

No. **86** 2010

Anja SENZ, Dieter REINHARDT (eds.)

**Green Governance –  
One Solution for Two Problems?  
Climate Change and Economic Shocks:  
Risk Perceptions and Coping Strategies  
in China, India and Bangladesh**



IN-DEP

Published in cooperation with the  
Institute for Development and Peace

**IN-EAST** 東亞  
INSTITUTE OF EAST ASIAN STUDIES

UNIVERSITÄT  
DUISBURG  
ESSEN



Title:

**Green Governance – One Solution for Two Problems? Climate Change and Economic Shocks: Risk Perceptions and Coping Strategies in China, India and Bangladesh**

Editors:

**Anja Senz, Dieter Reinhardt**

Anja Senz, Ph.D., is Managing Director of the Confucius Institute of Metropolis Ruhr and a Research Associate at the University of Duisburg-Essen's Institute of East Asian Studies.

E-mail: [anja.senz@uni-due.de](mailto:anja.senz@uni-due.de)

Dieter Reinhardt, Diploma'd Political Scientist, is an Associate Fellow at the University of Duisburg-Essen's Institute for Political Science as well as an Associate Fellow at that university's Institute for Development and Peace (INEF).

E-mail: [dieter.reinhardt@uni-due.de](mailto:dieter.reinhardt@uni-due.de)

Co-Authors:

**Dalem Chandra Barman, Chen Yugang, Tobias Debiel, Thomas Heberer, Özlem İpiv, Yang Long, Dinoo Anna Mathew, Dieter Reinhardt, Dil Rowshan, Ash Narain Roy, Anja Senz, Karen Shire**

**Series:**

Duisburg Working Papers on East Asian Studies / Duisburger Arbeitspapiere Ostasienwissenschaften  
No. 86/2010

Printed version: ISSN 1865-8571

Internet version: ISSN 1865-858X

This edition No. 86/2010 is published in cooperation with the Institute for Development and Peace

**Abstract:**

This collection of papers is based on an international workshop held in the summer of 2009 at the University of Duisburg-Essen. It brings together different perceptions regarding China, India and Bangladesh as they face the risks and crises of climate change and economic shocks like the recent global financial crisis. The papers reflect assumptions concerning the concept of Risk Society and discuss the extent to which Sustainable Development and the rather new concepts of Green Governance, Green Economy and the New Great Deal offer avenues for transforming risk societies into risk-avoiding and risk-resistant societies and states. On the basis of these concepts, the current situation in China, India and Bangladesh is described, including the coping strategies which have been implemented so far.

**Keywords:**

green governance, risk perception, climate change, financial crises, sustainable development, green new deal, green jobs, implementation, civil society, donor policies, China, India, Bangladesh.

**Procurement / Bezug:**

You may download this paper as a PDF document under /  
Als Download ist das Papier zu beziehen als PDF-Dokument unter:

<http://www.in-east.de/> → Publications → Green Series

Libraries, and in exceptional cases individuals, may order hard copies of the paper free of charge at /  
Bibliotheken, und in Ausnahmefällen auch Privatpersonen, können das gedruckte Papier kostenfrei bestellen bei der

Universität Duisburg-Essen  
Institut für Ostasienwissenschaften, Koordinationsstelle  
Forsthausweg  
47057 Duisburg

**Institut für Ostasienwissenschaften / Institute of East Asian Studies**

Universität Duisburg-Essen  
Campus Duisburg  
Forsthausweg

47057 Duisburg, Germany

Tel.: +49 203 379-4191

Fax: +49 203 379-4157

E-mail: [in-east@uni-due.de](mailto:in-east@uni-due.de)

ISSN 1865-8571 (Printed version)

ISSN 1865-858X (Internet version)

© by the authors

September 2010

## Contents

Abbreviations .....	6
Tables .....	6
Preface .....	7
<i>Tobias Debiel / Thomas Heberer</i>	
1 Introduction: Crisis Perception and Green Governance in Comparative Perspective: Questions, Concerns and Format of the Publication .....	9
<i>Anja Senz / Dieter Reinhardt</i>	
2 Risks as a Research Topic – Concepts and Methods .....	13
<i>Karen Shire</i>	
3 China: Problems and Perspectives .....	17
3.1 Measure for Meeting Challenges of Climate Change – a Chinese Perspective .....	17
<i>Chen Yugang</i>	
3.2 Potential Instability Caused by the Financial Crisis – Measures Taken by the Chinese State ..	22
<i>Yang Long</i>	
3.3 Green Governance and Sustainable Development in China: Two Problems – One Solution? ..	30
<i>Anja Senz</i>	
4 India: Problems and Perspectives .....	37
4.1 Climate Change in India with Special Reference to Women .....	37
<i>Dinoo Anna Mathew</i>	
4.2 Coping with Climate Change and Financial Crisis – the Indian Narrative .....	45
<i>Ash Narain Roy</i>	
5 Bangladesh: Problems and Perspectives .....	53
5.1 Climate Change and Security: A South Asian Perspective .....	53
<i>Dalem Barman</i>	
5.2 Anthropogenic Intervention in Natural Eco-Systems and Climate Change Adaptation in Bangladesh .....	59
<i>Dil Rowshan</i>	
5.3 Sustainable Green Investments and Policies in Bangladesh: Two problems – One Solution? ..	64
<i>Özlem Ipiv / Dieter Reinhardt</i>	
6 Conclusions: Risks, the Green New Deal, and Green Governance – Lessons from South and East Asia .....	73
<i>Dieter Reinhardt / Anja Senz</i>	
Authors .....	85

