquake hypocenter modeling. The thickness and the color of the rendered environment show the velocity magnitude. The earthquake hypocenter was modeled like a shift along the fault plane in the homogeneous cube.

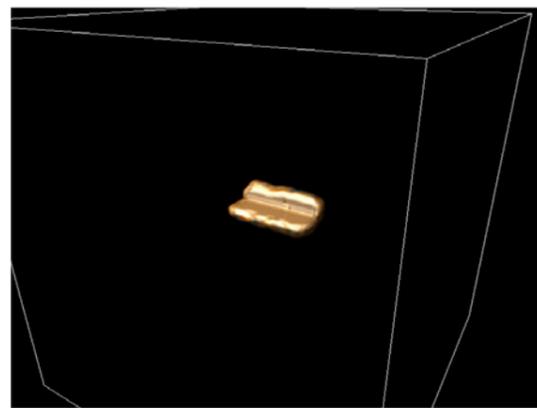


Figure 1. Earthquake hypocenter 3D numerical modeling

Figure 2 presents the propagation of seismic waves from the hypocenter to the surface of the Earth. Then we can model the influence of these waves on the residential buildings and on the industrial structures as shown in the following figures

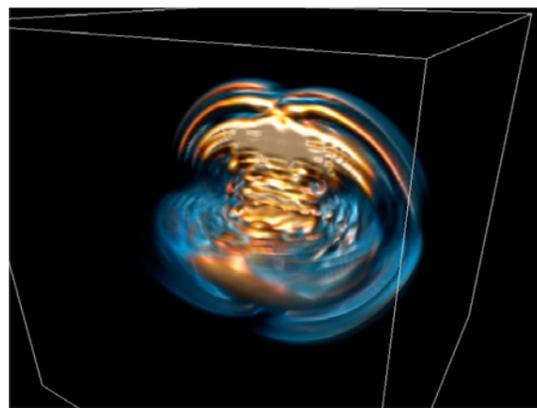


Figure 2. Seismic waves from the hypocenter 3D numerical modeling

RESIDENTIAL BUILDINGS EARTHQUAKE RESISTANCE PROBLEMS

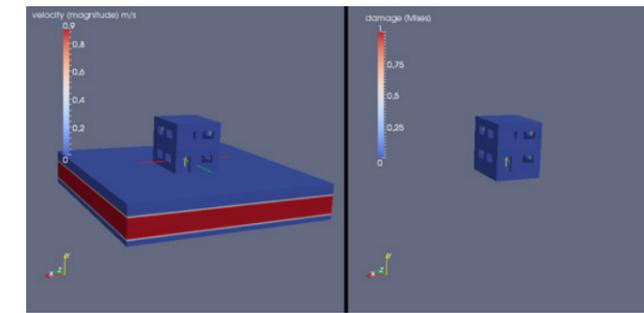


Figure 3. Residential building earthquake resistance 3D numerical modeling. The initial state

Figure 3 shows the initial state for the residential building earthquake resistance problem. Figure 4 represents the possible zones of destruction determined based on the Mises criteria.

At the left part of the figures 3, 4 the color represents the velocity magnitude as shown on the scale. At the right part of the figure 3, 4 the color represents the possible zones of destruction as shown on the scale.

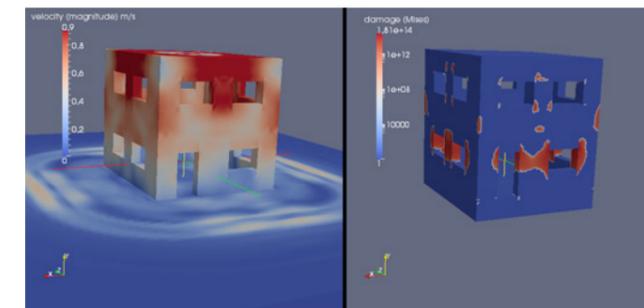


Figure 4. Residential building earthquake resistance 3D numerical modeling. Possible zones of destruction

HYDROELECTRIC POWER PLANTS EARTHQUAKE RESISTANCE PROBLEMS



Figure 5. Sayan-Shusha hydroelectric power plant

Figure 5 is the photograph of Sayan-Shusha hydroelectric power plant.

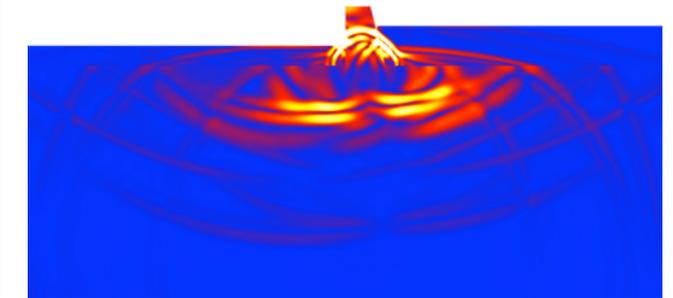


Figure 6. Hydroelectric power plant earthquake resistance 3D numerical modeling. Seismic waves' pattern

Figure 6 represents the seismic waves' pattern affected on the hydroelectric power plant during the initiation of seismic activity. The color shows the velocity magnitude (from blue to white). Then we use Mises criteria for identification of the possible zones of destruction. The example of this method' application is shown on the figure 4 for the residential building.

OPEN PITS EARTHQUAKE RESISTANCE PROBLEMS

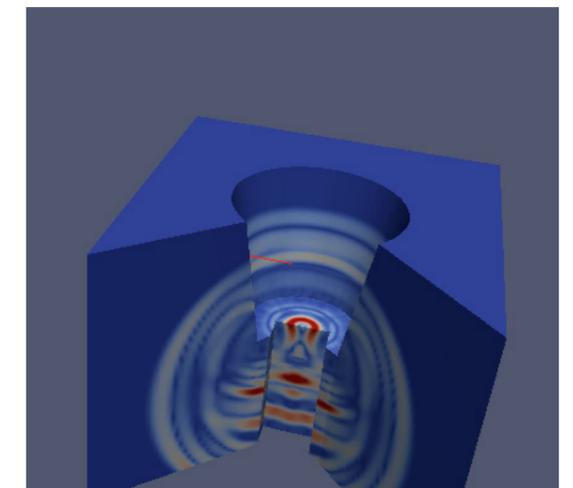


Figure 7. Open pit earthquake resistance 3D numerical modeling. Seismic waves' pattern

Figure 7 represents the seismic waves' pattern influencing on the open pit. The color shows the velocity magnitude.

NUCLEAR POWER PLANTS EARTHQUAKE RESISTANCE PROBLEMS

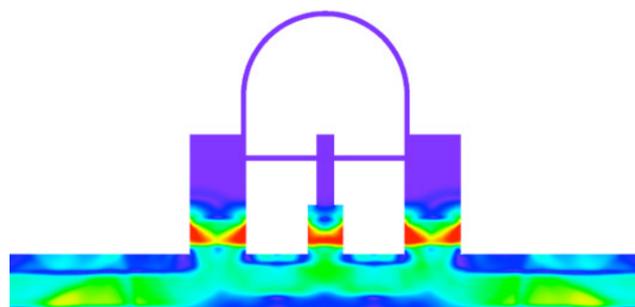


Figure 8. Nuclear power plant earthquake resistance 3D numerical modeling. Seismic waves' pattern

Figure 8 shows the seismic waves' pattern affected on the nuclear power plant. The color shows the velocity magnitude.

AIRCRAFT COMPOSITES INVESTIGATION PROBLEMS

Modern aircrafts contain significant amount of composite parts. One of typical aircraft components is depicted at figure 9, it is an element of composite wing covering together with a stringer element attached to it. Covering is made of three composite subpackages, stringer contains six subpackages. Each subpackage includes eleven mono-layers with long oriented fibers. When a dynamic load is applied to this composite construction, it results in complex wave patterns in monolayers and subpackages, including multiple reflections and refractions of acoustic waves in heterogeneous composite medium.

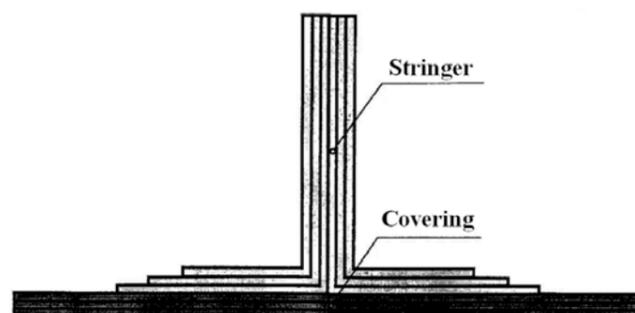


Figure 9. Stringer and covering arrangement scheme

Composite materials testing includes dynamic load tests performed with steel striker. Figure 10 shows generic 3D scene with an element of composite covering and stringer and steel striker. The geometry of the scene matches physical experiment performed during testing. Figure 11 shows an example of unstructured tetrahedral mesh constructed for this scene.

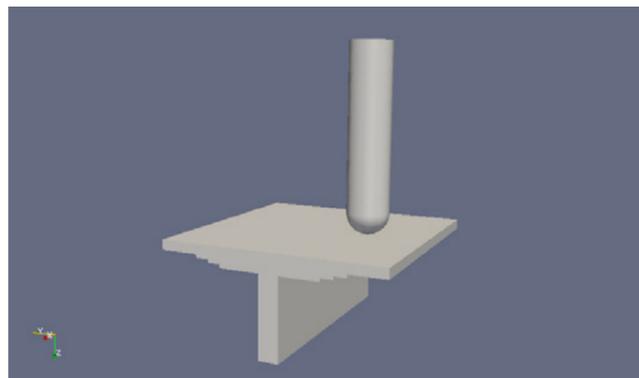


Figure 10. Aircraft composites investigation 3D numerical modeling. Non central strike. 3D scene

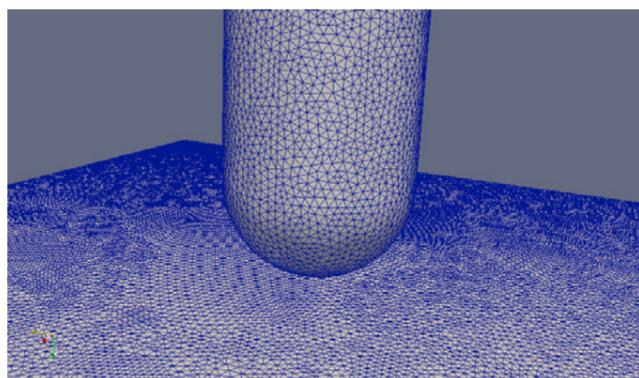


Figure 11. Tetrahedral mesh for the aircraft composites investigation problem

Figure 12 shows the possible zones of destruction of the aircraft composites in the case of the non central strike. These zones were determined based on the Mises criteria. Possible destruction is located near the strike area. Destruction based on criterias of maximum compression and maximum shift behave similarly and concentrate of the frontal side of the construction near the striker.

Figure 13 shows the possible zones of destruction determined using maximum tension criteria. The important thing is that these zones are located on the internal side of the construction. It is the result of wave fronts interaction – the bigger damaged zone is caused by superposition of waves reflected from the back side of the covering and from the lateral side of stringer binding area.

Figure 14 shows the resulting picture of destruction in composite construction with all destruction criterias applied.

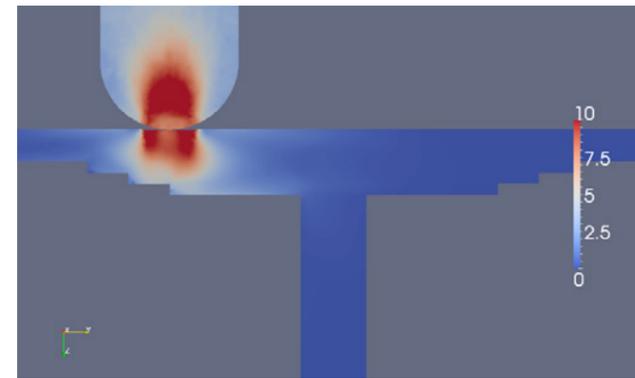


Figure 12. Aircraft composites investigation 3D numerical modeling. Non central strike. Possible zones of destruction according to Mises criteria

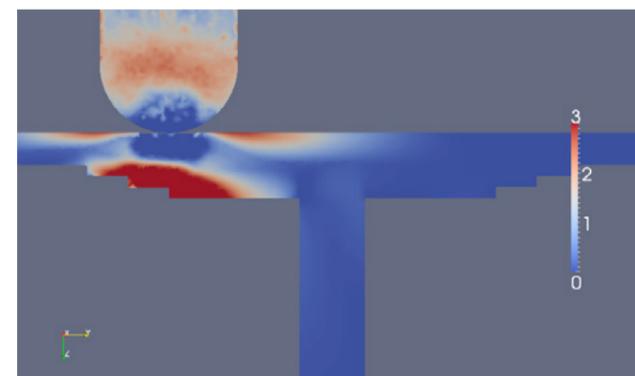


Figure 13. Aircraft composites investigation 3D numerical modeling. Non central strike. Possible zones of destruction according to maximum tension criteria

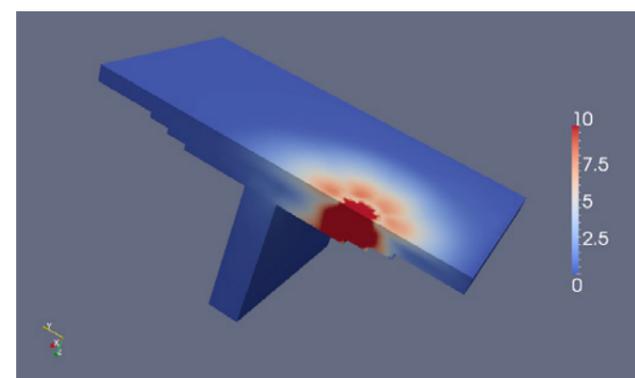


Figure 14. Aircraft composites investigation 3D numerical modeling. Non central strike. Possible zones of destruction according to all criterias used

CONCLUSION

The power of numerical experiments in the area of seismology provides a possibility to prevent destructions of residential buildings and industrial structures like nuclear power plants, open pits and hydroelectric power plants. This kind of investigation especially made with high-precision and physically correct grid-characteristic method on super-computer systems has a great value and economic and practical demand.

Numerical investigations in the sphere of aircraft industry are very important as well. The results of aircraft composites' numerical modeling provide an opportunity to develop new structures and materials for the plane wrecks to be prevented.

Numerical experiments extremely well supplement physical ones. And the grid-characteristic method on structured and unstructured tetrahedral hierarchical meshes using multiple time step, the high-order interpolation owned the precise formulation of contact and boundary conditions in complex heterogeneous media with a large number of inclusions (multiple layers, cracks, cavities, etc.) developed at the Computer Science Department of Moscow Institute of Physics and Technology by scientific advisement of RAS corresponding member professor Igor Borisovich Petrov is one of the best methods for this very important purpose.

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PROBLEMS ON CREATING ECO-FRIENDLY OFF-ROAD WHEELED VEHICLES

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INTRODUCTION

Wheeled vehicles are the cheapest and therefore the most widespread way of delivery of people and goods to the remote areas in a case if it is a question of small and average volumes of a cargo transportation.

In northern areas, and also in remote areas to which qualitative roads aren't brought, lives about 2,8 million inhabitants of Russia which regularly need delivery of this or that goods, and also transport services. These needs are constantly increase.

In the same time one of the directions of development of national economy is development of new remote areas in which the main vehicle are the cars of the increased passability intended for work in cross-country conditions. In addition, state strategic task is further industrial development of the Arctic. That is impossible without using of the specialized transport.

In the last two decades one can observe significant increase in attention to environmental problems. In particular within the UN the Inter-governmental Working Group on the Advancement of Environment Statistics, the International service of data on the environment are created.

Within UNECE the decision on creation of the special working group which will be engaged in Environmentally Friendly Vehicles (EFV) is made. Particularly this group will develop the definition of such car. For off-road vehicles it is requirements for decrease in level of destroying influence of soil.

Proceeding from the above it is possible to conclude that today creation of eco-friendly wheeled vehicles for regions of the North and for movement out of roads is an actual task.

PROBLEM DEFINITION

Under environmental friendliness of vehicles first of all it is considered to be quality and number of harmful emissions from fuel burning. However besides there is still a set of the factors having impact on environment: destruction of the soils, the increased noisiness, soil pollution by oil products and other chemicals (not burned down fuel, the leaked oils and greasings).

Active work is conducted in all directions of increase of environmental friendliness of wheel vehicles. A lot of them have the successes. However in up-to-date cars not always are achieved provide performance of the set transport task at movement on the ground having low bearing ability. Also at movement of such vehicles out of roads the essential loss of ecology is caused of the soil at the expense of destruction of a cover and sealing of underlying layers.

If in areas with the developed road infrastructure the main problem of ecology of vehicles is the problem of emissions of exhaust gases, in regions of the North and the low-rendered habitable areas (including national parks and reserves) focus is displaced on a problem of destruction of the soil. In particular long ago is known that the trace from a dump truck on a surface of the tundra grows during tens years¹.

For decrease in harmful effects of the wheels it is required to reduce influence of each of destruction factors by the soil, to carry out works on decrease of ground pressure, to reduction of depth of a trace, reduction of extent of slipping of the wheel, decrease in failure of soil by wheels grousers².

¹ Витязева В.А., Котырло Е.С. Социально-экономическое развитие Российского и зарубежного Севера: Уч. пос. - Сыктывкар: СыктГУ, 2007. - 292 с.

² Коркин С.Н., Курмаев Р. Х., Петров С.Е. Экологические аспекты движения тяжёлых специальных автопоездов в условиях бездорожья // Материалы Международной научно-технической конференции Ассоциации автомобильных инженеров (ААИ) «Автомобиле- и тракторостроение в России: приоритеты развития и

Development of world automotive industry is caused by steadily increasing level of the demands made to modern vehicles. At the same time ecology and power consumption questions already now have a great impact on an image of designed cars.

For the cars intended to operation out of roads, the main indicator of efficiency is pass-ability. Parameters of interaction of the wheels with a basic surface were always observed from the point of view of decrease in resistance to swing and increases of its coupling qualities, and also a supply of an optimum torque. However today the choice of constructive decisions has to occur including taking into account ecological safety of designed cars³.

In the course of car movement out of roads to a firm covering there is a soil destruction: formation of a track, and also shift and failure of layers of earth owing to slipping of wheels. Result of sealing and change of structure of the soil is violation of a normal natural course of processes in a trace and in an adjacent zone. These problems were studied by experts in the field of agricultural mobile machinery (for decrease in damage to fertility of the soils, caused by wheels) and also had reflection at design and certification of the vehicles intended for operation on Far North (it is connected with low bearing ability of soil of the region and the long period of their self-restoration).

For decrease in the ecological damage caused to soil, it is necessary to investigate interrelation of the key design data of wheel cars and a physicomachanical condition of basic surfaces on which moves the car which influence interaction of the wheel with a basic surface: wheel formula, steering wheel formula, axial formula, type and scheme of transmission, suspension parameters, parameters and type of the tire, the scheme of redistribution of a torque on driving wheels and bridges, grousers pattern and air pressure in tires.

The complex indicator giving in to a quantitative assessment and characterizing result of impact of the wheel on the soil is decrease in reproductive opportunities of the soil (as synonyms – “vegetation oppression” or, in that specific case, reduction of biological productivity).

подготовка кадров», посвящённой 145-летию МГТУ «МАМИ». – М.: МГТУ «МАМИ», 2010 г. – Книга 1. – С. 179 – 185

³ Агейкин Я.С. Проходимость автомобиля// Я.С. Агейкин, Н.С. Вольская, И.В. Чичекин – М.: МГИУ, 2010

To the main physical properties of the soil which changing under the influence of wheels belong density, a structural condition, hardness and porosity. With these indicators are directly connected water- and air- capacity, water- and air- permeability which generally define both potential and effective fertility of soils and to some extent changing under the influence of wheels.

It is noted that for different soils density (volume weight) is to a certain extent an integrated indicator of a physical condition. In this connection in various researches establish optimum sizes of density. Generally growth of density of soil, for example under the influence of wheels with excess of a certain level leads to considerable or sharp deterioration of waters-physical and agrochemical properties of soils.

As it was noted above, as criteria of optimization are used: ground pressure, the trace depth, extent of slipping of the wheel, disruption of greensward by wheel grouser. Let's consider them in more detail.

GROUND PRESSURE

As criteria of an assessment of environmental friendliness of the vehicle are used two parameters of pressure upon soil: average pressure in a spot of contact and peak pressure in a contact spot. In an ideal such criteria has to serve the picture of distribution of pressure in a contact spot from which it is possible to receive both peak and average values.