## Abbreviations

CDM	Clean Development Mechanism
CEDAW	Committee on the Elimination of Discrimination Against Women
CNG	Compressed Natural Gas
CCP	Communist Party of China
COP	Conference of the Parties
DDS	Deccan Development Society
DEFRA	Department for Environment, Food and Rural Affairs
EE	Energy Efficient
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GHG	Green House Gases
GoB	Government of Bangladesh
GS	Grameen Shakti
GTS	German Technical System
GW	Gigawatt
ICS	Improved Cook Stove
ILO	International Labour Organization
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
LTTE	Liberation Tigers of Tamil Eelam
MDGs	Millennium Development Goals
IMF	International Monetary Fund
MNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
NAPA	National Adaptation Programme of Action
NCCCC	National Climate Change Coordination Committee
NDRC	National Development and Reform Commission
OECD	Organisation for Economic Co-operation and Development
PGS	Participatory Guarantee Scheme
PML-N	Pakistan Muslim League - Nawaz
RMB	Renminbi
SAARC	South Asian Association for Regional Cooperation
SACCC	South Asian Climate Change Conference
SEPA	State Environmental Protection Administration
SHS	Solar Home System
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Fund for Population Activities
VAT	Value Added Tax

## Tables

Table 1: The economic stimulus package and its green elements (2009) .....	74
Table 2: Green stimulus spending per sector (2009) .....	74
Table 3: CO <sub>2</sub> emissions per capita (1998, 2002 and 2007) .....	76
Table 4: Environmental Performance Index (2010) .....	77
Table 5: Natural hazards: Reported events in 2008 and 2009 .....	77
Table 6: Number of people killed by natural hazards (2005, 2007 and 2009) .....	78
Table 7: Number of people affected by natural hazards (2005, 2007 and 2009) .....	78
Table 8: Green fund as percentage of total GDP (August 2009) .....	79

## Preface

The relationship between climate change and poverty harbors a multilayered potential for crises. Economic shocks can aggravate this potential. In the summer of 2009 researchers from China, India, Bangladesh and Germany came together at the University of Duisburg-Essen/Germany to discuss perceptions of these topics and their relevance for the respective countries. The Institute of East Asian Studies (IN-EAST) and the Institute for Development and Peace (INEF) were delighted to welcome these international colleagues to a three-day workshop on “Perceptions and Reactions to Risks and Crisis in Society and Nation States”.

The workshop dealt with the challenges that climate change, environmental degradation, and economic shocks pose for China, India and Bangladesh with regard to political stability and poverty alleviation. The participants discussed how these challenges are perceived in the respective countries and what policies and measures provide good learning examples. This publication presents the revised workshop papers and gives a stimulating insight into the respective lines of argument. They offer a fine example of approaches to international research cooperation. What is more, by linking two current global challenges – climate change and economic shocks like the recent financial crisis – the issue of Green Governance is raised. In this regard, the present publication asks whether one solution for two problems might be possible and gives examples from three Asian countries of avenues for dealing with climate change and alleviating poverty at the same time.

We thank our colleagues for contributing to the workshop and this edition, and Anja Senz und Dieter Reinhardt for planning the workshop, collecting funds, and preparing this publication as editors and co-authors. The publication is a valuable contribution to the ongoing debate about how future crises and their local impacts can be prevented or at least better managed by Green Governance.

Duisburg, August 2010

*Prof. Dr. Tobias Debiel*

Institute for Political Science  
Chair, Int. Relations & Development Policy

Director of the Institute for Development  
and Peace (INEF)

*Prof. Dr. Thomas Heberer*

Institute of East Asian Studies  
Chair, East Asian Politics

Co-Director of the Confucius Institute  
Metropolis Ruhr





## 1 Introduction: Crisis Perception and Green Governance in Comparative Perspective: Questions, Concerns and Format of the Publication

*Anja Senz and Dieter Reinhardt*

Perceptions and reactions to possible or real international and national risks and crises may vary between countries and continents. This can lead to different priorities in domestic and foreign policy agendas. Based on an international workshop held in the summer of 2009 at the University of Duisburg-Essen, the following papers compare different perspectives from South and East Asia with regard to two current issues of major international concern:

- a) Climate change in combination with ongoing environmental degradation and the resulting negative effect on the ability to earn a livelihood. The impact of the UN Climate Change Conference 2009 in Copenhagen (December 7th–18th, 2009) and the follow-up process has been rather weak. Since problems induced by climate change are likely to increase in future, it is becoming more and more urgent to develop strategies for coping with environmental and climatically induced problems, particularly in developing countries.
- b) Economic shocks, like the global financial crises of 2008/2009, which have negative repercussions not only broadly for national economies but in particular regarding poverty alleviation. It is not ensured that the massive state investment policies in 2009 for counteracting the effects of the global financial crisis and shoring up the respective real economies will be successful in the medium-to-long term. Hence, negative impacts on poverty reduction efforts in the countries of the southern hemisphere are all too expectable.

The financial and economic crisis which hit the global economy in autumn of 2008 was followed by domestic stimulus packages of a historically unprecedented size by different nations in order to turn away the most severe consequences for their own economies and societies. At the same time, the results of the Intergovernmental Panel on Climate Change have shown more and more clearly that measures to mitigate and adapt to the impacts of climate change are urgently needed. Unfortunately, climate protection is still often thought of as a hindrance to economic growth. In this regard, concerns have been raised on the one hand that many countries will wait for an end of the financial crisis before being willing to invest in measures for climate protection. On the other hand, the Stern report, in assessing the evidence regarding the effects of climate change for growth and development, concluded that "... the benefits of strong and early action far outweigh the economic costs of not acting"<sup>1</sup> and calculated the expenses for countering climate change at around 1 % of the annual global GDP.

In 2008 a so-called "Green Economy Initiative" of the United Nations Environment Program (UNEP) was started in order to assist governments in "greening" their economies by using clean technologies in production, transportation, buildings, sustainable agriculture, the promotion of decent labor conditions, etc.<sup>2</sup> In this sense, business and infrastructure are meant to be reconfigured so as to get good returns on investments on the one hand while reducing greenhouse gas emissions and the extraction of resources on the other. Part of this initiative was the "Global Green New Deal" concept formulated by UNEP and other UN sister organizations for simultaneously accelerating the fight against climate change, environmental degradation and poverty while promoting sustainable development. The concept's title refers to Franklin D. Roosevelt's "New Deal" economic reform program of the 1930s.<sup>3</sup> A revised version of the concept was published in reaction to the ongoing debates carried out at the "G20 Pittsburgh Summit" in September 2009 about stimulus packages for overcoming the financial crises.<sup>4</sup> Thus, joint measures against both challenges – climate change and the financial crisis – seemed to be rational. But due to often-assumed contradictions between environmental protection and economic growth the acceptance and implementation of such programs by the states has remained unclear.

Besides this, the initiatives mentioned above mainly take the restructuring of the economies of different countries as their target to the neglect of institutional reforms and specific policies for the implementation of higher ecological standards, which could be called "green governance" and are needed too. By

“governance” we understand the coordination of different actors in order to manage issues or even possibly solve complex problems jointly.<sup>5</sup> Actors that might be involved are the respective governments and administrations, the private sector, i.e. civil society organizations or companies, and foreign actors like international donors and international or regional organizations. In the coordination processes not only different mechanisms of coordination are conceivable but a different weighting of actors is likely too.

The concept of “good governance” includes effective and transparent steering mechanisms and ensures participation, fairness, decency and accountability. In addition, several specific aspects can be listed with regard to “green governance”. The concept does not refer alone to incentives which ensure that the respective national economies meet the standards of a green economy (sustainable use of resources, clean technologies, investment in “green jobs”); it also refers to certain state or civil society capacities, that is, the ability of states and societies to educate and inform their citizens about environmental protection, to raise awareness of the dangers of environmental degradation and climate change, to promote green economic development by setting the necessary political priorities, to have clear laws and regulations for environmental protection, to implement and evaluate adherence to such environmental standards through an adequate administration, and last but not least to have concepts as well as effective institutions for the management of natural disasters, including the transfer of resources for recovery (Hurricane Katrina has shown how difficult crisis management can be, even for a highly developed nation like the US). This list reveals that specific policies, institutions and resources are needed in order to achieve green governance in a country.

During the workshop mentioned at the beginning, the leading question was the extent to which climate change and the financial crisis could possibly lead to political instability<sup>6</sup> in South and East Asia. Bearing in mind, for example, that the legitimacy of the Chinese political system is commonly regarded as heavily dependent on further successful economic development, the negative impacts of the financial crisis might result in doubts about the political leadership of the Communist Party of China (CCP) on the part of disappointed or marginalized social groups. This could possibly lead to political instability. With regard to Bangladesh, climate change poses a severe challenge to the country as a whole and the capacities of the government and society for coping with it. In any case, climate change constitutes an obstacle for poverty reduction policies and may lead to violent distribution conflicts. China and India, too, are already being heavily affected by natural disasters caused by climate change and environmental degradation, so that coping mechanisms are urgently needed to avoid setbacks in their achievements at poverty reduction so far. Above and beyond the necessity for effective measures, however, the countries involved need to mobilize and allocate enormous amounts of resources in order to handle and ensure recovery after natural disasters while maintaining the stability of their respective systems.