Peak pressure determines possibility of movement of the wheel by the soil without a rupture of the top soil layer. It is important as from the point of view of ecology – such gap can lead to the accelerated soil erosion, and from the point of view of passability – for example, the rupture of the top peat layer of a bog leads to full loss of bearing ability by peat and drowning of wheel. For example, depending on type of bogs, this size can make from 10 to 30 kPas (from 1,45 to 4,35 psi).

It is known that resistance to wheel movement by soil depends on size and shift of the center of pressure from the geometrical center of a spot of contact. The case of uniform distribution of pressure in a contact spot will be optimum.

It is necessary to consider that pressure extends not only on a surface, but also deep into soil, causing sealing of the last. It can lead to destruction of part of the ecosystem connected with animals, living in the soil.

Therefore carrying out researches in the field of modeling of interaction of an automobile wheel with a soft soil cover collapsing from power influence is actual. Now the problem of optimization of interaction of the tire in a spot of contact with soil isn't solved. It is important to predict development of such contact task at a stage of a choice of parameters of the wheel. My research work is conducted just in this direction.

It is possible to reduce ground pressure, for example, using wheels of big diameter, with the lowered rigidity (providing the increased deformations of a wheel). It is necessary to seek for uniform distribution of elements of rigidity on a circle of a contact surface of a wheel: the grousers has to be uniform, saturated. In case of use of airless wheels it is necessary to aspire to increase in number of elastic elements with simultaneous reduction of rigidity of each of them.

THE DEPTH OF THE TRACK

The depth of the track is one of the most important criteria of passability and environmental friendliness of vehicles in cross-country conditions.

From the economic point of view the maximum economic effect is reached when using vehicles of high loading capacity. In particular It defines big dimensions of wheels, and respectively dimensions of a track which is formed by them. Width of a track can reach 1 meter and more. Thus the track even small depth after a precipitation can become an absolute obstacle for natural migration of animals, thereby destroying a fragile ecosystem of regions of the North. Also this obstacle can prevent animals to escape at forest fire.

The deep track are also destroys existing and interferes with creation of new holes by small rodents and other animals.

The more the track depth, the bigger resistance will be shown to the wheel. In connection with considerably big resistance to turn of a steering wheel than is provided by a design the probability of im-

possibility of change of a direction of movement increases. It can lead to impossibility of continuation of movement and vehicle failure.

COEFFICIENT OF SLIPPING

For improvement of dynamics of wheel vehicles requires rational distribution of power on wheels depending on traffic conditions. In theory the individual drive on each wheel with the calculated operating algorithm which can be realized when using hydrovolume (HVT) or electric transmission is ideal. However because of high cost and low efficiency this type of transmission doesn't find application in mass automotive industry. Its use can be justified only in case of multi-axis all-wheel drive vehicles.

Realization of such approach on the two-axis car is possible when using in differential mechanical transmission with operated change of coefficient of blocking. He allows to regulate a torque which transferred from the engine to driving wheels, depending on a covering, the provision of a wheel and a pedal of an accelerator, frequency of rotation of wheels and car speed.

Its structure includes usual symmetric differential, a mechanical planetary row and multidisk frictional couplings with electronic control for each of wheels. In the received electro-mechanical system are combined information technologies, electronics and mechanics. There are processed data of sensors of rotation round a vertical axis, speed of rotation of wheels, an angle of rotation of a steering wheel and a torque of engine that allows system to react with high speed to any changes of a road situation. Use of system gives the chance to avoid slipping. Communication with the control unit of the engine increases environmental friendliness of the vehicle and decreases fuel consumption.

Thus using of differential with operated change of coefficient of blocking and system of change of pressure of air in tires will allow to reduce negative influence of wheel cars on soil.

DISRUPTION OF GREENSWARD BY WHEEL GROUSER

Disruption of greensward is dangerous that causes the accelerated soil erosion, leads to destruction of a vegetable cover.

After disruption of greensward integrity of a cover is broken that leads to decrease in temperature of the soil (to 3,5 degrees within 48 hours). It can lead to a local overcooling of plants and decrease in reproductive opportunities of the soil.

Disruption of the top peat layer can lead to full fracture the layer and the entire boggy district ecosystem.

For decrease in probability of disruption of greensward, it is required to optimize a form of wheel grousers. It is recommended to exclude sharp edges, to increase a grousers saturation, to reduce its height of grousers, to do them with the minimum rigidity.

However it should be noted that all these measures can lead to decrease in passability. Therefore at vehicle creation as a whole and the wheel in particular it is required to carry out preliminary research work for determination of optimum parameters of the wheels for each concrete projected vehicle and conditions of its operation. Works on creation of highly effective and eco-friendly wheel vehicles are conducted on MSIU (Moscow state industrial university) department of cars and engines. I hope to make the contribution to the solution of this most difficult problem facing producers of transport for off-road terrain and the northern regions of Russia.

CONCLUSION

From all above follows that the problem of creation of eco-friendly vehicles for regions of the North and at movement out of roads is actual. In this regard the solution of a problem of an assessment and a choice of optimum parameters of the wheel and a suspension depending on the alleged region of operation taking into account real physicomachanical properties of soil is required at creation of such vehicles.

Particularly it is required to optimize overall dimensions of a wheel, the grousers characteristic (height, a saturation, tire tread patterns), internal pressure in the tire so that ecological, economic, production and other requirements were at the same time satisfied.

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CONSTRUCTION OPTIMIZATION STUDY FOR CARGO CONTAINMENT SYSTEM OF ARCTIC LNG CARRIERS

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Arctic and sub-arctic regions of Russia are home to some of the large gas reservoirs, attracting numerous energy development projects, especially Yamal region of Kara Sea and Shtokman field. Natural gas extracted from these regions may be exported to other destinations through a ship-borne transportation system.

One of key issues at conceptual design phase is the integrity and safety of LNG cargo containment systems (LNG CCS) under repeated ice impact.

INTRODUCTION

The main component of natural gas is methane. It is condensed to about 1/600 of the volume by cooling to below the -160°C , boiling point, to produce LNG.

LNG has three major characteristics as a seaborne trade cargo:

- 1) The -160°C , super-low temperature,
- 2) A low specific gravity (0.43 to 0.50), and
- 3) Flammability.

Various cargo containment systems having various configurations, materials and structures suitable to LNG have been proposed and put into practical use. The spherical independent tank type and membrane tank type are adopted mainly at present due to their economy and reliability. Table 1 shows a comparison of those containment systems.

Table 1 The structure of containment systems

	MOSS	Membrane	
		Gaz Transport (NO96)	Technigaz (MkIII)
Tank section			
Insulation structure			
Insulation material	Plastic foam	Insulation box filled with perlite	Plastic foam

INDEPENDENT TANK TYPE

With the independent tank type, the hull and tanks are independent structures and self-supporting tanks are arranged inside the hull. Therefore, deformation due to thermal expansion and contraction is not directly conveyed to the hull. The liquid cargo load in the tanks acts on the self-supporting tanks, not directly on the insulation material, and all loads act on the tank supporting members.

Therefore sufficient strength and insulation performance are required for the supporting structure. Secondary barriers are required to be installed from the viewpoint of hull protection against leakage of LNG in an accident emergency.

In the spherical independent tank type the whole cargo liquid load is borne by the membrane stress of the tank shell in a shell structure tank, therefore stress concentration can be avoided. Also the spherical tank is installed on a cylindrical skirt in the hold and has the feature that deformation due to thermal expansion and contraction of the spherical tank is reasonably absorbed by the bending of the skirt.

Because of the simple configuration and structure of axial symmetry of the spherical tank and cylindrical skirt, high accuracy stress analysis is possible. Therefore the design concept, "No LNG leaks. Even when cracks are generated, progress of the cracks is extremely slow and leakage of LNG is slight" was experimentally and analytically certified and the partial secondary barrier is admitted. The spherical tank type is acknowledged to have the highest safety as tank type B of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).

MEMBRANE TANK TYPE

The concept of the membrane containment system is based on a very thin primary barrier (mem-

brane - 0.7 to 1.5 mm thick) which is supported through the insulation. Such tanks are not self-supporting like the independent tanks; an inner hull forms the load bearing structure. Membrane containment systems must always be provided with a secondary barrier to ensure the integrity of the total system in the event of primary barrier leakage. The membrane is designed in such a way that thermal expansion or contraction is compensated without overstressing the membrane itself. There are two principal types of membrane system in common use both named after the companies who developed them and both designed primarily for the carriage of LNG.

These two companies have now combined into one and future developments can be expected.

Figures 1 and 2 show the GTT No. 96 system comprising a thin Invar primary barrier. Invar is a stainless steel alloy containing about 36 percent nickel and 0.2 percent carbon. This is attached to the inner (cold) surface of perlite-filled plywood boxes used as primary insulation. These boxes have thickness of between 200 and 300 millimeters. These, in turn, are attached to an identical inner layer of Invar (the secondary barrier) and, finally, a further set of similar perlite-filled boxes is used for secondary insulation. Invar is chosen for the membranes because of its very low coefficient of thermal expansion, thus making expansion joints, or corrugation, in the barriers unnecessary. Newer designs of the GTT 96 system utilize Invar membranes of 0.7 millimeters thickness in strakes of 0.5 meters width and strengthened plywood boxes to hold the perlite insulation. The perlite is processed with silicon to make it impervious to water or moisture. The thickness of the insulation boxes can be adjusted to obtain the required amount of boil-off.

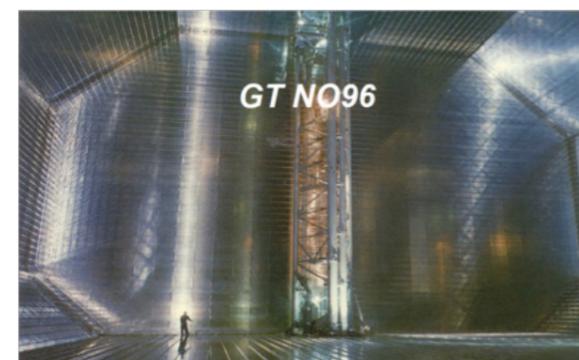


Fig. 1 GTT NO 96 system

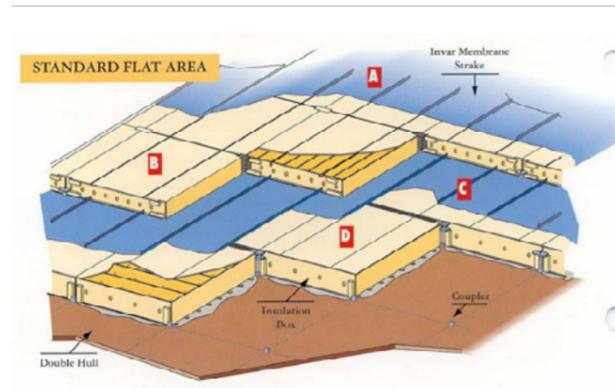


Fig. 2 Standard flat area, building principle of GTT NO 96

The GTT Mk III system, shown in Figure 3, features a primary barrier of stainless steel (1.2 millimeters in thickness) having raised corrugations, or waffles, to allow for expansion and contraction. In the original Mark I design, the insulation that supports the primary membrane consisted of laminated balsa wood panels held between two plywood layers; the face plywood formed the secondary barrier. The balsa wood panels were interconnected with specially designed joints comprising PVC foam wedges and plywood scabs and were supported on the inner hull of the tanker by wooden grounds.

In the Mark III design the balsa wood insulation is replaced by reinforced cellular foam. Within the foam there is a fiberglass cloth/aluminum laminate acting as secondary barrier. Figure 4 shows a cutaway section through the GTT Mk III containment system.

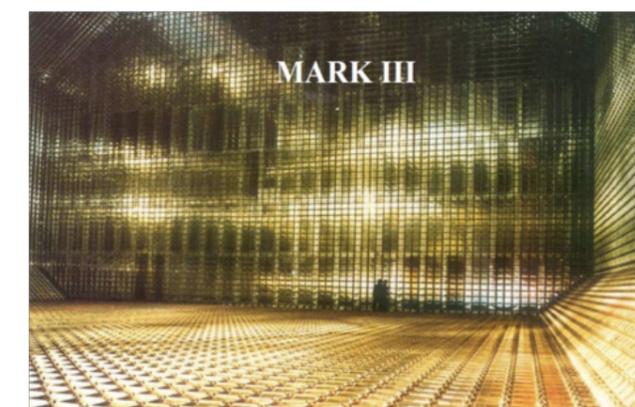


Fig. 3 GTT Mark III system

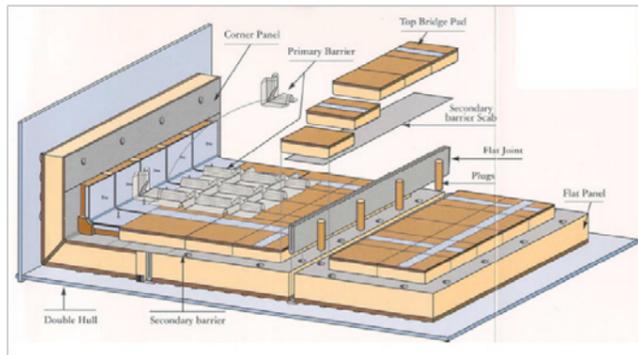


Fig. 4 Construction of the GTT Mk III Membrane

SLOSHING

Since LNG has all the properties of the liquid, sufficient attention should be given to the influence of the free surface effects of the liquid on the stability of the vessel. Moreover, hydrodynamic impact can lead to the destruction of the tank and both devices and mechanisms inside, due the incomplete filling of the tank and large free surface of the liquid. These waves may also lead to the formation of air bubbles inside the LNG, which increases the electrostatic charge in the tank.

For the structural integrity of the cargo insulation, the hull support structure and the pump tower and supports the loads induced by the motions of the liquid cargo inside the tanks need to be evaluated. These motions of the liquid cargo inside the tanks are called *sloshing*.

Sloshing became a very important practical problem in the last decade due to the increased activities in the LNG transport.

To avoid sloshing, it is necessary to keep lower level no more than 10% of tank length and upper level no less than 70% of tank height.

The next measure is limiting motions of the vessel and conditions, generating sloshing. Wave amplitude depends on weather conditions, vessel's heel and its speed.

At the same time the size of LNG carriers increased, the operational requirements became more and more severe. Indeed, in the past, LNG carriers were allowed to operate either in full or in empty tank conditions, while today there is sometimes necessity to allow for operating at any filling level. This

requirement introduces serious difficulties in the design of both the containment systems and the associated ship structure. Violent sloshing motions may occur and the direct consequence is the occurrence of different impact situations, which can induce the large structural loadings possibly damaging both the containment system and the ship structure.

In our work we have calculated loads on the primary membrane in different tank filling cases (80% H, 60% H, 20% H) taking into account ice induced vibrations and accelerations (provided by Bureau VERITAS).

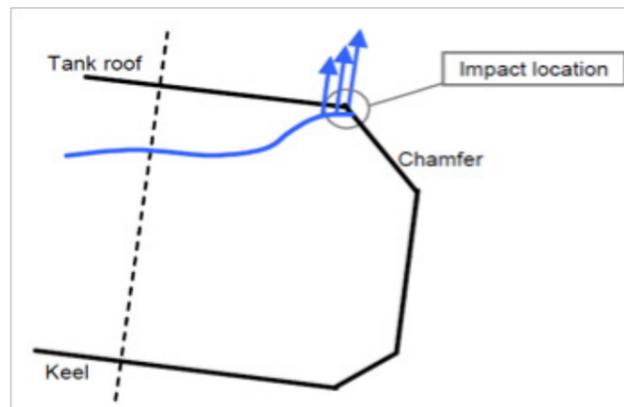


Fig. 5 Typical high-filling (80% H) impact due to a run-up along the longitudinal bulkhead and chamfer

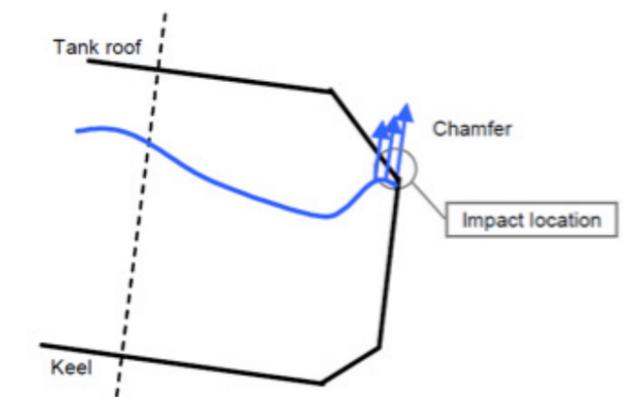


Fig. 6 Typical high-filling (60% H) impact due to a run-up against the longitudinal and or transverse bulkhead

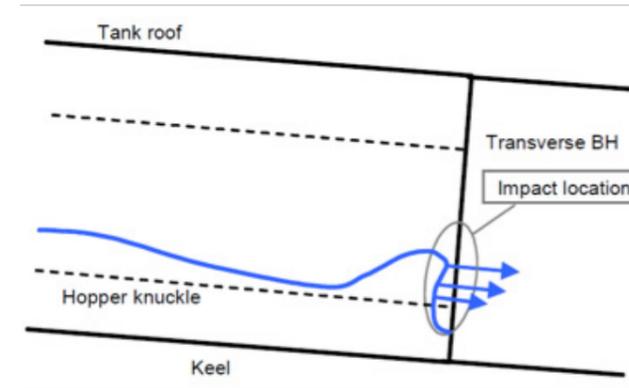


Fig. 7 Typical low-filling impact (20% H)

There were some assumptions accepted in the calculations:

- constancy of the volume of cargo;
- vapor pressure constancy;
- membrane is considered as a thin plate;
- for 60 and 80% H tank filling values change of hydrodynamic pressure is accepted as a linear (Fig. 8);

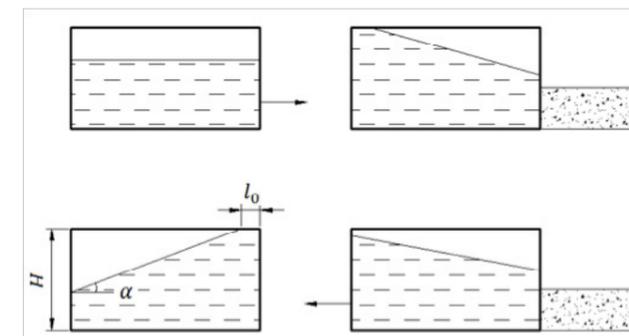


Fig. 8 Liquid motions chart for 60 and 80%H tank filling values and

In this case pressure to be calculated with the following formula:

$$p(y) = a \cdot \rho \cdot (l_0 + k \cdot y),$$

where

a – longitudinal acceleration, m/s^2

ρ – LNG density, kg/m^3

$$k = \frac{1}{tg \alpha}.$$

- for 20%H tank filling value pressure is assessed as hydraulic hammer to the fixed barrier (Fig. 9);

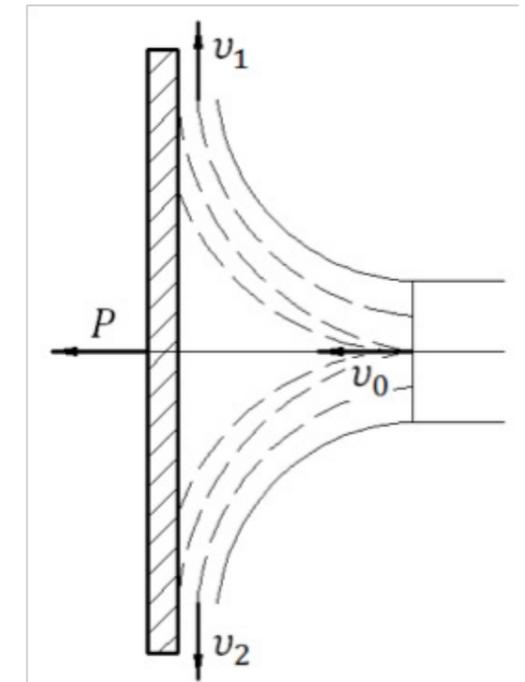


Fig. 9 Hydraulic hammer to the fixed barrier

Pressure to be calculated with the following formula: $P = \rho \omega_0 v_0^2$,

where

ω_0 – sectional area m^2

v_0 – initial velocity m/s

Stresses were calculated by computer program "SolidWorks Simulation".

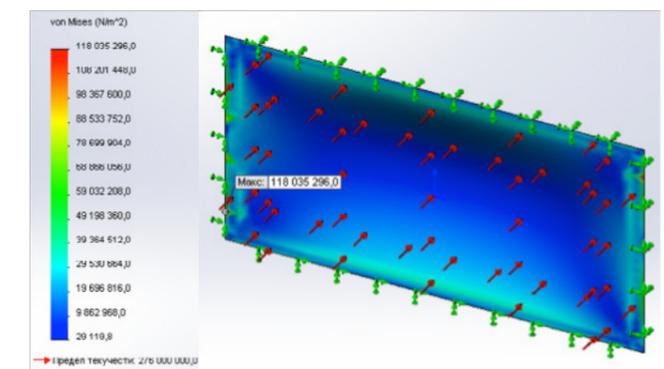


Fig. 10 Computer program modeling

Calculation results are presented in table 2:

Filling percentage	Maximum pressure, MPa	Equivalent stress, MPa	Membrane thickness, mm
80%H			3
60%H			3
20%H			3

Table 2 Calculation results

$[\sigma] = 276 \text{ MPa}$ yield strength.

In case of 20% H tank filling loads exceed allowable values. It is essential to decrease stresses or execute design changes because membrane failure can lead to insulation destroying and increase amount of boil off gas.

To decrease non-allowable values of loads is proposed to execute some changes (see Fig. 11) in the tank form and install reinforced membranes in the impact location areas.

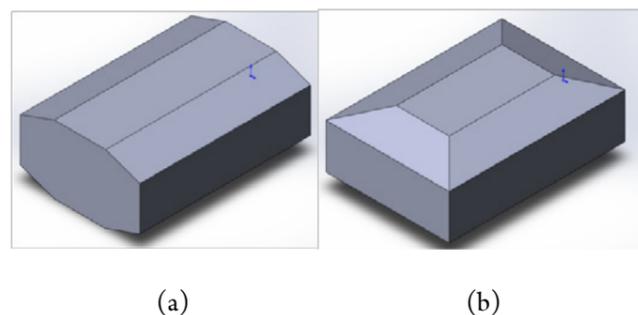


Fig. 11 Typical (a) and optimized (b) forms of tank

In the table 3 calculation results for optimized variant are shown:

Table 3. Calculation results for optimized design

CONCLUSION

There was executed review of existent cargo containment systems in this work.

For membrane tanks (No. 96) was calculated strength prediction for different filling levels (80, 60, 20 %H). Low filling levels may destroy primary membrane and injure insulation boxes. Leakage risks are absent due secondary membrane, but boil-off-rate will be higher. To avoid the risks of insulation failure and the cargo losses we proposed some changes in the tank design. For this stage recommended creating additional chamfers and reinforcing impact areas. Proposed chamfers angle is 20°. Due to these improvements stresses don't exceed allowable values.

On the next stages it is planned to assess possibility of membrane fatigue failures caused sloshing impact.

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COOL ROOFS: STATUS AND OPPORTUNITIES

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Abstract: Nowadays, half of the people in the world live in urban areas, where over 60% of surface space is roof and pavement. The selection of proper surface materials will help reduce the urban heat island effect and corresponding energy use. Light-colored high-albedo roofs, called cool roofs are very effective ways for cooling a building. However, the high cost of production and consumers' short term vision hinder their wide application. How to promote these energy-saving roofs to households is the real issue.

Similar to cool roofs, solar thermal energy is facing the same problem. In promoting energy-saving products, government and product companies play important roles. In Dezhou city, Shandong province of China, about 95% of homes use solar heating systems. Dezhou was named "China's Solar City". Government performance and local policy facilitate the usage of solar-energy products. More national energy-saving projects were started in 2009. China's central government launched a series of projects to promote energy-efficient products through financial subsidies. Government investment, companies' participation and consumer response have had a positive impact on the markets. It's a triple-win situation and makes widespread adoption of energy-saving products feasible.

In this study, different cool roofs were analyzed and discussed. Then China's central government's action in promoting energy-saving products were reviewed and summarized. This is followed by suggestions for promoting cool roofs to households.

Keywords: cool roofs; solar energy; consumption habits; government policy

INTRODUCTION

As of January 2013, world population was estimated by the United States Census Bureau to be 7.058 billion (U.S. Census Bureau, 2013). About 52% of the people live in urban areas (The World Bank Group, 2013). Cities have become the most important economic and political centers of countries. A growing number of people are moving to

cities, especially in developing countries like China. Cities provide better living conditions and more job opportunities, but the environmental pollution is a prominent problem threatening citizens' health. With unending urban sprawl, the original geological morphology has been greatly changed. Urban sprawl is occurred at the cost of the environment. The limited land, elevated population densities, high average temperatures, and poor air quality in urban areas make them not as comfortable as suburbs or rural areas. Broadly speaking, urbanization is miniature of globalization. Globalization means rapid economic development due to the convenience of communication and scientific and technological development, but at the cost of serious environmental destruction. Sustainable development is the key when facing the contradiction of economic development and environment protection. Only if the environment is well preserved, can economic development be kept in a steady way.

Over the past few years, a series of natural disasters have occurred and many lives have been lost. There are several causes from the geological perspective. For example, the changes in atmospheric composition and solar luminosity, volcanic eruptions, and variations in the earth's orbit around the sun. No direct relationship between short term human activities and natural hazards has been found. One thing which must not be neglected is environmental pollution caused by human activities, and the global warming during the past few decades. Over the past 100 years, the average global surface temperature increased by about 0.8°C (Committee on America's Climate Choices, 2011). It deserves notice that 3/4 of this warming occurred over the past 3 decades. The growing need for energy has led to exploitation of natural resources such as petroleum and coal. And deforestation in the urbanization process has led to ecological imbalance.

In this paper, roof materials will be emphasized and their impact on global warming will be stressed. Traditional roof materials are blamed for absorbing too much heat and increasing cooling expenses. By

using new roof materials, buildings will stay cooler and less energy will be used in cooling. This paper reviews and compares several energy saving roof materials.

However, without proper policies and government support, even though the new materials meet the urgent need for environmental protection, they cannot be efficiently used in our life. Because these materials are usually more expensive than traditional materials. Therefore, campaigns for promoting usage of these new materials and proper subsidies to increase the number of customers are important measures in promoting these materials to households. In China, government support for the use of environmental friendly energy and electrical equipment can serve as successful examples. This paper is a follow up to a talk given at Harvard University (Guo, 2010). Recent progress in scientific research of cool roofs and their adoption will be discussed. China's government policy in promoting environmental-friendly products will also be introduced.

COOL ROOFS

With increased urbanization, cities' environmental problems are a major concern. Especially on warm summer days, the air in the city can be 6-8°C hotter than its surrounding areas (Peterson, et al, 1999). This urban heat island effect causes discomfort and certain illnesses. Also, more energy is used in cooling, consequently energy consumption increases leading to an increased pollution. There're many causes of this effect, two of which are widely recognized. One is the lack of evapotranspiration by trees, shrubs and other plants to cool the air. The other is the dark buildings and pavements which absorb the sun's rays causing the temperature around them to rise.

Generally, cool roofs are light colors for their high solar reflectance and high thermal emittance. By reflecting part of the far-infrared rays away and radiating the absorbed energy, cool roofs can reduce heat transferred to the building and keep the building cool, as illustrated in Figure 1. Both solar reflectance (SR) and thermal emittance (TE) are measured from 0 to 1, respectively. The Lawrence Berkeley National Laboratory defined Solar Reflectance Index (SRI) combining solar reflectance and thermal emittance by a single value. The higher the cooling effect, the higher the number is. For example, the standard black is 0 and a standard white is 100. An online SRI calcula-

tor based on ASTM E 1980-01 standard developed by Oak Ridge National Laboratories (ORNL) can help calculate SRI of any roof material (Oak Ridge National Laboratories, 2006).

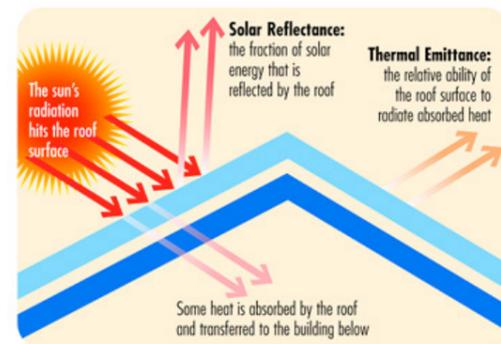


Figure 1. The cool roof schematic (Cool Roof Rating Council, 2012)

Cool roofs types

A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy, "Energy Star" sets up a series of standards to test roof products to help customers in choosing energy-efficient and environmental friendly roofs.

As of January 2013, there are 510 brands, totaling 4,556 roof products produced by 212 companies which have qualified for the Energy Star label (Energy Star, 2013). They're divided into 7 types in the Energy Star roof products list: metal, coating, shingles, single-ply, built-up-roof (BUR), modified bitumen, spray polyurethane foam and tile. The numbers of individual types are shown in table 1. Most of the Energy Star roof products are metal and coating types.

Table 1. Types and numbers of roof products

Type	Numbers
Metal	2,314
Coating	1,935
Tile	99
Single-Ply	86
Shingles	63
Modified Bitumen	50
Built-Up-Roof (BUR)	7
Spray Polyurethane Foam	2
Total	4,556

The criteria for these roof products set by Energy Star show that solar reflectance and its reliability are two keys to quality roof materials. Not only a high

initial solar reflectance but the maintenance periods must be considered. The warranty for reflective roof products must be equal to non-reflective roof products of all materials.

The market popularity of energy saving roof materials is rising. From table 2 it is clear that the market share of Energy Star Cool Roofing Products is increasing in U.S.

Table 2 Energy Star cool roofing product shipments (billion square feet) and penetration rate (U.S. Department of Energy, 2011)

Year	Commercial roofing	Residential roofing	Total	Energy Star penetration
1999	0.0	0.1	0.1	0%
2000	0.0	0.1	0.1	0%
2001	0.0	0.1	0.1	0%
2002	4.4	0.0	4.5	24%
2003	1.0	0.1	1.0	5%
2004	1.2	0.3	1.4	7%
2005	3.5	0.2	3.7	19%
2006	4.1	0.5	4.5	23%

Vinyl and green roofs

White vinyl roof materials can reflect as much as 90% of the sun's heat, thus lowering energy costs substantially. Due to public worries about their probable toxic gas emission, this material is only popular in some specially designed buildings. One example would be the exterior walls of the Olympic Water Cube in Beijing, China.

It is widely recognized that the best solution to urban heat island effect is planting greenery. In cities, there are few trees and other plants to shade the buildings, and the solar radiation directly hits the exterior walls. Studies of green roofs on buildings began in the 1990s (Dominguez-Hernandez and Lozano-Martinez-Luengas, 1998). Research of the thermal property and its energy performance has demonstrated that green roofs are a good method to mitigate the urban heat island effect (Niachou, Papakonstantinou, and Santamouris, 2001). Figure 2 provides data on solar reflectivity and infra-red emissivity for several common building materials (Gaffin et al., 2010). It can be seen that green roofs lie in the top class, but the high cost in installation and maintaining restricts its popularization.

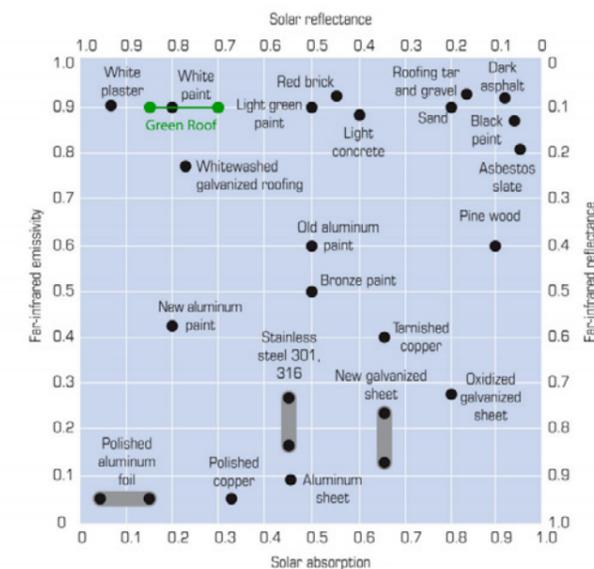


Figure 2. The comparison of solar reflectance and far-infrared emissivity of different building materials (Gaffin et al., 2010)

Metal roofs

In the designing of new materials, meeting the needs of customer is of first importance. The advantages of metal roofs include longevity, good weather resistance. They are available in a variety of shapes and colors. Especially in forested and heavy precipitation areas, metal roofs are better than other kinds. Light weight is another characteristic of metal roofs. They weight only about one quarter as much as tile roofs and nearly half as much as asphalt shingles. They are suitable for both low-slope and steep-slope applications.

There are countless metal compositions and new ones are invented every year. In the latest Energy Star roof products list, metal roofs cover over half of products (Energy Star, 2013). Metal roofs can be unpainted, with oven-baked paint finishes, or with granular-coated surfaces. In lower latitude regions, a highly reflective and highly emissive painted or granular-coated metal roof is optimal for reducing energy consumption. For high latitude regions, an unpainted metal roof is more desirable. With advances in technology development, the future smart house will change the roof by unfolding the desirable roof according to exterior temperature. It's not an unreachable technique. Time is needed to realize this idea. A reduction in the cost and promotion to households will also be necessary.

White roofs

The U.S. Secretary of Energy and Nobel prize winner, Steven Chu said “Making roads and roofs a paler color could have the equivalent effect of taking every car in the world off the road for 11 years” (Agence France-Presse, 2009).

If the color is lighter, more sun light will be reflected away and keep the construction cooler. But further research is still needed to determine the efficiency. Scientists from the Climate and Global Dynamics Division of the National Center for Atmospheric Research stated, at least in theory, the white roof has demonstrated to be an effective method in mitigating the urban heat island effect and reducing energy bills (Oleson, Bonan, and Feddema, 2010). The results show that the white roof is less effective in high altitude regions especially in winter. It may even cause an increase in heating costs. Also not all roofs are suitable for painting white. Thin roofs like some metal roofs should not be painted white due to their high thermal admittance. Whether the roof should be painted white is determined by the roof materials and location. If the thermal capacity is low or your heating bill is much more than cooling bill, the white painted roof will cause more urban heat or more energy than the unpainted one.

In regions with serious urban heat island effect, painting roof white is a practical idea. But to choose a white painted roof or reroof your building with other cooler materials, is a choice which should be calculated independently.

CHINA'S ENERGY SAVING PRODUCTS PROMOTION

Solar city: Dezhou, China

The basic theory of cool roofs is reflecting the excess solar energy away instead of the building absorbing the heat. The energy used in cooling the buildings can be saved but the energy reflected away by the roof is not being used efficiently. It is impossible to run out of solar energy, adoption of solar energy is one of the most promising ways in solving the energy crisis. About 0.1% of this energy, when converted at an efficiency rate of 10% only, would generate four times the world's total generating capacity of about 3,000 GW (Thirugnanasambandam, Iniyan, and Goic, 2010). Due to the high cost of solar energy col-

lecting and transforming facilities, solar energy is not effectively used and employed by the public.

Located in the northwest of Shandong province China, Dezhou city provides the world with an excellent example in using solar energy. In September 2005, this city was named “China's Solar City” by three national energy societies. The Forth International Solar Cities Initiative World Congress was held in Dezhou in September 2010.

Located in Dezhou, Himin Solar Corporation is one of the leading companies in solar thermal industry. Himin Solar Corporation sells more than 300 million square meters solar water heaters every year, equals total amount produced in Europe and is twice that in North America.

Dezhou's population is approximately 5.7 million. Almost everyone in the new town area of the city uses a solar heating system. About 90 percent of households in the old town also have solar heating systems. In rural areas, the number is over 50 percent (Wang, 2010). The amount of energy generated is equivalent to burning 540,000 tons of coal, which would have released 1.35 million tons of CO₂ (China Investment Consulting Net, 2010). Compared with buying an electric heater, a solar heater pays for itself in 6 years and doesn't cost anything after that. In addition, solar air conditioners and solar lights are highly promoted in Dezhou.

The most encouraging part of solar city's success and the use of solar energy is the intimate interaction between companies and local governments. These include but are not limited to:

(1) Demonstration projects

The best way to promote the products is to set up demonstration projects. By showing the demonstration in buildings to communities, it raises the awareness of the public to use the new products. In Dezhou, a series projects like “One Million Solar Roofs” and “Solar Bathrooms in One Hundred Villages” projects effectively popularized and promoted solar products (Liu, 2006).

(2) Local government policies

Local government requires all the real estate projects and newly built infrastructure to incorporate energy-saving measures, or else they will not be approved. In Dezhou, the street lamps and lighting in

the parks are using small-scale solar panels to generate energy. The traffic lights also use the sun's rays.

(3) Self-owned technology

In Himin Solar Corporation, about 30 percent of the staffs are working in the research and development department. The proportion of the self-owned technology has achieved over 95 percent.

(4) The integration of production, teaching and research

There is one university, two vocational colleges and 46 secondary vocational schools in Dezhou. Almost every school has set up solar related majors. Experts teach students, upon graduation many students are employed by the solar industry. Research cooperating between companies and the university is greatly enhancing the development of solar technology.

(5) Subsidies

In 2009, a new project called “Solar Bathrooms in One Thousand Villages” was implemented by the Dezhou government. Slightly different from the “Solar Bathrooms in One Hundred Villages” project, more subsidies were provided by the government. As a result, a 3,000 CNY solar water heater could be purchased for only 1,000 CNY in the rural area. Many public solar heater bathrooms were built by the government to facilitate less-developed villages.

Promotion of energy-saving electrical equipment in China

Besides the solar energy products, other energy-efficient products are also widely promoted by China's central government. In cities, most households can choose the energy-efficient electrical equipment. This reduces energy costs and protects the environment at the same time. In some rural areas, the price of this equipment is higher preventing wide-spread usage.

In December 2007, the Ministry of Finance and the Ministry of Commerce launched the program “Home Appliance Subsidy Program for Rural Areas”. The goal of the program is to expand sales of household electric appliances in the country's vast rural areas. The government invited public bidding from electrical and sales companies, and selected suitable models and qualified products. Then they promoted them to rural areas by setting up direct distributors. Moreover, central and local governments provided subsidies of about 13 percent of the original sale

price to stimulate sales. As of November 2012, the accumulative sales reached over 293 million units and 707.1 billion CNY (Li, 2012). This project is meeting the rapid need for electrical equipment in rural areas.

In May 2009, another subsidy program, “Energy-saving Products Subsidy Program” was launched. Different from “Home Appliance Subsidy Program for Rural Areas”, this program aims at providing energy-saving home appliances of class 1¹ and 2 only. The subsidy for each appliance is different. The higher energy-efficient products will receive higher subsidies. The highest subsidy is close to one thousand CNY. The average subsidy is 500 CNY. If the project is successful, about 75 billion kWh of energy will be saved. This is equivalent to offsetting about 75 million tons of CO₂ emissions (Liu, 2009).

At the same time, a “Trade the Old for New Program” runs parallel for customers to trade for the latest appliances.

Using the above three programs, China's central governments has successfully promoted the purchase of high energy saving appliances to millions of households. In doing so, a huge energy saving has been reached.

CONCLUSIONS AND SUGGESTIONS

(1) The choice of surface materials has direct effect in reducing urban heat. Different materials have certain using conditions.

(2) The white-painted roof is the most convenient way in mitigating urban heat. Before the roofs are painted, the substrate roof materials and the location of building should be considered.

(3) Some efforts are being made in designing innovative roof materials like high albedo roofs, auto-adjusting roofs, double roofs, et al. The new materials should satisfy roof product standards.

(4) In the promotion of these cool roofs, government support and subsidies will have positive impact and make widespread adoption feasible.

(5) Detailed suggestions in promoting roof materials include:

a) Setting up standards for roof materials prohibiting the sale of unqualified products to the market.

¹ China's energy efficiency grades for home appliances. The higher the number is, the lower the energy efficiency is

b) Governments can launch the reroof program from cities by providing subsidies.

c) Local architecture administration authorities should cooperate with institutes to study local roof conditions, and make suggestions regarding roof materials for new buildings and reroofing existing buildings.

d) High performance roof should be subsidized more to increase their sales.

e) Start with cities, and then promote reroofing or white painted program to rural areas.