The participants at the workshop first looked at the challenges which confront the respective countries as a result of by both issues – climate change and economic shocks like the recent financial crisis. Secondly, they considered the perception and evaluation of both issues in the respective countries. Thirdly they compared political priority settings, countermeasures, and the reasons for them. In the process they reflected on the criteria for defining some risks as “fundamental” and urgent and others as minor threats. What is more, they considered how the acuteness and real impact of such challenges are assessed in the respective countries. And finally they discussed the extent to which governments and societies comprehend the interplay of both risks and are in favor of combined strategies for handling both. The different ways in which both problems may be interrelated were discussed (for example, climate change might be used for anti-Western propaganda by political fundamentalists and thus influence governmental perception of the climate issue).

The articles presented in this publication use these aspects to describe the current situation of three countries – China, India and Bangladesh – and show what kind of coping strategies have been implemented there so far.

In order to compare perceptions and reactions regarding the risks and crises mentioned above, the authors here distinguish between two levels: the domestic level, meaning perspectives within a country,

and the international level. The latter includes foreign policy formulations and the behavior of each country in the international arena, both inside and outside the UN-system. To narrow the topic down, the focus was set on the domestic political level and the positions of the respective countries regarding possible regional solutions. The task here was to check whether other countries are seen as potential or existing partners in dealing with certain risks or as opponents, competitors and rivals, and what might be the political result with regard to the implementation of successful coping strategies. This leads to the final question of how far governments are interested in dealing with these risks within the framework of international organizations or might prefer to bypass those organizations instead.

The publication has three country sections in which the following aspects are touched upon: the challenges caused by climate change and environmental degradation and strategies for dealing with them; the impacts of economic shocks and their effects on poverty reduction and livelihood; combined ways for coping with both issues; and, as the title of the publication suggests; one solution for two problems? This last aspect raises the question of the extent to which sustainable green growth concepts and green governance policies are being used to handle the effects of climate change and at the same time might be able to stimulate domestic economies and create new jobs.

**In the first chapter** Karen Shire gives an overview of the modern concept of a risk society as an analytical framework based on the work of the German sociologist Ulrich Beck. The concept of risk is also one of the research spotlights of the Institute of East Asian Studies.

**In the case of China,** Chen Yugang describes measures taken by the Chinese party-state to react to challenges posed by climate change and environmental degradation. In the second study, Yang Long discusses the social effects of the financial crisis and the measures taken by the Chinese state to cope with the threat of political instability. With regard to environmental programs and a stimulus package for the Chinese economy, Anja Senz takes a look at the efforts and successes achieved so far by the Chinese government in coping with both challenges. What is more, she asks to what extent connections can be found between China's management of both challenges by means of sustainable development and green governance and the role of the party-state in this regard. One of her conclusions is that while civil society might be an important agent of change in India and Bangladesh, in China it is rather the government which is the leading actor in dealing with both challenges.

**In the case of India,** Dinoo Mathew shows the impact of climate change and reflects on the situation of certain social groups. Taking women as an example, she shows how differently certain societal groups are affected by environmental calamities and how they find their own mechanisms to reduce their risks. Taking the aspects of financial crisis and sustainable investment together, Ash Roy offers examples of projects that simultaneously cope with the effects of climate change, environmental degradation and poverty reduction and therefore can be seen as best-practice projects for fighting the problems that result from climate change and financial crisis.

**In the case of Bangladesh,** Dalem Barman reflects on the relationship between climate change and security issues in South Asia and concludes that strategies for dealing with these problems should have a regional format. Dil Rowshan analyses the effects and reasons for massive environmental degradation, and İpiv Özlan and Dieter Reinhardt describe the policies of government and donors and their relationship with sustainable green investment concepts.

**The last chapter** compares the described risks, perceptions and policies in China, India and Bangladesh. These countries run a high risk of crises caused by climate change, environment degradation and economic downturns while at the same time offering very positive and new ideas and projects regarding green governance and sustainable investment policies.

We wish to thank all the authors for sharing their different perspectives on risk and crisis in South and East Asia. We are also grateful that the Institute of East Asian Studies and the Institute of Development and Peace, both at the University of Duisburg-Essen, not only hosted the workshop but have also offered to publish the results of our international and comparative discussion.

Last but not least, we thank Jennifer Adler and Harald Krähe for their support in editing this volume.