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THE ROBOTICS REVOLUTION

HOW YOU WILL LEARN TO STOP WORRYING AND LOVE YOUR ROBOTS

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INTRODUCTION

The personal computer (PC) was first introduced in early 1980's, approximately 10 years later the Internet started taking off. In only 20 years, these technologies have had a huge impact on our daily lives. Hardly anyone alive today has not been impacted by them. Now, robotics is another disruptive technology that has made astonishing advances in recent years. However, the robotics revolution will have a much larger impact on our society than the PC or the Internet. So far, these technologies were limited to the virtual world. Computers are able to find data quickly in a database, push numbers around in a spreadsheet, and create astonishing visual effects on screen. They affected the way we deal with information, the way we play, and the way we communicate. However, robotics gives computers the ability to not only manipulate the virtual world, but also the physical world. The stuff from science fiction novels is becoming reality: self driving cars, robots on Mars, realistic androids, and humanoid intelligent helper robots. In the not too distance future we will have robots to perform household chores, help the elderly, sick, and disabled, and fight wars for us.

Figure 2 shows a mind map of the robotic technology and predictions for its development in the near (2015), middle (2025), and long term (2050).



1. Figure: Mind Map for Robotic Technology.

A mind map view of robotics technology in the short term (2015), middle term (2025), and long term (2050)

The main driving forces for the increased need for intelligent robotics are the aging population in developed nations and the need to work and live in an ecological sound manner. This requires more efficient use of scarce resources such as land, water, and energy. Even though automation is already used extensively in industry, the new robotic age will use more flexible and versatile (in short more intelligent) robots.

Some of the most exciting technology are in the area of transportation. Prof. Thrun and his teams at Stanford and Google have built practical, but extremely expensive, self driving cars that have travelled hundreds of thousands of miles fully autonomously. However, progress in humanoid robotics has not progressed yet to a level where practical humanoid robots can be deployed to consumers. Therefore, in recent years intelligent robotic competitions have gained great popularity since they serve both as benchmark problems for research, but also are extremely fun to watch for spectators and participants.

HUROCUP COMPETITION

HuroCup is one of the oldest and most challenging competitions for humanoid robots. All robots are fully autonomous. That is, the human operator is not allowed to interact with the robot in any way after the event has started. The HuroCup has from humble beginnings with only three teams in 2002 grown to over 20 teams with eight events¹. The focus of HuroCup competition is on three fundamental research issues in humanoid robotics: walking and active balancing, complex motion planning, and human robot interaction. These issues were selected since they are specific to humanoid robots and cannot be investigated outside of the context humanoid robots. The following sub-sections describe the individual events in the HuroCup.

¹ John Anderson, Jacky Baltes, Chi Tai Cheng, Robotics Competitions as Benchmarks for AI Research, 2011

VERSATILITY AND FLEXIBILITY AS CORNER OF INTELLIGENT ROBOTICS

It is important to mention that one of the key guiding principles of the HuroCup competition is to encourage versatility and flexibility as a crucial sign of human and robotic intelligence. Over recent years it has become apparent that robotics and computers are becoming extremely good at solving single well defined problems. For example, today's cruise controls and auto-pilots that can drive cars more efficiently than human drivers good. Furthermore, Deep Blue, a very powerful computer developed by IBM, beat the human chess world champion Gary Kasparov in 1996. Most recently, IBM's Watson managed to beat the best human players in a game of Jeopardy, a popular trivia game show. This last example shows how long it took to move from the extremely well structured domain of chess to the more subtle and poorly specified domain of answering clues.

Therefore, in HuroCup, a single humanoid robot has to compete in eight different events (sprint; penalty kick; obstacle run; lift and carry; basketball; weight lifting; marathon; and wall climbing). The participants are not allowed to make any modifications to their robot. For example, it is illegal to add extra batteries for the long distance marathon event or to remove grippers (necessary for the basketball) to speed up the robot during the sprint.

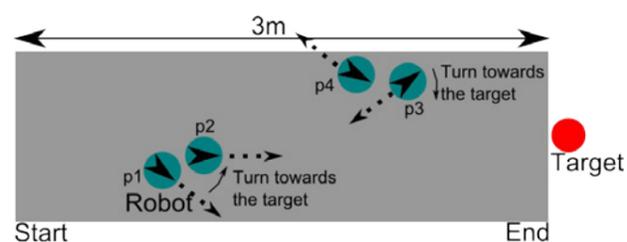
The following subsections will due to a lack of space only highlight some of the HuroCup events. For a complete description, please refer to the complete rules and regulations available through the HuroCup Facebook group².

SPRINT



2. Figure: HuroCup Sprint 2012. In the sprint robots must walk forward 3m and then back towards the start line by walking backwards. (c) Botsport TV 2012

One of the earliest events in the HuroCup is the Sprint event, where the competitor has to run 3m forward as quickly as possible and then run backwards to the start line. This is considered one of the easiest events in HuroCup, but it is deceptively difficult as the difference between the forward and backward leg show. On the forward leg, the robot will remain within its lane as long as it heads towards the target. However, on the backward leg, the robot needs to maintain a 3D model of the environment to avoid leaving its lane and having to restart. The finale of the 2012 HuroCup Sprint event is shown in Figure 4. All images of the HuroCup competition are taken from the BotSport TV website which hosts many interesting and entertaining videos of various intelligent robot competitions³.



3. Figure: Differences between the Forward and Backward Leg. By turning towards the target from position p1 to p2, the robot will reach the finish line without leaving the lane. However, the same strategy will fail on the backward leg. When the robot turns toward the target at position p3, it will walk out of bounds in position p4

MARATHON

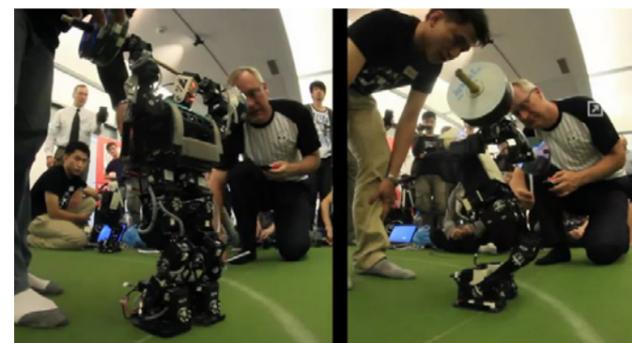
Whereas the sprint event is geared towards fast and quick moving robots, the marathon is aimed at measuring the endurance capability of their robots and their vision system. In the marathon, a robot must follow a 84m track indicated by a line on the ground. The robots are not allowed to exchange their battery during this event, which means that participants have to develop more energy efficient gates. Furthermore, since the event is usually held outdoors, it requires a more complex and powerful vision system.



4. Figure: HuroCup Marathon 2012. Robot Red Atom on the marathon track. You can see the stark contrast between the areas in direct sunlight and shadow areas. (c) Botsport TV 2012

WEIGHT LIFTING

There are several events in HuroCup, that challenge the ability of the robots to compensate for uneven terrain or for different loads. In weight lifting, the robots must walk 50cm with a weight held in a low position and then carry it for another 50cm with the weight held above its head. The weights used for the small sized robots in HuroCup are DVDs. A new world record was established in 2012 by the team TKU from Taiwan with an impressive 89 disks.



5. Figure: HuroCup Weightlifting Robots from the team NKFUST (Taiwan) and TKU (Taiwan) in the weightlifting competition. (c) Botsport TV 2012

WALL CLIMBING

The wall climbing event focuses on a different issue than the previous events, but on the problem of complex motion planning. Whereas planning the motion for wheeled or other robots with few motors is relatively straight forward, the fact that humanoid robots have many motors (technically referred to as degrees of freedom (DOF)) make motion planning much more complex. Furthermore, in events such as robot soccer, it is sufficient to have about a dozen parameterized motions (e.g., walk forward, shuffle left, or kick with the right leg) to cover all necessary mo-

tions. In the climbing wall event, a robot has to climb a wall with previously unknown hand and foot holds. This challenge is extremely difficult not the least because identifying hand and foot holds via the camera is not an easy task.



6. Figure: HuroCup Wall Climbing. A robot from team Dortmund Droids (Germany) practicing the climbing wall. The robot has to plan a path up the wall where not only are all hand and foot holds reachable, but also where all positions are dynamically stable

BASKETBALL

One of the most popular event of HuroCup is the basketball competition. The goal is to develop technologies for robots to manipulate simple objects like a ball. The robot must pick up a ball from a holder and then either walk up to the basket and dunk it for two points, or throw it from outside of the three point line to score three points. The most challenging task is to develop suitable grippers and software that is able to move the gripper to the correct location. Picking up the ball requires more accuracy than kicking a ball on the ground. Whereas kicking a ball can be accomplished by suitable walking gaits, most teams use visual servoing similar to humans when trying to thread a needle. This means that the robot looks at the ball and *its own hand* and compares their position in the camera image. Once the hand and the ball line up in the image, which requires the robot to understand the 3D scene accurately, the robot will close the gripper.

² Jacky Baltes, HuroCup Competition Laws of the Game, 2013, <http://www.facebook.com/groups/hurocup>

³ Botsport TV Website, 2012, <http://www.botsport.tv>



7. Figure: HuroCup Basketball Image Team NCKU Adult Size (Taiwan) scoring three points in the basketball event. (c) Botsport TV 2012

ROBOCUP COMPETITION

The RoboCup competition is the largest international robot competition for intelligent robots. The stated goal of the event is to create a team of robots that is able to beat the human world champion by the year 2050. Every year more than 2500 participants from the best universities all over the world take part in the event. At the moment, the most advanced games in the humanoid league are in the kid sized (i.e., robots that are less than 60cm tall) competition where teams of three robots each compete against each other. But the performance of the larger teen (i.e., 90 to 120cm tall robots) and adult sized robots (larger than 120cm) has improved. The RoboCup competition also includes soccer events for small and large wheeled robots as well as intelligent helper and urban search and rescue robots. Figure 10 shows a match in the adult sized league between team Tsinghua Hephaestus (China) and team Charlie (U.S.A.).



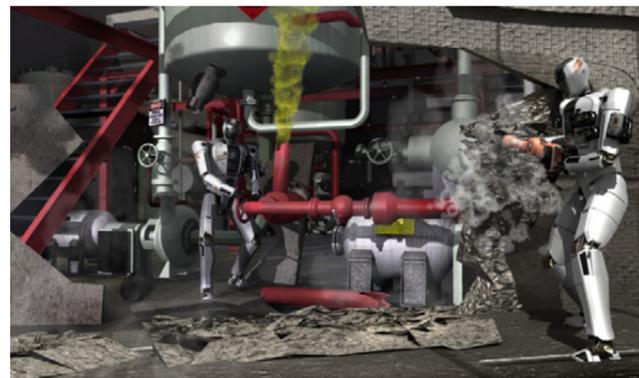
8. Figure: RoboCup 2012 Humanoid League Adult Sized. Team Charlie from the U.S.A. about to score. (c) BotSport TV 2012

DARPA GRAND CHALLENGE

The most ambitious and the most prestigious robotic competition are the Grand Challenges devel-

oped by DARPA, the research arm of the U.S. Department of defense. The initial challenges involved self driving cars: first through the desert and then more recently in suburban driving conditions. In 2012, DARPA announced the latest challenge which truly pushes the state of the art. As shown in Figure 10, a robot must successfully navigate and operate through a urban disaster area. This includes driving an open cab truck to a disaster area, traverse a rubble pile, remove debris in front of a door, open a door, climb up a ladder, walk over a catwalk, break through a wall, and replace a valve. It is interesting to note that even though the DARPA Grand Challenge is at a much larger scale, it still focuses on many of the same challenges as HuroCup. For example, it also focuses on versatility, flexibility, active balancing, and complex motion planning. However, the DARPA Grand Challenge is still so far beyond the state of the art in perception, so that many of those tasks will be performed via tele-operation. However, to provide necessary situational awareness is a non-trivial human robot interaction problem. Furthermore, the robots will be required to operate for at least short periods fully autonomously.

To encourage teams, the winner of the challenge will win \$2 Million US dollars. Not only that, but the best teams world wide as selected by DARPA have already received \$3 Million US in funding.



9. Figure: Artistic Vision of the DARPA Robotics Grand Challenge

CONCLUSION

Even though the era of intelligent robotics is rapidly approaching, some extremely difficult problems need to be overcome. For example, the power of the actuators of the robots is still very limited when compared to human muscles. Advances in material sci-

ences and new kind of actuators will greatly improve the performance of the next generation of robots. There is a lot of interesting work on artificial muscles for example. Another problem are sensors. To be able to traverse rubble piles, the robots require much better feedback about their centre of pressure and the ground in their feet. In recent years, many robotic servo motors included the ability to estimate the torque on a joint, which has led to many interesting approaches to balancing. However, at the moment robots are still limited to flexible strain gauges or load cells. These are much cruder than the feedback humans get from their feet. Similarly, a lack of a sense of touch greatly reduces the way that robots can interact with humans. Most robots do not have touch sensors on their skin at all. The robotic power sources are still weak and do not run for long enough times. Most robots use lithium polymer batteries similar to the ones used in mobile phones. However, most robots are limited to less than 30 minutes of active performance. Lastly, there are many breakthroughs necessary to design and implement the software for such robots. Many open problems remain for young inquiring minds in the areas of computer vision, artificial intelligence, and machine learning. In spite of this, the performance of the robots has increased drastically every year. For example, the world record of the marathon went from 37 minutes 30 sec. over 2.1m in 2007 to 6 min 30 sec. over 85 m in 2012.

The current state of the art in robotics and the still relatively high cost of the robots do not allow serious real world use and testing of those robots. Therefore, competitions, such as HuroCup or the DARPA Grand Challenges serve as benchmark problems for those robots. They allow us to gather the necessary experiences to improve robotics technology for practical uses.

There is a high risk of being wrong when predicting the future for too long. Some people claim that robots will never be able to match human performance in sports or it will take much longer than 2050. To those, I always mention the following example. On Dec. 17th 1903, Orville Wright recorded the first powered flight by flying basically a supersized kite with a motor over a distance of 36.5 m. On the same day, his brother Wilbur flew 260m.



10. Figure: The Wright Brothers' Flyer at the Smithsonian Museum, Washington, U.S.A.

On that historic day, few would have predicted that in 1948 (less than 50 years later), Chuck Yeager in his Bell X-1 jet/rocket plane would break the sound barrier and fly at 1,600km/h.

So the participants at these robotic competitions see themselves truly as pioneers in one of the most difficult scientific challenges of our time and hope that they make their contribution to the overall goal – intelligent humanoid helper robots.

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TOWARDS SUSTAINABLE STORAGE PRACTICES FOR LARGE-SCALE DATA MINING

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INTRODUCTION

Digital data is ubiquitous. We receive data every time we click on a Web link, receive an email, an SMS or a phone call, or turn on the television. We send data when we upload a file, send an instant message or update our Facebook status. We create new data each time we scan a file, take a photo, type a document, or add a new event to our calendar. Our lives at home and at work, are starting to depend on the access of digital data. Television and radio transmission have moved to digital signals that require storage before they can be shown or heard. Many utility companies are now using smart meters that are constantly recording the use of the utility. We have seen that most of our daily tasks involves passing information to another place. Therefore making this information digital makes it more convenient to transmit, receive, produce, manipulate and store. Digital Information is more accessible now that we have powerful processors in our mobile phones. Phones hold personal content such as email, photos, video recordings, contact lists. This data is also stored on other drives to reduce the risk of losing this personal data, and hence increasing the demand for storage.

In 2007, the rate in which we produce digital data passed the rate in which we produce data storage (Gantz, 2007; Gantz and Reinsel, 2010). If this trend continues, we will eventually run out of storage for our digital information. This crisis will have a huge impact on the world. As digital storage becomes more scarce, its demand will increase and so the cost of storage will drastically increase. When this time hits, we will be forced to rethink the way in which we produce and store data. Digital storage will become a precious commodity that only the rich will be able to afford.

This grim view of the future can be avoided if we now start to consider how to efficiently store data. The simplest way to reduce our storage needs is to perform a spring cleaning of our data storage, meaning we examine what we have and delete what we don't need.

Unfortunately, many research institutes, government organisations and businesses rely on the data mining of previously collected information to examine trends and make predictions of future events. Since it is not known how the data will be mined in the future, all of the data must be preserved. We can consider methods of file compression to reduce data size, but these compression methods require us to decompress the data for data mining, which implies that we need the storage space for the uncompressed data to analyse it.

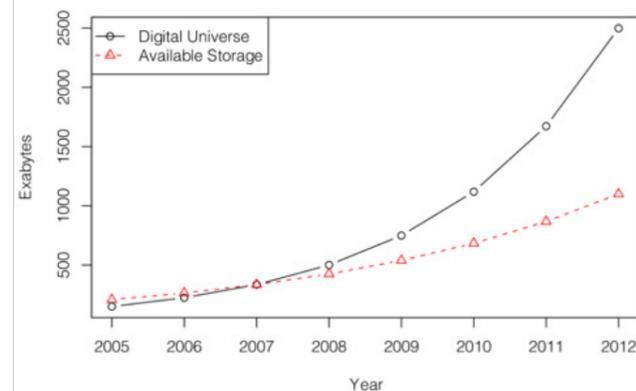


Figure 1: The amount of exabytes of data within the Digital Universe, compared to the amount of storage available.

Source: "The Digital Universe", May 2009,
http://www.emc.com/digital_universe

In this article, we will examine new research into how we can efficiently store large scale data so that we are able to perform data mining while the data is in its compressed form. We will examine various methods of representing the data so that it occupies less space, and still preserve important statistics. These findings will assist organisations in preserving their data while using less storage, and allow them to make the most of suitable data mining methods.

STATISTIC PRESERVING COMPRESSION

Data mining refers to the process of knowledge discovery from data. The use of sophisticated data mining algorithms and the advancement of technology has allowed us to identify patterns and trends in very large data sets.

The processing time of many data mining algorithms is dependent on the number of features, otherwise known as the dimensionality of the data space. The recent increase in data production from sources such as the Web, crowd sourcing, sensor networks and the digitisation of data from the biomedical and legal fields have created data sets in the terabyte and petabyte range, that are too large for current data mining and machine learning methods. This has led to the introduction of the new field of Big Data, which investigates method of using parallel computing to reduce the computation time.

Certain data mining algorithms can be used to obtain lower dimensional representations of high dimensional vector data. These lower dimensional forms of the data are actually compressed versions of the original high dimensional data. There have been previous investigations into how we can reduce the space that data occupies, while preserving various data statistics. We will show that these methods are not suitable for reducing the storage required for future mining of the data.

Association rule mining (Agrawal et al., 1996; Zaki, 2002) allows us to summarise data by finding a set of rules that explains the data. For example, a data set may show that the existence of qualities A and B in an items implies that quality C also exists in the item. By extracting these rules, we are able to represent the data in a more compact and readable form. We are then able to perform any analysis based on the set of generated rules. By converting the data into rules, it is likely that we significantly reduce the data size, but we also lose data that the association rule algorithm determines insignificant. Therefore, when analysing the rules, we will have the uncertainty as to what the association rule mining ignored in the data. This method also requires us to have access to the whole data set in order to generate the rules, meaning that the original data must first be stored before we can generate the rules.

Cluster analysis (Mardia, Kent, and Bibby, 1979; Hastie, Tibshirani, and Friedman, 2001) provides a method of identifying statistics of clusters within the data. To obtain cluster information, we can assume a certain distribution for each cluster and compute the statistics of the distribution of each cluster, that best describes the data. For example, a data set of water consumption may contain three clusters (one for city

consumption, one for suburban consumption, and one for rural consumption). The data can then be represented based on the statistics of these clusters, and any analysis is performed on the cluster statistics. Using cluster analysis, we store the cluster statistics, but ignore the data that does not fit the cluster model. Therefore, there is a risk that informative data may not be modelled using the cluster analysis. To perform the cluster analysis, we must also have access to the raw data set, meaning that the raw data must be stored to be accessible.

Principal components analysis (PCA) (Jolliffe, 2002) provides us with the best k-dimensional linear approximation of the higher dimensional data (where 'best' is in terms of least squares). PCA maps the data to a k-dimensional basis that captures the majority of the variance. Therefore, we can easily apply any analysis to the data after performing PCA to get an approximation of the results on the raw data. The reduction in dimension caused by PCA is useful for storing dense data (few zeros in the data), but may lead to larger storage requirements when applied to sparse data (many zeros in the data). PCA also has the drawback that it is computationally expensive when applied to large data sets, and it requires access to the whole data set, again meaning that the raw data must be already stored on a drive. Other variants on PCA, such as Independent Components Analysis (Hyvärinen, Karhunen, and Oja, 2001), Non-negative Matrix Factorisation (Lee and Seung, 1999), and Multi-dimensional Scaling (Buja et al., 2008) provide more complex optimisation problems and therefore suffer at least the same computational and storage problems of PCA.

Random projection (Arriaga and Vempala, 2006; Dasgupta and Freund, 2009) is a method of dimension reduction similar to PCA, where a random basis is computed (rather than an optimal basis as used in PCA). The basis of the reduced space is randomly constructed, which implies that we do not have to examine the data to perform the basis construction. Therefore the basis can be constructed efficiently and be used to map data to the reduced space as it arrives, showing that the original data does not need to be stored in its entirety. The projection can be provided as the matrix Φ , therefore any data Y can be projected into the reduced space using:

$$\Xi = \Phi Y \quad (1)$$

where Ξ is the data in the reduced space. Theoretically

cal bounds have been derived to show that distances are preserved with the error dependent on the number of features in the reduced space (Achlioptas, 2003).

Unfortunately, once the set of vectors have been projected into the reduced space, there is no method of reconstructing them back into their original form. Therefore if the desired set of statistics are not captured by the projection, they are lost.

Locality-Sensitive Hashing (LSH) (Kulis and Grauman, 2009; Slaney and Casey, 2008) is a method of dimension reduction that attempts to preserve distances between objects in the reduced space. LSH uses a set of hash functions to map vectors from the feature space into a hash value. The hash functions are constructed so that if two feature vectors are hashed to the same value there is a high probability that they were in the same neighbourhood. The hash functions used in LSH are randomly generated and therefore do not need prior access to the data for their construction. When the data is provided, we can use LSH on each vector as it arrives, making it useful for compressing large data sets. The drawback to using LSH is that we are unable to reverse the hashing process (just as in Random Projection). Therefore, once the data is compressed, we are unable to recover the original data.

Sketches (Li, Church, and Hastie, 2006; Li, Hastie, and Church, 2006) are similar to random projection, in that we sample the features, but the difference is that we only sample the non-zero features. Therefore we sample a different set of features for each object in our set. This implies that we must also record the feature number with every feature sample. Li, Church, and Hastie (2006) have shown that summary statistics can be approximated when given the data sketches, and that their accuracy is dependent on the sketch size. Note that sketches require that the data is sparse, and therefore are not suitable for dense data sets. Sketches also do not allow us to reconstruct the original data, from the sketch.

Each of the dimension reduction methods presented in this section allow us to store data in a compact space, but they generally preserve some metric between the data points. Each of these methods also do not allow us to reconstruct the original data from the compressed data, therefore if we don't know which metric should be used, the compressed data

may be useless. In the next section, we will examine a method of dimension reduction that allows us to reconstruct the original data, meaning that any metric can be used when desired.

DATA STORAGE USING COMPRESSIVE SAMPLING

Compressive Sampling (Candes and Wakin, 2008; Goyal, Fletcher, and Rangan, 2008) (also known as Compressive Sensing) is a method of random projection, where the projection is dependent on the distribution of the data. As in the random projection method, we have the projection Φ that projects the data into a lower dimensional space, but in this case, Φ is not randomly generated. The matrix Φ is computed so that it is incoherent to the matrix Ψ , where Ψ is a mapping that takes our data Y to a sparse domain X . So we have:

$$\Xi = \Phi Y, \text{ where } Y = \Psi X \quad (2)$$

where X is sparse. The incoherence of Ψ and Φ ensure that their bases are unaligned. Meaning that the projection Φ will smear the sparse values in X across all features in Ξ , keeping the information content in Ξ the same as in Y . Therefore, even though the matrix Ξ exists in a space much smaller than the space of Y , we are able to reconstruct the values of X and hence Y using the optimisation:

$$\vec{x} = \min \vec{z}, \text{ s.t. } \vec{\xi} = \Phi \Psi \vec{z} \quad (3)$$

where \vec{x} is a vector from the matrix X and $\vec{\xi}$ is a vector from the matrix Ξ . The number of rows in Ξ determine the size of the sample space. If the sample space is large enough (depending on the sparsity of X), then we obtain perfect reconstruction of X and hence Y . If the sample space is too small, we obtain an approximation of Y from the above optimisation problem.

In this section, we will examine the effectiveness of applying the data mining methods of clustering and outlier detection to data compressed with compressive sampling, and examine storage required and the computational cost.

Clustering

The problem of clustering can be described as "given a set of objects, what is their most logical grouping". To do this, we first define a similarity metric for the data (e.g. Euclidean distance for vectors), and then place

items that are similar, in the same cluster, while making sure items that are dissimilar are in separate clusters.

K-means is a common method of clustering that provides reasonable results. It functions by defining cluster centres, identifying which data points are associated to each cluster centre, then recomputing the centres based on the cluster points. This process is repeated until the cluster centres stabilise. In each iteration, every data point is compared to each cluster centre to compute cluster membership. Therefore the computation time required is dependent on the data space dimensionality. This implies that computing clusters on the compressed data will not only use less storage, but also reduce the computation time required. But the question remains of the quality of the clusters (will we obtain the same clusters when working on the compressed data?).

We designed an experiment to examine the quality of clusters generated using k-means on the raw data, compared to the quality of clusters using k-means on data compressed using compressive sampling. We used a data set consisting of 79,919 articles from the Associated Press, 74,520 articles from the Wall Street Journal, 19,860 articles from the Financial Review and 56,920 articles from Ziff Publishing. The quality of the clusters were measured by how well the articles could clustered into each of the four groups. The results of the experiment are shown in Table 1.

Table 1: Cluster accuracy for k-means on the raw data (Raw, no sampling performed) and the reduced data using Compressive Sampling (CS) for the document set (231,219 documents)

Method	Accuracy				Time (sec)
	AP	FR	WSJ	ZIFF	
Raw	0.6780	0.9962	0.5969	0.8603	2.10 days
CS	0.6704	0.9959	0.5821	0.8617	2.44 hours

Table 1 shows the accuracy of each cluster (the proportion of correct items in each cluster). We can see that the cluster accuracy from the raw (Raw) data and the data compressed using compressive sampling (CS) have provided very similar results, showing us that the compression has not affected the clustering accuracy. We can also see the clustering on the CS data was much faster. These

results give us confidence that we can store our data using compressive sampling, and not affect clustering accuracy. Further details of this experiment is found in Park (2011).

Outlier Detection

The clustering problem requires us to group all similar items, while maintaining that the groups are dissimilar. The outlier detection problem requires us to identify which items are dissimilar to the rest of the set.

A commonly used definition of an outlier is an item whose similarity to its k th nearest neighbour is less than s , where the integer k and positive real s are provided. The k th nearest neighbour of an item is the k th most similar item from the data set. Therefore, to compute the similarity of an item to its k th nearest neighbour, we must compute the similarity of the item to all other items (to determine which is the k th nearest), meaning for N items, we must make N^2 comparisons, making this problem computationally expensive.

To remove the dependence of the algorithm on the value of s , we can compute the outlier likelihood score of an item as the similarity of the item to its k th nearest neighbour. By computing the outlier likelihood score of all items in the data set, we can order them in terms of their outlier likelihood.

Our experiment involved the analysis of the accuracy of outlier detection on the data, compared to outlier detection on the compressed data (using compressive sampling). The data set used contained the ZIFF document collection with the first 10 documents from the FR document collection. The 10 FR documents are considered outliers since the majority of the collection contains computing articles (ZIFF), where the FR documents contain financial content (FR). The experimental results for $k = 10$ are shown in Table 2. The results for other values of k provide similar results.

Table 2: Accuracy results for outlier detection on the raw data (Raw), reduced using Random Projection (RP) and reduced using Compressive Sampling (CS). The average precision (AP) for k = 10 is shown. Note that the results for random projection were included

Method	AP	Storage	Time
Raw	NA	17.5 GiB	3.4 years
RP	0.0022	543.7 MiB	2.6 days
CS	0.0303	444.7 MiB	4.4 days

as a baseline, since we were unable to obtain the results for the raw data

We can see in Table 2 that we were unable to compute the outliers on the raw data. From the progress of the algorithm, we predicted that it should finish in 3.4 years, making it infeasible. Therefore, we included the results when using Random Projection (RP) as a baseline. We can see that when using CS, we obtain greater Average Precision (AP, a measure of accuracy) and require less storage when compared to RP, but outlier detection using RP was faster. Note as well that the data compressed using RP cannot be decompressed, where the CS data can be decompressed to its original state. Using compressive sampling made the outlier detection problem feasible for this data, and provided a greater accuracy when compared to RP. These results give us confidence that we can store our data using compressive sampling, and not degrade outlier detection accuracy. Further details of this experiment is found in Aouf and Park (2012).

CONCLUSION

The rate in which we are producing data has passed the rate in which we are producing digital storage, therefore our current practices in data management are not sustainable.

Avoiding this problem is not as simple keep the data that data that you need and delete the rest. Many many research institutes, government organisations and businesses rely on the analysis of previous information using data mining algorithms, to

examine trends and predict future events. Since they are unsure of what they need from this data until it is analysed, it is crucial that they store all of the data. Traditional compression algorithms will reduce the size of the data, but it must be decompressed to be analysed, requiring additional storage.

In this article we showed how we can use compressive sampling to reduce the storage required. We also showed that when data is compressed using compressive sampling, we are able to perform clustering and outlier detection to obtain similar accuracy to when performing clustering and outlier detection on the uncompressed data. These exciting results show us it is possible to successfully perform data mining on compressed data and hence reduce the storage required for our data.

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AUTOMATION IN HUMANITARIAN TECHNOLOGY

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Abstract: Humanitarian technology represents the science and technology for human health, happiness and humanistic solicitude. This paper is aimed to raise the global awareness and attract more understanding, involvement and inputs from the society to benefit more people. Through strengthening our research and technology advocates, technologies will truly bring health and happiness to mankind. This paper is particularly aimed at the humanitarian technology benefitting the underprivileged minorities whom need more assistance from our society as a whole. The target groups are the elderly and disabled, people in disaster stricken area and people in rural area short of medical resources. Six selected novel R&D achievements presented in this paper elaborate our contribution in three areas as home care automation, disaster monitor and rescue and telemedicine. These researches are conducted at National Taiwan University of Science and Technology, Republic of China (Taiwan) under international collaboration with University of British Columbia, Canada.

Keywords: Robot; homecare automation; disaster monitor and rescue; telemedicine

This paper reviews our researches conducted on home care automation, disaster monitoring and rescue, and telemedicine. The novel aerial/ground mobile robotic and remote sensing technologies are developed toward those three applications aimed in the humanitarian technology.

Home Care Automation: United Nation projected 22% of the global population will be 60 or older by 2050. This will be the first time to reach an equal population proportion between children (14 or younger) and elderly (60 or older)¹. This will accelerate the process of global aging and drastically increase health-care facility costs.

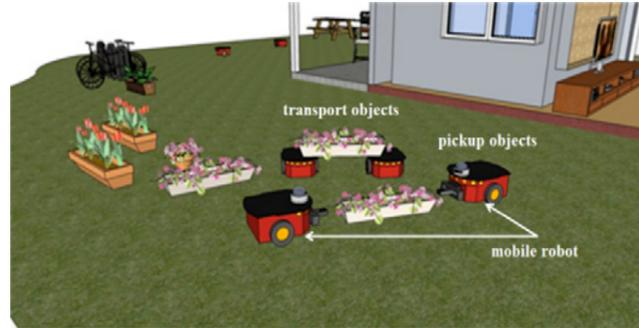


Fig. 1 Multiple robot cooperation in garden scenario

World Health Organization estimated that over 1 billion people (or approximately 15 per cent of the world's population) are living with some form of disability². Some 110 million to 190 million people (or 2 to 4 per cent of the world's population) live with significant disabilities. The evidence shows that persons with disabilities are more likely to experience adverse economic and social outcomes.



Fig. 2 Experiment setup for the mobile robot system

Therefore, an autonomous and intelligent mobile robotic assistant system is developed to make it possible for the elderly and disabled to live at home independently, safely and comfortably rather than move to a costly healthcare facility. The system works in a coordinated and efficient manner to carry out the tasks. The intelligent mobile robots navigate auto-

¹ Secretary-General, "World demographic trends report," United Nations - Economic and Social Council 2009

² "World Report on Disability Estimate based on 2010 population," World Health Organization and World Bank, Geneva 2011

mously through the home environment and transmit the data through wireless network to the remote control center.

Disaster Monitoring and Rescue: Natural disasters had caused huge economic and life loss, such as the earthquake in mainland China in 2008 and the earthquake hit Japan in 2012 which caused a tsunami and a nuclear accident. The wind and rain disaster, earthquakes and marine pollution also occur frequently in Republic of China (Taiwan).

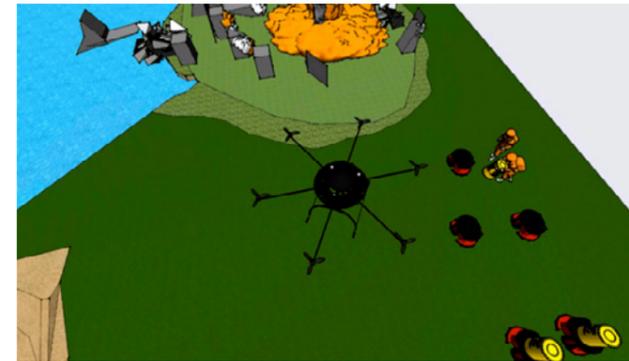


Fig. 3 Disaster monitoring scenario - aerial mobile robot

An aerial mobile robot system is developed to conduct routine monitoring and surveillance tasks so as to help prevent and reduce the chances of natural and manmade disasters and also to perform fast and effective rescue tasks in hazard environment after such unwanted disasters.

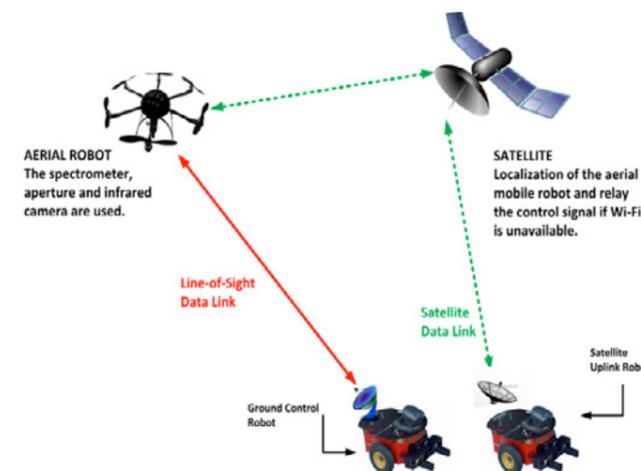


Fig. 4 Aerial-ground mobile robot collaboration architecture

An unpiloted aircraft fleet could operate tele-controlled, fly autonomously based on pre-programmed flight plans or autonomous in unknown, unstructured and dynamic environment. The aerial and ground mobile robot collaborate to achieve the disaster monitoring and rescue mission. The ultimate

goal is to launch multiple aerial mobile robots to cover larger ground zone from air effectively and efficiently.

Telemedicine: A robust telemedicine system is designed to facilitate interactive medical consulting between a patient in an underprivileged and rural village without hospitals and a doctor at a remote hospital. Providing easily-accessible and free medical services to such communities is to improve health-care, save lives and be cost effective.

The system includes a new low-cost wearable vital sign monitoring outfit and telemedicine in a holistic manner by coupling healthcare and health education. Furthermore, an intelligent medical diagnostic system is developed to aid in more accurate medical decision making.

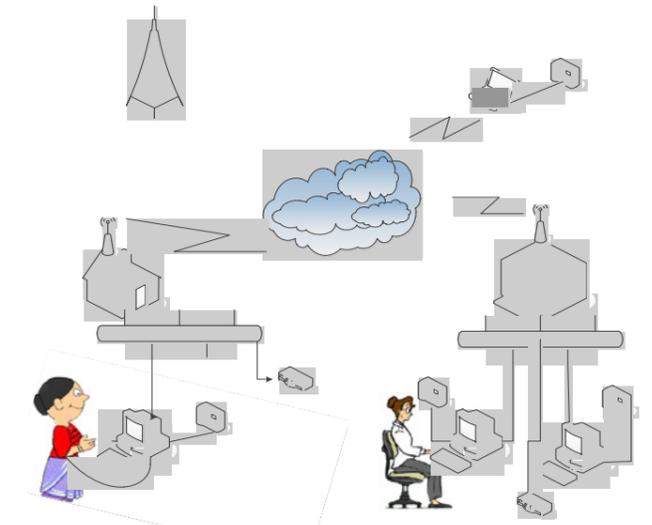


Fig. 5 Tele-medical system architecture

Six selected systems are introduced in the following sections. They are 1) social mobile robot, 2) visual servo navigation and 3) medicine content detection for home care automation, 4) joint operation between aerial/ground mobile robot and 5) visual navigation system for small unmanned aerial vehicles for disaster monitoring and rescue, and 6) intelligent tele-medical diagnostic system for telemedicine.

SOCIAL MOBILE ROBOT FOR THE BLIND³

Because of the number of guide dogs is far lower than the demand, only the lucky few visually impaired friends have access to suitable dogs for guidance. This “VenoGuide-the blind social robot” currently has completed the appearance design and its model fabrication. The final goal include the visually impaired guide product development and the cloud platform to build, is designed to assist blind people to achieve independent living and through establishing a vibrant social network platform, to upgrade the modern lifestyle of the blind.

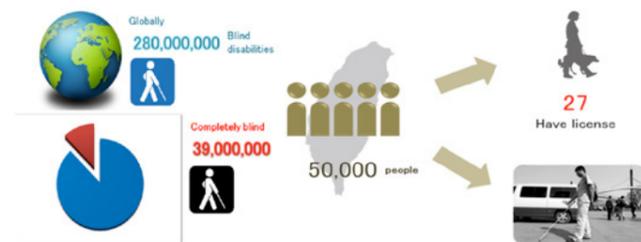


Fig. 6 Global statistics of blind disabilities

Fig. 7 Only 27 licensed blind guide dogs in Taiwan among 50,000 blind people

Designed based on the trend of the future traffic system and social network platform, “VenoGuide” connects the blind friends with society. The humanized navigation detects visual information in the environment and communicates with the blind in real-time. It provides the blind the best path planning and active obstacle avoidance.

The “VenoGuide” as a companion in the life of the blind significantly reduces the blind’s fear of the unfamiliar environment. The system integrates artificial intelligence, visual sensing and navigation.

Sensing system

Kinect sensing technique is applied to enhance the mobile social life of the blind disabilities. The 3D camera provides the real-time video streaming and microphone input. Through image and voice recognition, the mobile robot interactively communicates the visual information to the blinds through the voice form. The advanced sensing technique allows the mobile robot to serve the designated person through artificial neural network learning.

³ Min-Fan Ricky Lee, Chiu, F. H., Chou, C.H., Chang Y. T. and Liao, C.H. “VenoGuide-the social robot for the blind,” Seond Place Award in the Appearance design group of 2012 Intelligent Robotic Product Competition, Ministry of Economic Affairs and Ministry of Education, Republic of China (Taiwan), Sep. 1 2012

Navigation System

GPS navigation system locates the user and connects the public transportation system through the network. The system recommends the optimal traffic path, and stores the histories in the database for mobile robot to make better and quicker decision according to the similar situation later.

Remote Control System

The robot can operate in different scenario/terrain through the sensors and the wireless network. The mobility, portability and convenience are achieved. The lower part (mobile robot) can be separated with the upper part (handle stick). The user can use the upper part (handle stick) to remotely control the lower part (mobile robot) in charge station.

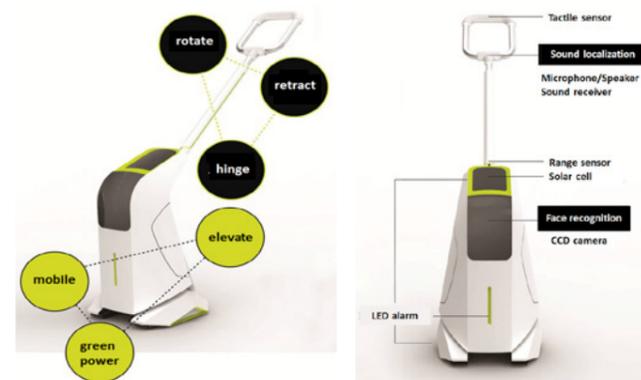


Fig. 8 Design of the robot for the blind

Fig. 9 Function diagram of the robot

Social Platform

The user database is constructed through cloud computing technology and is connected with the social network and public database. The users can build up the environment information specific for the travel of the blind group through the mobile robot. That information is used for the trip planning and the environment recognition for the blind.