## References

1. Stern Report  
([http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/stern\\_review\\_report.htm](http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/stern_review_report.htm))  
quotation from the summary: *The Economics of Climate Change*,  
[http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/Summary\\_of\\_Conclusions.pdf](http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/Summary_of_Conclusions.pdf)  
(August 24, 2010).
2. For further information please refer to the Website of UNEP ‘The Green Economy Initiative’  
<http://www.unep.org/greeneconomy/> (August 24, 2010) and *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*,  
[http://www.unep.org/labour\\_environment/features/greenjobs-report.asp](http://www.unep.org/labour_environment/features/greenjobs-report.asp) (August 24, 2010).
3. UNEP: *Global Green New Deal*,  
<http://www.unep.org/greeneconomy/GlobalGreenNewDeal/tabid/1371/Default.aspx>  
(August 25, 2010).
4. UNEP (September 2009): *Global Green New Deal, an Update from the G20 Pittsburgh Summit*,  
[http://www.unep.org/pdf/G20\\_policy\\_brief\\_Final.pdf](http://www.unep.org/pdf/G20_policy_brief_Final.pdf) (August 25, 2010).
5. Kooiman, Jan (ed., 1993): *Modern Governance, New Government-Society Interactions*, London [et al.]: SAGE Publications; Pierre, Jon (2005): *Governance, Politics and the State*, Basingstoke [et al.]: Macmillan [et al.].
6. The term “stability” is related to the functioning of a political system. Political systems interact with their environment; they influence but are also influenced by the context. Crises can cause dynamics and disturbances which might lead to political instability. Stabilization represents a return to the state of balance by the ability of the system to manage turbulence and ‘malfunctions’, see Sandschneider, Eberhard (1995): *Stabilität und Transformation politischer Systeme. Stand und Perspektiven politikwissenschaftlicher Transformationsforschung*, Opladen: Leske & Budrich.

## 2 Risks as a Research Topic – Concepts and Methods

*Karen A. Shire*

“Risk Society” has become a keyword in the social sciences for the consequences of growth-driven industrial development in the context of a globalizing market-capitalist economy. In the works of the German sociologist Ulrich Beck and his British colleague Anthony Giddens, “Risk Society” is foremost a reference to the dangers arising from man-made progress in the form of technological and scientific “progress”<sup>1</sup>. An important dimension of man-made risks is their transnational reach, and thus their “leveling” effect: neither rich nor poor nations, upper nor lower classes, can escape the consequences. The classic example is the Chernobyl nuclear disaster, which spread radioactivity from this northern Ukrainian city over the European continent. Global markets are another kind of technological development, relying on global information technology networks for world-wide trading and causing market failures in one region to ripple their effects across the globe. Thus the collapse of the Thai-Bhat in the summer of 1997, and the US subprime mortgage crisis, building since 2007 when housing prices steadily fell, set off regional and world financial crises. Environmental and financial crises ideally illustrate the transnational reach of man-made risks, and the inability of national states to govern man-made risks.

The Risk Society thesis has a second, more institutional dimension, related to how man-made risks undermine the capacities of nation-states to govern and protect against threats to social security and political legitimacy. The declining sovereignty of nation-states is a well-accepted aspect of contemporary globalization. The Risk Society thesis poses this declining sovereignty as a question of de-institutionalization in which the established protections against a range of livelihood risks of citizens begin to crumble. But rather than mourn the loss of governance capacity, the Risk Society thesis points to the opportunities opened by declining national sovereignty for increasing the role of truly international governance institutions on the one hand and fostering sub-national and local forms of democratic politics (“glocalization”<sup>2</sup>) which link citizens in multiple national and regional contexts on the other. In his further development of the thesis, Beck refers to the mix of risks and opportunities as the “World Risk Society”, and the governance opportunities as a new brand of politics beyond national borders, with strong local, globally networked and international dimensions<sup>3</sup>.

While this vision of new politics is encouraging, the world-wide increase in social risks resulting from the economic consequences of man-made and environmental disasters, but also from the failures of market systems, present regulatory and governance challenges at a very high level of complexity. The question arises whether “new politics” can develop the political orientation and capacities for governing “high consequence” risks, or whether they are doomed to fail. Indeed, in the context of the declining sovereignty of nation-states, and market globalization, the risk of market failure, whether it occurs in capital or labor markets, has visibly increased in the highly industrialized economies, where governance capacities have been stronger, and where regulations still secure a degree of economic and social security for citizens. What about regional contexts with failed states, political authoritarianism, and extreme dependency on world markets? Who bears the responsibility for protecting citizens in these regions against environmental, economic, and social risks? Are we facing a negative “leveling” of social and economic security in the advanced, less advanced and transformation economies of the world, or will “new politics” link local citizens with international forms of governance capable of dealing with “high consequence” risks? These are central research questions facing social scientists internationally.

The dangers and opportunities evoked by the concept of the risk society reveal several limits to the present state of technological solutions and political protections against man-made risks. Calculations of environmental risks – for example the likelihood of a tidal wave enormous enough to level coastal regions like that which occurred in December 2004 following an earthquake in the Indian Ocean – are known to be quite minimal. Perhaps better warning systems can reduce the loss of lives, but without the development of a different coastal environment, the loss of livelihoods will not be minimized in regions highly dependent on foreign tourism. Although such calculated disasters are unlikely, they need only occur once to wreak unfathomable damage on lives, livelihoods and the natural environment. Likewise, financial risks may be minimized if political authorities develop and exert capacities to regulate them. Al-

though the large nations, tightly networked with global market processes, shoulder a particular responsibility for regulatory diligence, it is precisely these nations (e. g. Japan and the US) which have failed to orient their regulations toward protecting against international crises; the decline of state sovereignty instead seems to invite nationally egocentric market protection orientations which favor domestic growth to the disregard of international impacts of “local” market failures. The damage caused by a tidal wave or massive loan delinquencies are in fact quite calculable, but many man-made risks are simply the unintended and unanticipated consequences of technology and markets.

The question is not how to better calculate risks – the intricacies of modern technologies, international market transactions, and environmental impacts are too complex for that and even when risks are reasonably assessed, “high consequence risks”<sup>4</sup> result, by definition, in disasters “against all odds”. For example, until the spring of 2010, hurricanes were the main source of oil spills and destroyed equipment in US off-shore drilling (this was one of the effects of Hurricane Katrina in New Orleans). However, since the explosion of the Deepwater Horizon drilling platform in April 2010, up to 100,000 barrels of oil in addition to natural gas were still being released into the coastal waters of the Gulf of Mexico at the time of this writing in early June. The example is particularly illuminating because it underlines how technological and regulatory failures are increasingly intertwined when high-consequence risks with low odds actually occur. Under George W. Bush, off-shore drilling regulations (some of which had been passed under his father’s presidency) were relaxed, and the US does not require remote control shut-off switches like those used in Brazilian and Norwegian exploratory drilling platforms. By holding the oil corporation BP accountable, the Obama administration is de facto blocking the direct monitoring of damage flows by US scientists, since they are prevented by BP from directly assessing the leaks. Such examples illustrate the difficulty of shifting from risk assessment (whether an accident is more or less likely to occur) to risk regulation (preventing accidents) and risk governance (dealing with accidents and their consequences when they do occur).<sup>5</sup>

While such accidents present dramatic examples of how risks are coming to characterize modern technological and political challenges, risk as a research topic is relevant on a much more routine level in relation to the consequences of “world risks” for everyday life and livelihoods. This is the question of how globalization affects everyday social, political and economic life; the question is thus less about preventing accidents, and more about the slow and steady decline of public responsibility and the rising “privatization” of risks<sup>6</sup>. The research perspective of the DFG Research Training Group 1613 *Risk and East Asia* at the University of Duisburg-Essen’s Institute of East Asian Studies focuses on the interplay of national, regional and transnational institutional shifts in responsibilities for social, political and economic risks in the context of declining national state sovereignty and the internationalization of markets.<sup>7</sup> In order to transcend the national focus of most research on social and political change, we borrow from comparative methodology in order to focus on “large processes” of relatively universal social change<sup>8</sup>, which by definition are global and multinational in reach, but which play out in different ways in specific regional and local contexts. We argue that four “large processes” in particular, are shifting the responsibilities for political, economic and social risks within established institutional arrangements. These processes are as follows:

1. Market transformation and liberalization, with a shift of responsibilities for economic risks between states and markets; the main direction of change involves declining public authority over market regulations, with increasing vulnerabilities.
2. Individualization, with a shift in social risks from traditional collectivities and public responsibility for well-being to individuals, thereby privatizing a range of livelihood risks with often precarious consequences; in a more positive sense, however, this also enables individuals to break out of traditional obligations and exert control over their life courses and life styles.
3. Political decentralization, which may involve a shift in the responsibilities for governance from the national to the sub-regional and local levels of governance, often without the required resources; in a more positive sense, however, this may also increase the capacities of non-governmental and citizens’ organizations for developing new collective capacities for governance, including transnational capacities.

4. Transnationalisation as a process of institutional change, with a shift in responsibilities from the national to supra-national levels of political authority; the latter may or may not have capacities for adequately governing the risks of the economic, political and social changes which arise from market transformations, the privatization of risks and the coordination of localized political authority.

As already implied in the descriptions of these four “large processes”, we analyze institutional changes as shifts in the responsibilities for different dimensions of risks: from states to markets, from collective bodies to individuals, from the national to the sub-national level, and from national to supra-national institutions. Moreover, in contrast to most Risk Society research to date, which has focused on dramatic examples and remained a largely European/North American research endeavor, the research program in Duisburg explicitly takes up the analysis of institutional changes in a non-European context, namely East Asia.