Fig. 10 Various mode of robot operation

The advantage is summarized as the mobile robot is linked with the remote control station and can be used separately or combined; multiple users are connected through remote control station and mobile robot, and a social network and environment database can be built.

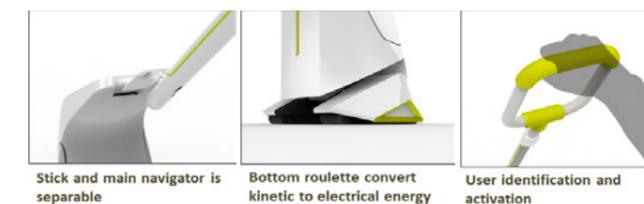


Fig. 11 Feature in the Venoguide robot

VISUAL SERVO NAVIGATION USING RGB-D AND WIDE-ANGLE VISUAL SENSOR⁴

A robust and stable indoor visual control system including a global eye-to-hand and local eye-in-hand system is developed to navigate the mobile robot. The global vision is obtained through a wide-angle ceiling camera to capture the global house information and the local vision is achieved through a RGB-Depth camera (Microsoft Kinect) to sense the local object that is invisible in the global view (i.e. item under the table).

The client-server architecture⁵ is implemented for the visual servo control. The obstacles’ location and robot pose are detected by the ceiling camera and followed by a path planning in the server. The shortest path is then published through local area network to the client in the mobile robot for the motion control.



Fig. 12 Home scenario for 3D sensing and modeling

⁴ Yu-Cheng Chang and Min-Fan Ricky Lee (Thesis advisor) “RGB-D and Wide-Angle Visual Sensor Integration and Fusion in Mobile Robot Navigation System,” Master of Science Thesis, Graduate Institute of Automation and Control, National Taiwan University of Science and Technology, Republic of China (Taiwan), July 2012

⁵ C.-H. L. Chen and Min-Fan Ricky Lee, “Global path planning in mobile robot using omnidirectional camera,” in Proceeding of 2011 International Conference on Consumer Electronics, Communications and Networks, CECNet 2011, April 16, 2011 - April 18, XianNing, China, 2011, pp. 4986-4989

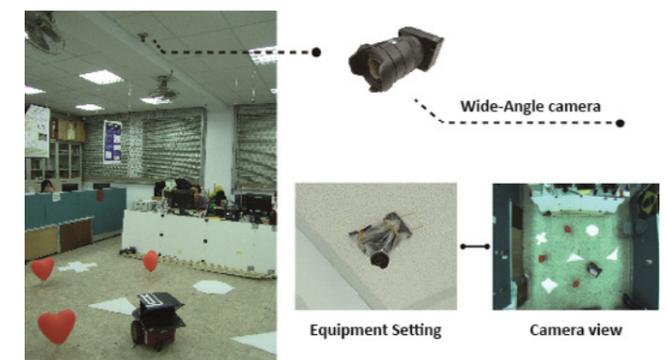


Fig. 13 Global vision system

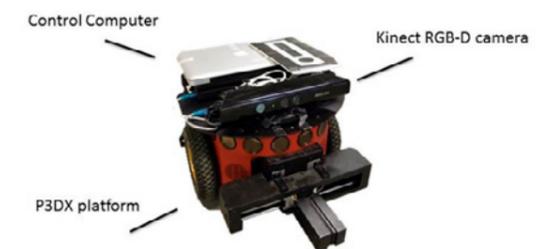


Fig. 14 Local vision system on mobile robot

In local vision system, Kinect camera consists of an infrared laser projector combined with a monochrome CMOS sensor to sense the range information. It can capture video data in 3D under any ambient light conditions. The visual odometry method is used for estimating the camera pose and reconstruction the scenario from the video data. This system effectively integrates the global and local path planning and can track and follow the moving target autonomously⁶.

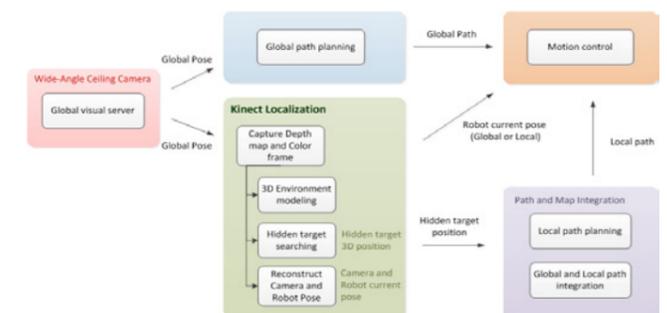


Fig. 15 Vision sensor integration flowchart

⁶ Min-Fan Ricky Lee and K. H.-E. Lee, “Autonomous target tracking and following mobile robot,” Journal of the Chinese Institute of Engineers, vol. 36, 2013

MICRO - SPECTROMETER CONTENT DETECTION⁷

The micro - spectrometer⁸ content detection system integrated with the autonomous mobile robot is developed to detect and examine the medicine for the elderly in the home care environment.

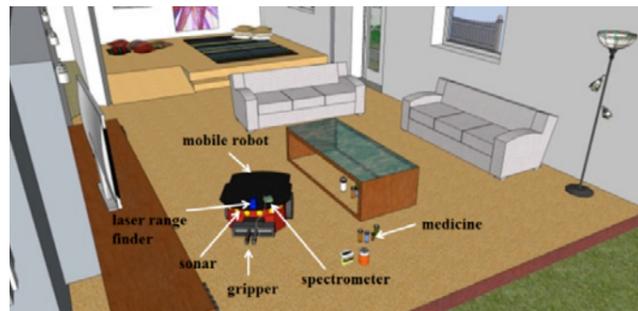


Fig. 16 Medical content detection and pick up scenario

An intelligent behavior control system is constructed. The neural network as situation classifier detects the surrounding object range based on the input from the eight sonar sensors measurement and output the environment pattern.

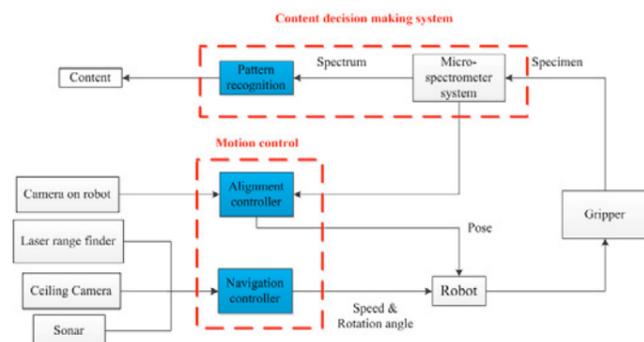


Fig. 17 System architecture

Two behaviors, obstacle avoidance and target approaching, according to the environmental situation are implemented using the fuzzy logic algorithm. They control the steer angle and velocity of the autonomous mobile robot traversing through various different terrains to reach the target position.

It is then followed by the micro - spectrometer content detection system to detect and examine the medicine in the home care environment. The micro -

spectrometer content detection system analyzes the transmittance and absorbance spectrums of the testing samples and compares with the spectrums in the database to determine the content. The experiment results demonstrate that the unknown content can be detected and recognized.

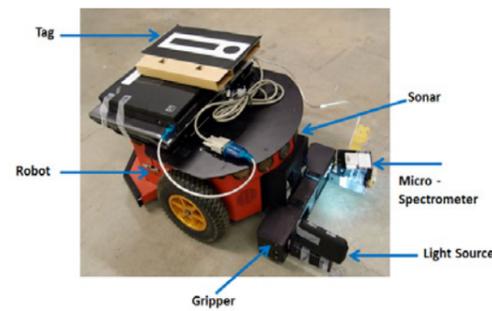


Fig. 18 Mobile robot setup up

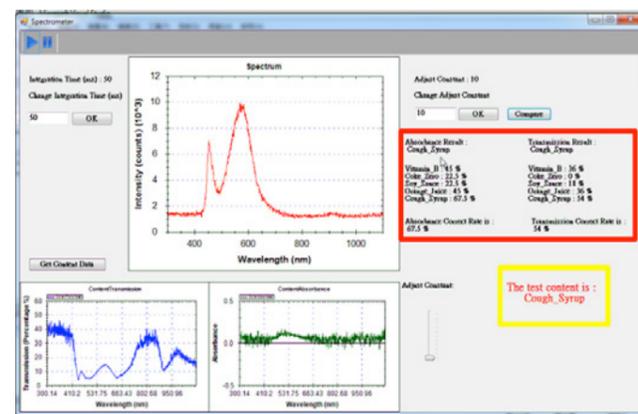


Fig. 19 Content recognition human machine interface

JOINT OPERATION BETWEEN AERIAL AND GROUND MOBILE ROBOT⁹

A joint operation architecture between aerial and ground mobile robots is developed. The aerial mobile robot stably hovers and conducts the visual sensing and perception for the mapping of the ground facts and the localization of robot, target and obstacle. The shortest and collision free path between the ground mobile robot and target is further planned to guide the ground mobile robot arriving the destination in real-time.

The rotorcraft mechanism is adopted as the locomotion mechanism due to the advantages in the maneuverability, stability, controllability, navigation ability and power efficiency. The GPS (latitude and

⁹ Bo-Cheng Bruce Chou and Min-Fan Ricky Lee (Thesis advisor) "Aerial Visual Servo Control System for Ground Mobile Robot Navigation in Aerial - Ground Joint Operation," Master of Science Thesis, Graduate Institute of Automation and Control, National Taiwan University of Science and Technology, Republic of China (Taiwan), Jan 2013

longitude measurement), barometer (altitude measurement) signal and IMU (Inertial Measurement Unit, gyroscope and accelerometer) are used as the feedback sensory measurements for the flight controlling on position/orientations/speed of the aerial mobile robot. Compass is equipped to compensate tilt (yaw) motion.

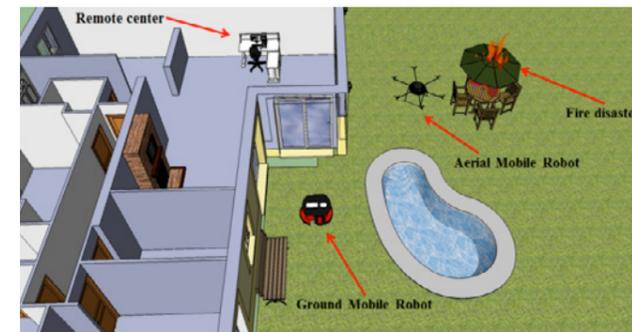


Fig. 20 Joint operation - Aerial and ground mobile robot

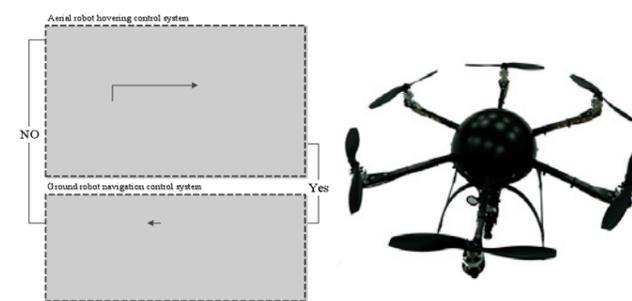


Fig. 21 System architecture Fig. 22 Six rotor aerial platform

The onboard camera of the aerial mobile robot captures the images of the environment. In perception, the information collected from sensors is processed, understood and organized for localization, mapping and human-robot interactions.



Fig.23 CCD camera onboard

Fig. 24 Actual aerial and ground joint operation

VISUAL NAVIGATION SYSTEM FOR SMALL UNMANNED AERIAL VEHICLES¹⁰

Visual navigation methods are attractive candidates because of the small weight of video cameras. The major issues in the development of a visual navigation system for small UAVs can be characterized as follows: 1) technical constraints, 2) robust image feature matching, 3) efficient and precise method for visual navigation. This development addresses these three issues, provides methods for their solution, and evaluates their feasibility and effectiveness.

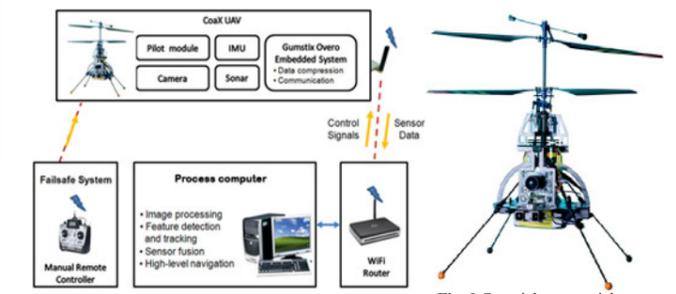


Fig. 25 Concept for the wireless networked control system

Fig. 26 Co-axial rotor aerial platform

The technical constraints of small UAVs inhibit on-board computation of visual navigation. This limitation can be overcome with the proposed wireless networked control system, which out-sources the data processing from the UAV to a ground-based computer. An improved feature matching algorithm is applied as key point construction in the visual navigation. The adopted navigation concept implements a visual odometry system with a single calibrated camera.

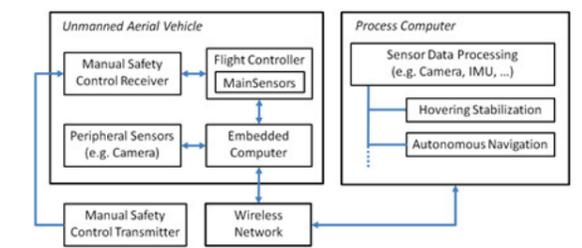


Fig. 27 wireless networked control system

The system contains four main components as unmanned aerial vehicle, processing computer, wireless network and manual safety control transmitter. The development of a visual odometry system was achieved successfully by the incremental reconstruction of the camera path and the environment from a sequence of images. The reconstruction is based

¹⁰ C. Ivancsits and Min-Fan Ricky Lee, "Visual Navigation System for Small Unmanned Aerial Vehicles," Sensor Review, 2013

⁷ Chia-Yu Shih and Min-Fan Ricky Lee (Thesis advisor) "Intelligent Navigation and Micro - Spectrometer Content Detection System for Home Care Mobile Robot," Master of Science Thesis, Graduate Institute of Automation and Control, National Taiwan University of Science and Technology, Republic of China (Taiwan), July 2012

⁸ C.-H. Ko and Min-Fan Ricky Lee, "Design and Fabrication of Micro-Spectrometer based on Silicon Concave Micro-Grating," Optical Engineering, vol. 50, pp. 1-10, 2011

on two-view epipolar geometry and does not require any prior knowledge of the camera motion or the structure of the scene.

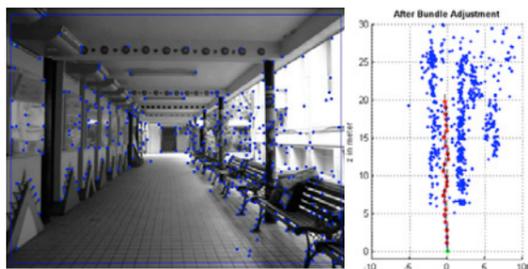


Fig. 28 Video odometry (Left) Linear motion through a corridor (Right) reconstructed flight path and environment

INTELLIGENT TELE-MEDICAL DIAGNOSTIC SYSTEM

An intelligent decision making system is constructed through the sensory inputs of temperature, heart rate, respiration rate, urine, blood, acoustic and visual cues from ears, throat, eyes, nose etc. Inferring from the knowledge base, it provides medical consultation to people in underprivileged and rural areas; people who currently do not have access to basic healthcare services.

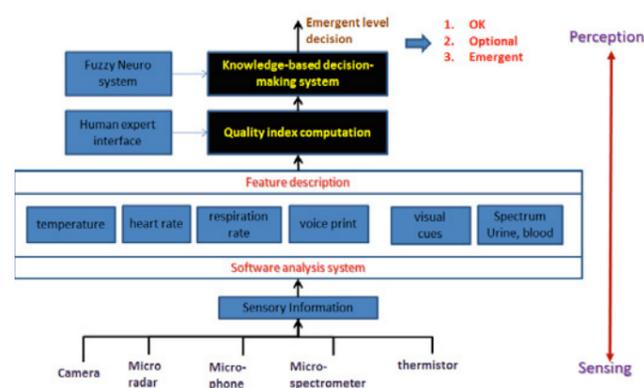


Fig. 29 Intelligent decision making system for medical diagnostic

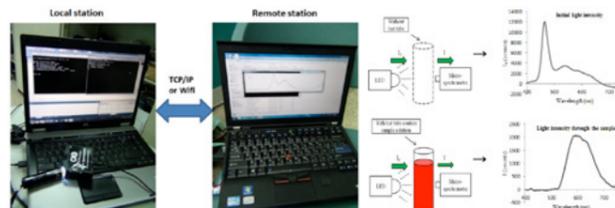


Fig. 30 Server-client setup for the remote sensing

Fig. 31 Spectrum measurement (Top) void space (bottom) solution

The sensing and perception system is developed for the urine and blood sample analysis. A novel portable micro-spectrometer is fabricated⁸. A server-client structure via the internet is constructed for the tele-operation. The collected sensory spectrum data (local patient side) is transmitted through this structure to a remote station (physician in hospital). The pattern recognition and classification algorithm is developed⁷ to verify the sample solution (i.e. urine and blood) for the existence and concentration of the specific component in the solution.

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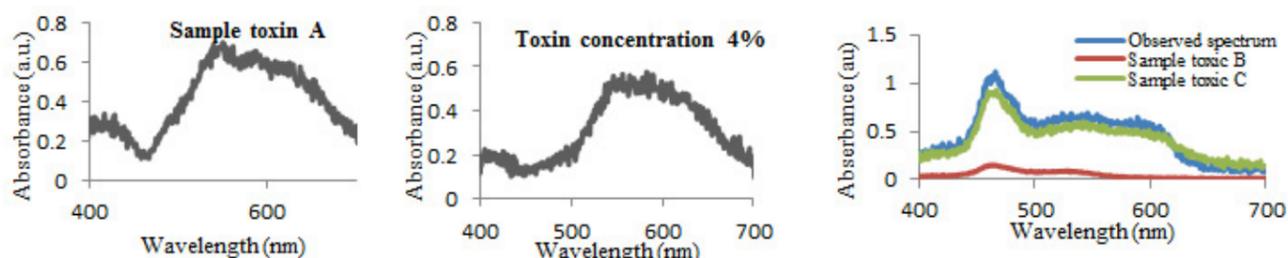


Fig. 32 Recognition of the sample solution via the spectrum. (Left) Existence (Middle) concentration (Right) multiple component

EXPERIENTIAL LEARNING THROUGH SPACECRAFT DESIGN BY TEAM OF TEAMS AS AN EXTENDED MODEL FOR EDUCATION

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Abstract: Designing complex machines and systems that operate in very difficult remote locations, under largely unknown or uncertain conditions is very challenging. This paper describes an extended model for secondary education, as developed and implemented at the University of Manitoba through a very large project of spacecraft design, involving a team of teams of students and advisors. The project was to design, construct, verify and test a functional small satellite for a 600-km sun-synchronous orbit. It also describes the architecture, implementation, verification, and testing of the satellite, as well as the interactions of the team of teams within the project and with the advisors. A proposal for international cooperation for such projects is also presented, as supported by our collaborative experience with other countries. Of particular interest is the launching of such spacecraft by the Russian Soyuz rockets.

Keywords: Nanosatellite design; nanosatellite implementation; nanosatellite testing; creating teams; international research and development collaboration.

1. INTRODUCTION

The Canadian Satellite Design Challenge (CSDC) was introduced in 2010 to provide undergraduate and graduate students with an opportunity to design, build, and test an operational nanosatellite [Geoc09]. The first run of the competition ended in September 2012, with the winning spacecraft intended for launch into a low-Earth orbit. The CSDC is intended to expand the understanding and skills learned by students in their university courses through hands-on experience designing and managing a large complex project. The University of

Manitoba (UofM) team consists of more than 100 registered undergraduate and graduate students from Engineering, Science, Business, Architecture, and Art, all collaborating on the T-Sat1 mission and achieving good results (e.g., [KBSF11], [SAFG11], [SAFM12], [KSFC12]). The students belong to the University of Manitoba Space Applications and Technology Society (UMSATS), and rely on an infrastructure consisting of more than 50 advisors from academia, aerospace, industry, business, military, government, and the amateur radio community that provide valuable feedback on the project [KBSF11].