The focus on East Asia is certainly not meant to subvert the need to study other non-European regions of the world, where institutional developments and a risk perspective demand an equally sharp break with a Euro-centric research approach. Indeed in many respects, the East Asian region duplicates many of the biases of a Euro-centric approach. Focusing on Japan and China means highlighting the second and third largest market economies, respectively, behind the US, with China functioning as a representative of transforming economies like those in Eastern Europe<sup>9</sup>, and Japan functioning as the only non-European nation to successfully modernize and industrialize in a manner similar to Europe<sup>10</sup>, albeit with colonization of neighboring territories and aggressive militarization.

The research program in Duisburg aims to generate new insights about the governance of man-made risks in light of declining national sovereignty. It also hopes to contribute to theory and research in an area which until now has taken only European cases and advanced industrial contexts into consideration. From the perspective of Europe, the global weight of the East Asian economies may itself be perceived as a threat to European markets and governance capabilities. Japanese institutions have proven strongly resistant to a convergence with European forms of politics and social security, and the differences between East Asian, US and European style governance and regulation will become even more visible as the Chinese economy continues its own form of market transformation. By taking up the cases of India and Bangladesh, the contributions to this volume offer a more far-reaching perspective on Asian political and economic developments in the context of shaping a global perspective on the governance of man-made risks. Research of the scope presented in this volume is the only way to promote a research agenda which seeks to understand the consequences of growth-driven industrial development from a truly *world* risk society perspective in the context of a globalizing market-capitalist economy.

## References

1. Beck, Ulrich (1986): *Risikogesellschaft: Auf dem Weg in eine andere Moderne*, Frankfurt am Main: Suhrkamp; Giddens, Anthony (1990): *The Consequences of Modernity*, Cambridge: Polity Press.
2. Robertson, Roland (1998): *Glokalisierung: Homogenität und Heterogenität in Raum und Zeit*, in Beck, Ulrich (eds.): *Perspektiven der Weltgesellschaft*, Frankfurt am Main: Suhrkamp, pp. 192–220.
3. Beck, Ulrich (1997): *Was ist Globalisierung?*, Frankfurt am Main: Suhrkamp; Beck, Ulrich (1999): *World Risk Society*, Cambridge: Polity Press.
4. Giddens, Anthony (1991): *Modernity and Self-Identity: Self and Society in the Late Modern Age*, Cambridge: Polity Press.
5. Hook, Glenn D. / Takeda, Hiroko (2007): “Self-responsibility“ and the Nature of the Postwar Japanese State: Risk through the Looking Glass, *Journal of Japanese Studies*, Volume 33, No. 1 (Winter), pp. 93–123.
6. Calhoun, Craig (2006): *The Privatization of Risk*, <http://privatizationofrisk.ssrc.org> (Download: June 15, 2007).
7. See [www.risk-and-eastasia.de](http://www.risk-and-eastasia.de) for further information about research and training program.

8. Tilly, Charles (1984): *Big Structures, Large Processes, Huge Comparisons*, New York: Russell Sage Foundation.
9. Szelényi, Ivan / Kostello, Eric (1998): *Outline of an Institutional Theory of Inequality: The Case of Socialist and Postcommunist Eastern Europe*, in Brinton Mary C. / Nee, Victor (eds.): *The New Institutionalism in Sociology*, New York: Russell Sage Foundation, pp. 305–326.
10. Eisenstadt, Shmuel N. (1999): *Japan: Paradoxien einer nicht-axialen Modernisierung aus weberianischer Sicht*, in Mommsen, Wolfgang J. / Schwentker, Wolfgang (ed.): *Max Weber und das moderne Japan*, Göttingen: Vandenhoeck und Ruprecht, pp. 67–107.



### **3 China: Problems and Perspectives**

#### **3.1 Measure for Meeting Challenges of Climate Change – a Chinese Perspective**

*Chen Yugang*

##### **1 Introduction**

In June 2008 the Netherlands Environmental Assessment Agency issued its annual report, which claimed that China had overtaken the United States as the leading emitter of climate-warming gases in 2007.<sup>1</sup> According to the Agency, increasing emissions from China accounted for two-thirds of the worldwide growth in global greenhouse gas emissions.<sup>2</sup> In August 2008, the Center for Global Development, a think-tank based in Washington, released a report to the effect that the carbon emissions of China's electric power sector will jump this year by about a third, reach 3.1 billion tons of CO<sub>2</sub>, and for the first time surpass the total emissions of the U.S. electric power industry, which is expected to produce about 2.8 billion tons of CO<sub>2</sub>.<sup>3</sup> For some time, therefore, China has absorbed most of the attention of international society regarding the issue of climate change.