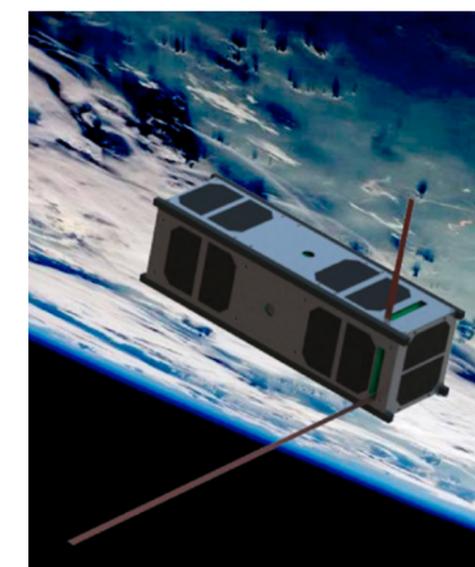


Fig. 1. T-Sat1 in orbit rendition

The T-Sat project can be described in terms of two distinct, yet interdependent, parts: the satellite itself and the teams making up the stakeholders for the project. The satellite includes two scientific payloads with the supporting electronics and the satel-

lite bus, as described in Sections 2 and 3 of this paper. They form the technical elements for the mission and can be considered an example for teaching complex system design that would lead to cognitive machines in years to come [Kins07]. The requirements [Geoc09, Geoc11a, Geoc11b] provide a broad set of constraints for the mission with ample room for creativity on part of the students, while being exposed to interdependencies that lead to trade-off in performance, costs, development schedule, and many other important parameters. At the same time, the “team of teams” consists of many small groups of students working on different satellite subsystems, a system integration (SYS) team that oversees the overall project, and teams of advisors that review the progress and offer feedback. The hierarchical structure for the teams works like local- neighbourhoods in particle swarm optimization that allow for creativity and exploration of solutions within the teams, while the T-Sat team at the high level converges to a solution in the design of the satellite [ScKi11].

The technical and personnel segments of the project are augmented by other requirements that include promotions, fundraising, and outreach. An important aspect of promotions involve a number of presentations to elementary schools, high schools, and other institutions to encourage and engage a new generation of students in the design of complex systems for space applications [SAFL12]. In addition, the students are charged with approaching industry partners to secure funds to build the satellite. Presentations to industry are used to help fundraise the estimated \$75,000 required to (i) support the design efforts through different prototypes and laboratory experiments, (ii) build and assemble the satellite, and (iii) assist with sending a group of students to the David Florida Labs at the Canadian Space Agency’s Ottawa facilities to perform tests on the spacecraft such as random vibrations, separation shock, and thermal-vacuum. The outreach component requires that students promote the project through presentations, seminars, and workshops for elementary students, high school students, university students, industry, and the community at large. We have reached 4,00 such individuals during the project.

The T-Sat project described in this paper is so extensive and has so many interactions, that it could be considered a part of a prototype of a teaching model that includes cognitive systems (CogSys). Cogni-

tive systems attempt to emulate the behaviour of human cognition [WaZK10] by acquiring, processing, interpreting, and expressing information for actions [Wang02]. Some examples of systems exhibiting these properties at different levels of complexity include cognitive radio [Hayk05], cognitive radar [Hayk06], and cognitive networks [HoBh07]. As these and other examples of cognitive systems are developed, a parallel effort must be placed into educating students to be able to design and implement future cognitive systems with increased levels of complexity (e.g., [Kins07], and [KHWP12]).

Although the state-of-the-art satellites themselves are not considered cognitive systems at this stage, the inherent complexity of such systems resembles many challenges experienced in the design of cognitive systems. Therefore, the University of Manitoba is using the T-Sat project as a means of teaching complex systems where the technical elements, project management, and personnel challenges exhibit many interdependent interactions [SAFG12]. The technical complexity challenges students to design and implement mechanical and electronic components with intertwined interdependencies that require both the local understanding of the problem (i.e., detailed analysis of power protection circuits) and the global understanding of how that component affects the full system. These technical elements are embedded within many project management and personnel challenges. For example, while the sensors on the satellite expose students to the acquisition phase of a cognitive machine, the flight software demonstrates how information must be processed, interpreted, and expressed to control the operations of the satellite. Thus, students participating in the design and implementation of the satellite gain valuable experience that serves as a foundation for designing cognitive systems. The spacecraft development process provided an extraordinary opportunity for students and professors participating in the project to experience the fusing of theory taught in class, with the best practice, industrial operations, and military logistics, and resulted in much more educated and mature students who have become more ready for hire.

This paper provides a summary description of the technical components for the mission in order to understand the critical elements of the system and appreciate its complexity. More specific details are given elsewhere (e.g., [KSFC12]). Since the system must be designed by

many diverse stakeholders, the environment and interactions with the many stakeholders in the team of teams are also described. Highlights of the lessons learned in design of complex systems, educational challenges, and personnel management are described as these may be similar to those encountered in future designs of cognitive machines and systems based on cognitive informatics and cognitive computing [Wang02], [WaZK10]. A proposal is also provided to expand the project to include international partners, so the model of experiential learning could benefit other countries.

2. SATELLITE OVERVIEW

In addition to the science performed on the satellite, this mission demonstrates the extensive capabilities and significant cost reductions inherent in the nanosatellite paradigm. This has important implications for future science, as space-based astronomy experiments often provide far superior data compared to their ground-based counterparts.

2.1 Spacecraft Mission Profile

The spacecraft is designed for a Sun-synchronous orbit with zero eccentricity, inclination of 98 degrees, and altitude between 600-800 km [Geoc11a]. Using this orbital parameters, information about the UofM Satellite Ground Station, and estimating worst-case losses (including path loss, atmospheric attenuation, misalignment, tuning errors, and delays establishing links), the spacecraft is expected to have a minimum contact time of 32 min per day with a maximum time of 9.45 min in one pass.

2.2 Satellite Payloads

The specifications [Geoc09, Geoc11a, Geoc11b] require that each of the thirteen participating teams select at least one science instrument for their spacecraft for potential use in research and teaching. The UofM team has selected two payloads that match the long-term research interests of its members. The primary payload (PLD1) is a biological experiment to test the survivability of tardigrades in the harsh space environment [MFSG11, MFSG12]. The second payload (PLD2) measures the intensity of specific wavelengths from the Sun through spectroscopy [FMSG12] to compare the results to those of larger missions, thus helping promote the concepts of constellations of small satellites that can replace single large units [PeOM04, PeTK04, PBTD08, Schi06, Schi09a, Schi09b, KTPT99].

2.3 Satellite Bus

As shown in Fig. 2, the spacecraft bus consists of all the components necessary to run the science experiments and communicate the data collected back to the Earth for analysis. The bus is 34×10×10 cm³, has a maximum mass of 4 kg, and is designed to meet the 3U Poly- PicoSatellite Orbital Deployer (P-POD) used to launch the satellite into orbit [Cube01]. The bus uses commercial-off-the-shelf (COTS) products for its subsystems. A brief overview of the subsystems follows here, with more complete descriptions provided in Sec. 3. The Attitude Determination and Control (ADC) subsystem uses a variety of sensor readings to orient the satellite in space to conduct the spectroscopy experiment [RFHN12, WEKF12]. A Communications (COM) unit is used to establish two-way communication with the UofM Satellite Ground (GND) Station [ScKT09, KSAL12] in order to receive telemetry from the spacecraft and to send commands to control the operation while in orbit. The commands are handled by the on-board computer in the Command and Data Handling (CDH) unit [AWNA12]. These electronic units are powered through a Power (PWR) subsystem that harvests energy from the Sun through solar panels and distributes it throughout the spacecraft [FDTA12]. An active Thermal (THM) unit helps maintain all the components within their temperature operating ranges and the Structure (STR) is design to protect the components during launch and for the duration of the mission [CMSM12]. For comparison, Fig. 3 illustrates the T-Sat1 in its final stages of assembly. The spacecraft operations are described in terms of the modes of operations are described in [KSFC12]

Fig. 2. Layout showing internal components positioning

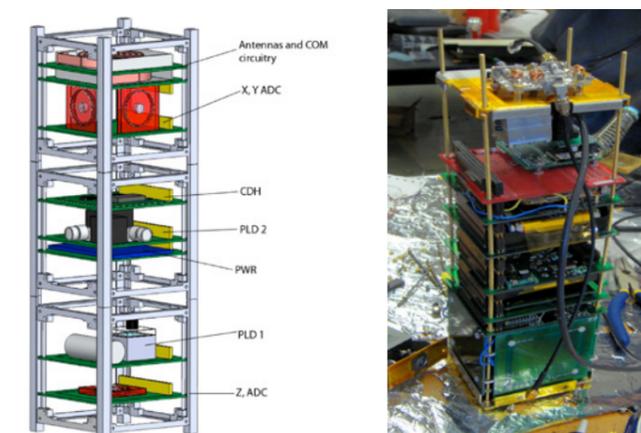


Fig. 3. T-Sat1 in the final stages of its assembly

2.4 T-Sat Development Phases

The schedule for the mission is very compact in order to enable students to experience the entire product lifecycle. The first year was spent on Preliminary Designs for the overall mission, followed by six months of Critical Detailed Designs, and finally the Assembly, Integration & Testing. The preliminary design focused on studying the requirements for the mission, deriving subsystem requirements, defining interfaces between subsystems, and establishing an overall mission operations mode. The critical designs expanded on these ideas with simulations, laboratory testing, and some component selection. The last phase focused on the implementation of all the subsystems as prototypes and integration of the prototypes into an engineering model. This model is used to adjust designs and refine the system before building the flight model of the spacecraft. A detailed description of the satellite subsystems (i.e., tardigrades and spectroscopy experiments, structure & thermal subsystems, power subsystem, attitude determination and control subsystem, and the command and data handling subsystem) can be found in [KSFC12].

2.5 Satellite Integration and Testing

System integration involves the design, implementation, verification and testing of individual functional subsystems, followed by the fusing of their functions into a complete system. This process is very involved, as each subsystem team tends to operate autonomously, but must communicate with all the other teams very closely. Even if all the team communication is in place and all the subsystems operate according to specifications, the system integration may not produce a flawless system. The space in this paper does not allow us to describe the process completely.

Figure 3 illustrates the T-Sat1 in its final stages of assembly. The individual modules are mounted on the four corner rods, and are separated by lock-nuts. The system bus is shown on the left of the tower. There are a few radio coaxial cables visible. The torquers are at the bottom of the tower, and the tardigrade chambers are in the upper section. Batteries are in the middle to control the centre of gravity comply with the specifications.

The satellite has just gone through environmental testing at the Canadian Space Agency's David Florida Labs in Ottawa. The facilities have also been used for the testing of commercial satellites. A large number of students from the active team attended the testing (Fig. 4). Their experience from the one-week activities is also invaluable.



Fig. 4. T-Sat1 environmental testing

3. TEAM OF TEAMS

The personnel and human aspects of the project are as complex as the technical ones. There are many teams of students, advisors, and other stakeholders that interact on a daily basis to design, implement, test, document, and manage the project. This section describes the many stakeholders, teams, advisors, and their interdependent responsibilities that make the project possible.

3.1 Key Stakeholders

The T-Sat project has many stakeholders, as shown in Fig. 5. The core group consists of more than 100 undergraduate and graduate students from Engineering, Science, Business, Architecture, and Art who are responsible for the core activities of the project. The students have an elected committee to oversee the operations and lead various teams designing each of the subsystems for the mission. The students are supported by many other stakeholders assisting with various aspects of the project, coordinated by a chief advisor. The other stakeholders include external advisors, outreach groups (mostly pre-university students and teachers, consumers groups, research groups, observers, funding groups, suppliers, and media). These groups are described in [KSFC12].

3.2 International Teams

We propose the formation of international teams to participate in the T-Sat project. This international cooperation in such projects could further enhance the quality of experiential learning. Our collaborative experience with the European Space Agency through the Young Engineers' Satellite (YES2), initial experience with the constellation of 50 pico-satellites for atmospheric study, and planned collaboration with the Space Institute in Brazil and in Italy could be used to achieve the expected results. Of particular interest is the launching of our satellite by the Russian Soyuz rockets.

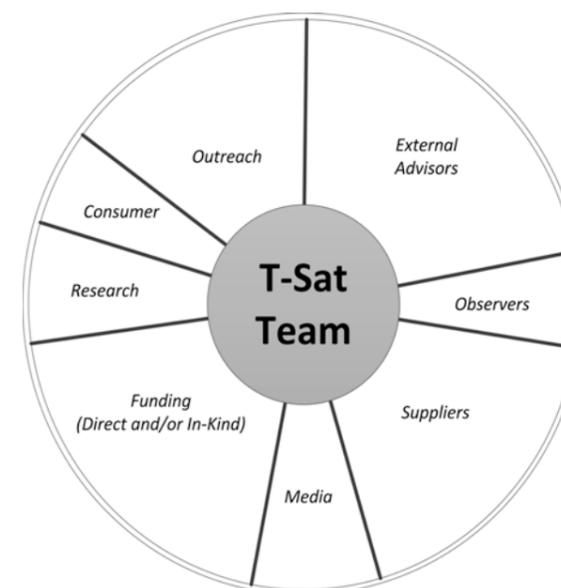


Fig. 5. T-Sat1 stakeholders

Another fundamental reason for international collaboration is the operation of the satellite when in orbit. This requires ground stations not only in our city, but also in other cities around the planet. The Global Educational Network for Satellite Observations (GENSO) was proposed in 2007 to achieve such a goal of collecting data and exchange the data for study at various participating universities. We have created a micro-GENSO in our city with three ground stations and one in construction in order to be able to do error correction locally. However, a larger network is required because of the short satellite passing time over any geographical location. The international collaboration could focus initially on this aspect of the project.

3.3 Team of Teams

Although the previous two sections have presented the teams as independent entities, the realities of the T-Sat project demand major interdependencies amongst all the teams. The interfaces, design trade-offs, choices of components, and other elements all have significant effects on the other teams. Therefore, to help alleviate the potential interface problems, the team holds regular meetings to review the progress. All students meet once every 6 weeks to review the full team progress, and every 4 months, the advisors are invited to a comprehensive meeting that includes a presentation of the full system. Those meetings are intended to help identify weaknesses and inconsistencies in the design while serving as an excellent learning experience for all students involved. Another reason for the meetings is to prepare the advisors to the unexpected challenges that may require solutions in the future. Still another advantage of the meetings is the uncovering of future design challenges that may require direct involvement of external help.

4. LESSONS LEARNED

An extra-curricular T-Sat project of the unusually large scale provides tremendous opportunities, but also a few challenges. The scientific and technical opportunities have resulted in many outcomes such as: (i) learning both theory and applications first hand; (ii) developing and deriving system and subsystems requirements; (iii) defining workable interfaces between the subsystems; (iv) learning how to develop convincing arguments about relative technical merits and trade-offs for alternative designs and components; (v) gaining skills with mathematical models and their software implementations, normally not available to individual students; (vi) developing alternative numerical model representations for simulation on the software tools; (vii) graphical visualization of numerical results; (viii) translation of numerical results into physical models that could be implemented in a workshop; (ix) selection of mechanical and electromechanical materials suitable for the harsh environment of space; (x) selection of electronic components that could work in the radiation-challenged environment of space; (xi) assembly of parts, units and subsystems that could withstand the vibrations of rocket launching into orbit; (xii) subsystem verification and system integration; (xiii) space-

ground communications that must be sustained for at least a year; and (xiv) analysis of the experimental data collected from the mission.

The soft-skills opportunities include: (i) developing viable and important mission to match the enormous effort required to develop a satellite; (ii) planning on all the phases of the satellite development and its operational mission; (iii) developing contingencies and remedies for all possible malfunctions; (iv) developing a plan for fundraising and funding acquisition; (v) description of the project in the form of the Preliminary Design Review [SAFG11], and the Critical Design review [SAFM12]; (vi) preparation of papers for conferences and journals; (vii) formation of a society for the project and broader activities related to aerospace; (viii) developing a management scheme for the project; (ix) interaction between members of each subsystem team; (x) interaction between various subsystem teams; (xi) developing a plan for a large-scale outreach to pre-university students and general public; (xii) delivery of the outreach program through workshops, visits to high-schools, and participation in public events.

One of the greatest lessons learned is how to deal with the interdependencies and interactions among the unit teams, subsystem teams, satellite team, and the satellite project team (the team of teams), and how it is related to cognitive systems, as described in [KSFC12].

5. CONCLUDING REMARKS

This paper was intended to provide a short description of a very complex project undertaken in a university environment, that was developed in full cooperation with academia, industries, business, military, government, professional and semi-professional organizations, and community at large. So far, the project has demonstrated numerous opportunities and identified many difficulties that had to be solved.

Since the project deals with intelligent machines that have to survive in very harsh environments (that may also be largely either unpredictable, or with a very-short horizon of predictability, or incompletely specified, or uncertain, or both), it has provided a good platform to investigate the most advanced schemes for data acquisition, decision-making and control. Classical schemes can provide adequate

solutions at this stage of development of small satellites. However, most likely future spacecraft architectures will involve constellations of small satellites performing complex functions. For such missions, the current experience can provide a good foundation for more advanced schemes, including cognitive informatics and cognitive computing [Wang02], [WaZK10].

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EXPLORING R&D GLOBALIZATION INTECHNOLOGY DRIVEN MULTINATIONAL ENTERPRISES

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Abstract: In the aftermath of the Financial- and Economic Crisis nearly every industry is standing on shifting sands and most multinational enterprises (MNE) have to cope with fundamentally changing ecosystems. Due to a variety of often interdependent financial-, technology-, and market-related factors, leading technology-driven firms are increasingly re-defining their R&D strategy around geographical locations at which they don’t operate any traditional “bricks-and-mortar” sites. In line with a transition from a product centric- towards a customer centric strategy, they strive to tap into globally dispersed and locally embedded cutting-edge knowledge at a distance, without costly investments on the ground. This requires establishing systematic processes that define how knowledge in any given location should be accessed, de-contextualized, absorbed and integrated.

Due to the complexity and sensitivity of the required data, empirical cross-industry studies provide only anecdotal evidence about the outcomes globalized R&D processes. The coordination of globally dispersed R&D hubs has proven to be a costly and highly complex task that requires sophisticated value-based resource allocation. R&D Globalization in MNE implies organizational coordination related to strategic-, structure-, process-, system- and culture related issues. Additionally, there is a distinct need for both internal and external stakeholder- and asset orchestration across geographical boundaries and functional silos, in most cases lacking formal authority.

In this study, I examine how the R&D Globalization literature stream can be reinvigorated by the Open Innovation paradigm in order to deliver relevant management guidelines for an innovation policy.

INTRODUCTION

The current R&D globalization literature has been focusing on multinational companies which conduct R&D activities within a global setting. Drawing heavily on the geographical configuration

of the R&D activities and related organization issues, the R&D globalization theory discusses why multinational companies establish R&D centers abroad (Bartlett and Goshen, 1998; Doz et al., 2001) and how location choices are made (Dunning, 1998; Doz et al., 2001). Moreover, the various managerial practices and challenges in organizing and implementing innovation in a multinational company have been studied in detail (e.g. Cantwell and Mudambi, 2005)

During the past two decades, industrial and service companies increasingly opened up their innovation processes (Chesbrough, 2003, 2011). The Open Innovation (OI) paradigm proposes that firms should make full use of external knowledge and combine it with knowledge that internally developed. By making use of several external knowledge sources, open innovation broadens the scope of innovation activities and offers more choices for companies to develop their technology capabilities. Academic research about open innovation is rapidly increasing (e.g., Almirall and Casadesus-Masanell, 2010; Laursen and Salter, 2006; Van de Vrande et al., 2010). Google Scholar displays 370 publications for 2011 only and 1290 publications for the period 2007–2012.

The majority of publications about open innovation focus on large industrial companies (e.g., Chesbrough 2003, 2011; Kirschbaum, 2005; Huston and Sakkab, 2006) which are without exception multinational enterprises (MNEs). These MNEs are innovation-intensive firms that invest considerably in R&D not only domestically, but also in several subsidiaries and specialized research centers scattered in various locations around the globe. Despite the growing literature on open innovation, surprisingly very few scholars address the managing issues related to open innovation in a multinational setting. Open innovation scholars have been examining external sources of innovation extensively; however, most studies do not mention where innovating MNEs should search for such external knowledge and how to implement open innovation given the internationalized structure of R&D activities in large companies nowadays.

Compared to Open Innovation, the R&D globalization literature focuses mainly on R&D activities at the front end of the innovation funnel and it has no advanced view on how to tap effectively in external research communities. It describes where to search for external knowledge for its research and development activities, but remains virtually silent about how to commercialize it in a cost efficient manner. The open innovation literature does not tell us where to search external partners and how to get access to and absorb geographically dispersed, locally embedded knowledge. The R&D globalization literature, on the other hand, analyses the geographical spread of R&D facilities in MNEs and shows why they locate their R&D centers in particular places around the globe. However, it does not have an advanced view on how to tap into external sources of technology and only considers open innovation at the fuzzy front end. By connecting these two streams of literature together, they can benefit from each other. In this paper I explore how the R&D globalization can be reinvigorated by open innovation perspectives.

STRENGTHS AND WEAKNESSES OF THE R&D GLOBALIZATION LITERATURE

In this section I introduce the R&D globalization literature in a nutshell. The literature stream developed during the last decade and focuses on different dimensions of contemporary innovation management in large companies.

Originally, R&D activities were mainly concentrated at the headquarters, and overseas R&D sites only served to adapt products to the local conditions. This is the so-called home-base exploiting strategy (Kuemmerle, 1998). In recent years, the growing importance of asset-seeking motives to source technology abroad has driven an increasing number of MNEs to perform corporate R&D abroad (Dunning, 1996) to augment home base technology capabilities (Kuemmerle, 1998). More recently, because of the increasing availability and mobility of skilled workers, and the growing research capabilities of universities and research centers in BRIC countries (Brazil, Russia, India and China), knowledge is more widely distributed (Chesbrough, 2011), MNEs have set up dedicated overseas R&D units around the globe to take advantage of the changing knowledge landscape (Doz et al., 2001; Gassman and Gaso, 2004; von Zedwitz and Gassman, 2002). At the same time,

companies as well as their dedicated R&D sites are increasingly embedded in various networks and interlinked with each other to exploit and explore the technological expertise of their local partners and to better absorb the knowledge of their technology partners. Innovation becomes more and more “open” in the sense that companies start to locate some of the critical R&D activities abroad and they have to collaborate intensely with local partners to profit from the scientific and technological expertise which is in most cases contextualized and embedded in the local research community (Doz et al., 2001).

MNEs are setting up R&D sites abroad in locations which offer the best economic and institutional facilities to offset the home country’s weaknesses in particular technological areas (Shan and Song, 1997). The growing geographical dispersion of knowledge-based assets and need of firms to harness such assets from foreign locations are the two main motives driving MNEs to set up R&D units abroad (Dunning, 1998). Doz et al. (2001) observe that MNEs conduct their R&D activities abroad to tap into and mobilize the widely scattered knowledge in order to integrate diverse innovation sources and fuel their own innovation process.

The choice of particular overseas R&D locations is determined by balancing factors that encourage concentration at certain locations and those that favor location abroad (Kumar, 1996). The agglomeration forces (e.g. Disdier and Mayer, 2004; Belderbos and Carree, 2002) drive firms in the same industries to cluster their R&D activities nearby to benefit from the various externalities (Krugman, 1991), such as human capital (Head et al., 1995), public infrastructure (Marshall, 1920), scale effects (Smith and Florida, 1994), regional specialization (Belderbos and Carree, 2002), knowledge and idea spillovers (Feinberg and Gupta, 2004), and the capacity of a clustered network of partners to implement innovation (Porter and Stern, 2001). To better utilize the agglomeration of economies and location advantages, several scholars suggest the distinct nature of research and development influences firms’ decision making in location choices (von Zedwitz and Gassmann, 2002). Research activities, are mainly concentrated near “centers of excellence” (i.e., prestigious universities and research institutions) to better tap into scientific- and technical knowledge. Therefore, agglomeration economies in terms of specialized labor force

and knowledge spillovers (Head et al., 1995) matters in the location choice of MNEs’ research centers. Development activities, on the other hand, may be more dispersed in the sense that they are conducted near local markets and manufacturing facilities (Kuemmerle, 1999; von Zedwitz and Gassmann, 2002). In this sense, we can also expect a growing geographical separation of research and development sites of MNEs.

MNEs strive to transfer and integrate the external knowledge they acquired from the R&D sites abroad. Grant (1997) suggests that knowledge transferability depends on two factors, different types of knowledge (tacit or explicit) and the capacity of the recipient to aggregate units of knowledge. Explicit knowledge can be articulated and transferred at low cost, while the tacit knowledge is much harder to transfer when there is no face to face contact (Singh, 2005; Teece, 1977). In order to acquire tacit knowledge, companies need to be present in foreign locations where the knowledge is (Doz et al., 2001) and proactively access and tap into the local technological strengths (Porter, 2001;). Therefore, interpersonal knowledge networks are crucial for knowledge transfer and knowledge sharing (Singh, 2005). Efficiency of knowledge aggregation is greatly enhanced when knowledge can be expressed in terms of common language, and is positively related to the absorptive capacity of recipients (Cohen and Levinthal, 1990; Kogut and Zander, 1996).

In sum, R&D globalization theory provides some rich insights about how to organize knowledge flows in MNEs and how to integrate and transfer such knowledge. These insights will be useful to shed new light on some blind spots of open innovation theory. However, the R&D globalization theory has its own weaknesses. First, it does not have an advanced view on how to organize the processes to detect and assimilate externally developed technology. Several authors have focused on the greater complexity when MNEs source from different R&D centers around the globe: Cantwell and Mudambi (2005) pointed out that the benefits from increased exploration in the learning of MNEs come at the cost of managing a more complex international network. Various managerial difficulties therefore arise such as the tension between headquarter and some of the competence-enhanced subsidiaries (Birkinshaw and Hood, 1998, Young and Tavares, 2004), complex reporting requirements and the perception of exter-

nal control (Florida, 1997), high costs of coordinating and achieving knowledge diffusion (Criscuolo et al., 2005), the dilemmas between local embeddedness and autonomy of overseas R&D units, an extensive degree of internal coordination (Bartlett and Ghoshal, 1989), organizational inertia as well as the greater levels of inter-unit geographical, organizational and technological distance (Criscuolo et al., 2005). However, none have really focused on how to source from local technology partners abroad. Moreover, the R&D literature has a relatively narrow view on innovation as most publications emphasize research and development activities, not the venturing and commercialization which are as important: not the technology per se but the business model which unlocks the commercial value of it creates value for innovating firms (Chesbrough, 2003). To better capture the value of the increasingly diffused knowledge and leverage it in an efficient and effective manner, MNEs should adopt diverse organizational modes to manage innovation regarding to different phases of the innovation funnel (Grönlund et al. 2010). In sum, the R&D globalization theory considers relations with external partners only at the front end of the innovation funnel and not at the back end. Moreover, there is in R&D globalization literature no attention for monetizing internally developed technologies through external paths to the market. These limitations of the R&D internationalization literature are well captured in the open innovation theory: in the next section I combine some insights from both literature streams to offer a better understanding of the R&D strategy in large companies which is increasing collaborative and globalized.

ENRICHING THE R&D GLOBALIZATION THEORY

In this section I will explain how the R&D internationalization literature can benefit from insights developed in the open innovation literature.

EXTENDING ORGANIZATIONAL MODES TO SOURCE EXTERNAL TECHNOLOGY

The R&D globalization literature has paid attention only to a few external organizational modes. In contrast, open innovation describes a multitude of organizational modes that a firm can choose from when it is looking for external technology sources. I make a distinction between inbound and outbound flows of open innovation. For the inbound flows (outside-in), innovating firms can choose from numerous technol-

ogy sourcing modes: examples are research collaboration, joint business development, equity and non-equity alliances, crowd-sourcing, licensing in, venture investments, spin-ins, and technology acquisitions. Several authors have been discussing either the benefits and usage of these modes (Hagedoorn, 2002) or the combination of them (Chesbrough, 2003). Each of these technology sourcing modes is most appropriate in a particular phase of the innovation funnel. Innovating firms can source external technologies in a flexible way by combining different technology sourcing modes over the innovation funnel.

Besides inbound flows, open innovation also generates outbound flows (inside-out) in order to monetize unused technology. Since technological knowledge is increasingly regarded as a good that can be traded on technology markets (Teece, 1986), external technology exploitation becomes more popular in realizing additional revenues for the innovating company (Chesbrough, 2011). This approach not only saves a lot of the time and money, but it also nurtures new partnerships, promotes innovative ecosystems, and generates high-margin licensing income. In general, technology commercialization can take the form of out-licensing, spin-offs and spin-outs, and divestments. The use of each of these modes is most appropriate at a particular phase of the innovation funnel.

In sum, compared to the R&D globalization literature, open innovation largely broadens firms' options to source from external technology partners in different ways and at different stages of the innovation funnel. The international management literature can be more relevant for MNEs by exploring in more detail different external technology sourcing modes and means to monetize unused technology. R&D collaboration with external partners in different parts of the world is too narrow a focus to understand the full benefits of how leading MNEs nowadays benefit from their global presence.

FOCUSING ON ALL PHASES OF THE INNOVATION FUNNEL

The globalization of R&D literature is focusing mainly on the front end of the innovation funnel, while open innovation shows that relationships with external partners takes place in each stage of the innovation funnel (Grönlund et al. 2010). This

implies that multinational companies have not only to figure out how to organize the geographical configuration of their research, but also the location and geographical coordination of activities related to the development, venturing and commercialization of new products and businesses. The question here is: What is the particular role of headquarters, the overseas R&D centers and the subsidiaries in the different phases of the open innovation funnel. Obviously, in most MNEs headquarters play a major role in licensing, corporate venturing, and acquisition and divestment decisions. It is interesting to analyze how local sourcing from overseas research sites may be combined with the centralized and headquartered based organization of other innovation activities in subsequent stages of the funnel.

Moreover, open innovation not only implies that innovating firms source from other organizations, but also that they monetize their own unused technologies using external paths to the market. The latter is completely absent in the R&D globalization literature and should be included into MNEs' overall innovation strategy and related location decisions.

THE ROLE OF DIFFERENT TYPES OF CAPABILITY BUILDING

Open innovation can also be of value for the R&D globalization literature as it focuses on effective forms of collaborative innovation for the development of different types of R&D capabilities. Chesbrough and Schwartz (2007) distinguish between core, critical or contextual R&D capabilities. Core capabilities are key sources of firms' distinctive competitive advantage. Collaboration with partners may be a risky venture in this situation. Companies should utilize in-house R&D or be very selective in choosing strategic partners. Firms better choose a single partner (or maximum two) and build a tight collaborative relationship. In some cases, firms may decide to acquire the partner to prevent knowledge leakage. Critical capabilities are those that are vital to the success of a firm's product or service, but they are not core to the overall business. Here companies should partner on a win-win basis and go in-house only as a last resort. Contextual capabilities are needed to complete an offering, but provide little of the value added for the business. The relations with partners can be shallow and similar to market-transaction. Since innovations of partners are not crucial for competitiveness, they should also be replaceable.

In sum, the differences in capabilities a firm intends to build also determine the type of relationships it will establish. Core capability building requires different types of partners as well as different types of relations with these partners compared to the case in which it develops critical or contextual R&D capabilities. These insights should be readily applicable to the R&D globalization literature. Depending on the type of capabilities a company needs to develop it will choose different types of governance modes with different types of partners located in different parts of the world. Some of these relations will force the company to establish local R&D centers abroad. In other cases virtual connections will do the job. It would be interesting to examine in detail the relationship between capability building, partner types and governance modes in a global setting.

CONCLUSION

The combination of insights from the globalization of R&D literature with those of the open innovation literature illustrates a more realistic picture of the increasingly collaborative and internationalized innovation processes in MNEs. Applying open innovation to the multinational environment in which MNEs operate, challenges managers to deal with a series of new managerial and organizational challenges. These challenges will have to be faced and overcome to win in the global knowledge economy where knowledge has become increasingly internationalized. In this paper, I focused on the question: How R&D globalization be invigorated by the open innovation paradigm and lead to a more realistic picture of the organization of innovation in MNEs? More specifically, I examined how the recent literature about R&D globalization can improve our understanding of open innovation in multinationals, and, in turn, how open innovation may shed new light on the current trend towards increasing R&D globalization. The Open Innovation paradigm offers several insights that can extend the findings of the R&D globalization literature. In particular, I find that the later phases of the innovation funnel deserve more attention and their organization should be integrated into the existing globalization of R&D activities in multinationals. This also implies that the R&D globalization literature has to take more internal and external players into account and take a broader scope on the potential organizational modes to team up with external technology partners.

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G8 & G20 ALUMNI ASSOCIATION

G8 & G20 ALUMNI ASSOCIATION

WHO ARE WE?

The G8 & G20 Alumni Association is an international non-governmental, not-for-profit organization (NGO).

The Headquarters of the G8 & G20 Alumni Association are in Geneva, Switzerland. The Office for International Cooperation is based in Saint-Petersburg, Russia.

The young leaders, academics, parliamentarians and alumni of all our events, are members of the G8 & G20 Alumni Association. The G8 & G20 Alumni Association reunites those who are already playing an important role in the development of their cities, regions and countries and who will make key decisions on a worldwide scale in the future.

WHAT DO WE STAND FOR?

The main Purposes of the G8 & G20 Alumni Association are:

- to reunite the alumni for further professional development by organizing the international alumni's meetings, G20 Youth Forums, G8 Youth Forums, other events and to realize joint projects;
- to create a platform for interaction between alumni, experts, academics, parliamentarians, representatives of business and governments of G8 & G20 countries and to facilitate easier cooperation on a day to day basis over a wide range of issues;
- to continue the integration of the alumni into the common global community with the aim of helping to solve current world problems.

HOW ARE WE ORGANIZED?

The functions of the G8 & G20 Alumni Association are carried out by separate dedicated entities:

The President of the G8 & G20 Alumni Association provides the overall impetus for the organization and coordinates its work. The President has the authority to sign all G8 & G20 Alumni Association official documents.

The Scientific Commission gathers together professors, teachers and scientists from leading Universities all over the world. It makes a direct contribution to the agenda of G8 & G20 Alumni Association

events and to the selection of the participants for these events.

The Parliamentarians' Commission gathers together members of federal, regional or city parliaments. It actively participates in the selection of participants from parliaments for G8 & G20 Alumni Association events.

The Commission on Education gathers together professional administrators, from leading universities around the world, who are directly involved in the selection of participants for G8 & G20 Alumni Association events.

The Young Leaders Commission attracts together young leaders from all over the world. It purposes to promote the mission and vision of the G8 & G20 Alumni Association.

The Executive Committee is responsible for the organization, administration and promotion of the annual G8 & G20 Alumni Association events.

The Strategic Committee harnesses the achievements, expertise and experience of its members to provide advice for the further development of the G8 & G20 Alumni Association. It is responsible for communication with Association members.

HOW TO BECOME MEMBER OF THE ASSOCIATION?

If you are interested in becoming G8 & G20 Alumni Association member, please feel free to contact Polina Timofeeva, the Head of Strategic Committee - g20youth@gmail.com

The following entities of the Association are open for new members: the Scientific Commission, the Parliamentarians' Commission, the Commission on education and the Young Leaders Commission. The participation in all entities, except the Young Leaders Commission, is free of charge.

Details

The Scientific Commission gathers together professors, teachers and scientists from leading Univer-

sities all over the world. It makes a direct contribution to the agenda of G8 & G20 Alumni Association events and in the selection of the participants for these events.

Benefits for members include the opportunity to:

- put forward your own proposals to the agendas for all the events organized by the Association;
- raise, discuss and resolve issues;
- develop and refine new ways to communicate between participants at any events in order to achieve more productive results
- draw attention to specialist literature and sources including your own research or that of your own department, and to recommend it to members of the associations and to put it forward to other members of the association, eliciting comments and reaction from all interested parties
- take part in the selection process of the participants for each event organized by the Association;
- be a speaker or moderator at the event;

Also:

- mix and be among your colleagues from different spheres, countries, institutions and develop professional relationships and future channels of communications;
- exchange ideas, experiences and common problems
- To discuss and create new projects and events inside the Commission.

The Parliamentarians' Commission gathers together members of federal, regional or city parliaments. It actively participates in the selection of participants from parliaments for G8 & G20 Alumni Association events.

Benefits for members include the opportunity to:

- develop cooperation between young parliamentarians from G20 countries and all others;
- exchange information about legislative practices and to share experiences;
- communication with other young parliamentarians and facilitate easier cooperation on a day to day basis over a wide range of issues;
- initiate and develop collaboration on projects and events which will then be supported by the Association
- be a moderator or speaker at any of the Association's events;
- the opportunity for your Parliament to host one

of the Association's events;

- foster and examine new ideas and initiatives, which will then go forward to national and international legislative bodies and NGOs.

The Commission on Education gathers together professional administrators from leading universities around the world, who participate actively in the selection of participants for G8 & G20 Alumni Association events.

Benefits for members include the opportunity to:

- select participants from your own University and develop the selection process for each event of the Association;
- put forward as speakers any interesting and successful people from your university at any of the Association's events;
- the opportunity for your University to host one of the Association's events;
- foster a positive image of your University for both your own employees and students, as well as for the general public
- discuss and exchange ideas with fellow professionals about a wide range of issues relating to different educational systems and situations
- encourage cooperation between universities from all over the world.

The Young Leaders Commission attracts young leaders from all over the world. Its purpose is to promote the mission and vision of the G8 & G20 Alumni Association.

Benefits for members include the opportunity to:

- interact with a wide range of like-minded individuals in a stimulating and enjoyable environment;
- network with young leaders from different countries in order to form and develop partnerships and friendships;
- exchange views and opinions and share experiences;
- showcase your work and research to hundreds of members, to get feedback from a wide range of experts, and to receive professional recommendations;
- seek potential business partners for your start-ups;

Annual Participation fee 120 \$.

FUTURE EVENTS

In 2014, the G8 & G20 Alumni Association will organize the G20 Youth Forum, 2014 for young leaders, students and academics, young parliamentarians and representatives of the business world and governments. This event will attract more than 1500 participants and guests from all the different countries.

Between the G20 Youth Forum, 2013 and G20 Youth Forum, 2014, the Annual Meeting of the G8 & G20 Alumni Association will be held in October 2013 in one of the most magnificent venues in France – The Boutique Hotel Chateau de Sissi in Normandy. Only our Members can attend this event, set in this sumptuous 18th century castle and grounds (www.chateau-etretat.com)

PAST EVENTS

The unique concept of the “G8 Youth Summit” and “G20 Youth Summit” was created by Ksenia Khoruzhnikova in 2005. As President of the NGO International Youth Diplomacy League, Ksenia and her team organized the first G8 Youth Summit in Saint- Petersburg in 2006. Since 2006 the International Youth Diplomacy League has co-organized the G8 Youth Summits in Berlin, 2007, in Tokyo, 2008, in Milan, 2009, the G8 & G20 Youth Summits in Vancouver, 2010, in Paris, in 2011 and in Washington, 2012.

That concept of the “G8 Youth Summit” and the “G20 Youth Summit”, created by Ksenia Khoruzhnikova in 2005, involves the selection of young experts by a jury to become the young heads of states and ministers for the “G8 Youth Summit” and the “G20 Youth Summit”. During the Summit the young heads of states and ministers meet together and work over several sessions in order to produce the Final Recommendations (Communique) to be presented to international organizations, governments and society at large. This is an international non- governmental not-for-profit civil society project, independent from any government of the G8 or G20. Its aim is to represent independent views and opinions of the new generation of young leaders.

Since 2006 around 1500 participants and experts have taken part in the G8 & G20 Youth Summits. In 2012, in order to continue the development of the concept, its creator Ksenia Khoruzhnikova, in con-

sort with the Group of alumni and the International Youth Diplomacy League, created the G8 & G20 Alumni Association (an independent international NGO, based in Geneva, Switzerland).

The G8 & G20 Alumni Association is an international independent platform for interaction between alumni, young leaders, experts, parliamentarians, academics and, representatives of business and governments of the G8 & G20 countries. It facilitates easier cooperation on a day to day basis over a wide range of issues throughout the year.

Starting from 2013, the NGO G8 & G20 Alumni Association, together with the NGO International Youth Diplomacy League will continue to organize the G8 Youth Forum and G20 Youth Forum annually. The concept of the G8 Youth Forum / the G20 Youth Forum includes four events, that run in tandem with each other. These are the G8 Youth Summit/ the G20 Youth Summit, and three new events: the Conference, the International Young Parliamentarians’ Debate, the Alumni meeting.

The international team of the NGO G8 & G20 Alumni Association and NGO International Youth Diplomacy League have gained 10 years of invaluable international experience in the sphere of global emerging political and economic issues as well as in intercultural and management skills. Every year this unique international experience gives rise to a dazzling array of unforgettable events and experiences for all its participants.

CONFERENCE PROCEEDINGS

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