We will not argue here whether putting the blame on China is fair or not. That is not the aim of this essay. The main task here is to describe what the Chinese government has done regarding the battle of climate change. We will show that climate change has been a priority of the Chinese political agenda for many years. The government has invested great efforts in containing global warming, although it also insists that it is still too difficult to make commitments on the limitation of greenhouse gas (GHG) emissions. The main reason for this is that China is still in the middle of its own industrialization. As one official report stated, China recognizes that "in the development history of human beings, there is no precedent where a high per capita GDP is achieved with low per capita energy consumption. With its ongoing economic development and technology level, China will inevitably be up against growing energy consumption and carbon dioxide emissions."<sup>4</sup>

##### **2 China is taking action on different levels**

As the following information will show, instead of being unwilling to take action, China has been very active and responsible regarding climate change. From the topmost to the lowest levels of government, from government to business, from regulation to market mechanisms, from laws to economic stimulus, every possible means has been used to fight global warming.

From the very beginning, China has actively participated in international negotiations on climate change. China also signed the United Nations Framework of Climate Change Convention (UNFCCC) in 1992 and ratified it in 1993. China also signed the Kyoto Protocol in 1998 and ratified it in 2002. In both international treaties China was one of earliest members. From 1995 to November 1997, China has participated in eight formal negotiating conferences and several informal consultations. In post-Kyoto Protocol negotiation China is also an active and responsible player.

China has been working hard not only in multi-lateral negotiations but also in many important bilateral meetings to promote compromise. In past China-EU summits, climate change has always been a key issue on the agenda. In the first China-US Strategy and Economy Dialogue, climate change was a top-priority issue on the prior agenda as well. These facts show that the Chinese government is serious on this issue, not half-hearted.

The position of the Chinese government on climate change is clear and consistent. First of all, the principle of common but differentiated responsibility should be followed. Industrialized countries should take primary responsibility. The responsibility of developing countries should not be obligatory but in accordance with their level of development. Meanwhile, developed countries have the obligation to help developing countries with financial and technical support.

Before developed countries take seriously the reduction of GHG emissions as addressed in the Kyoto Protocol, it is not acceptable to force the developing countries to commit to quantitative limits. As a big

developing country, it is impossible for China to fulfill the duty of reducing GHG emissions before China becomes a medium-developed country. Recently, a senior Chinese official mentioned that China might agree to take on an emission limit in 2050. Before that, the Chinese government will make efforts to slow down the growth rate of emissions in accordance with its own sustainable development strategy. Trading off environmental rights might be helpful for fighting global warming, but it should not replace the obligation of developed countries to help developing countries. In certain aspects such trading is even immoral, since environmental damage is thus transferred from developed countries to developing countries.

Many observers have the impression that China is unwilling to take action on climate change because of its refusal to make a concrete commitment to emission reduction; however, very few recognize that China has already made extensive and strenuous efforts in this direction domestically. It is crucial to know that science as a basis for politics on climate change is a nation-wide consensus and behavioral guide in China today. One of the core characteristics here is the aim of an environmentally friendly and resource-saving society.

One of the key means of reacting to climate change in China is the establishment of institutions and laws and the promulgation of guidelines. As early as February 1990, the Chinese government set up the National Climate Change Coordination Committee (NCCCC) to coordinate and formulate policies and measures related to climate change. The NCCCC presently comprises 17 ministries and agencies. This indicates that China has attached great importance to this issue and regards it as a trans-sectoral problem. The Ministry of Foreign Affairs established a steering team for external work on climate change in September 2007, with Foreign Minister Yang Jiechi serving as the head. The team consists of members from 10 departments of the Foreign Ministry and reflects China's recognition of climate change as an important foreign policy issue.

On the 4th of June 2007 the National Development and Reform Committee issued an act dealing with climate change. China is herewith the first developing country to issue such a national act. What is more, a national leadership group has been set up even higher in the political hierarchy than the NCCCC. The main tasks of the group are to adjust economic and manufacturing structures, phase out old forms of technology production, develop and promote a recycling economy, take care that energy is conserved and energy efficiency improved, and ensure investment in renewable energy. The aim of the act is to formulate effective laws and develop measures. It puts energy-saving and emission reduction measures at the center of its focus for fighting climate change. Concrete measures include energy saving, the promotion of energy efficiency, and afforestation. These goals were set up to reduce energy consumption per GDP by 20 % in 2010 compared with 2005, to reduce the discharge of major pollutants by 10 %, to increase forest coverage from 18.2 % to 20 %, etc.

China's new energy conservation law went into effect on the 1st of April 2008. It requires all local governments to submit their plans for increased urban energy efficiency, including those for buildings and public transportation, to the central government.

The government recognizes that market mechanisms are also helpful and could be a good complement. The first trading market for environmental rights was set up in Beijing on the 5th of August 2008. As a form of economic leverage, this will encourage companies to save energy and reduce emissions.

Renewable energy is becoming the core of the government's focus on investments in future energy sources because it offers zero carbon emission levels. In February 2005, the National People's Congress adopted the Renewable Energy Law of the People's Republic of China, setting out duties and obligations in the development and utilization of renewable energy, along with a series of policies and measures. For example, because the price of renewable energy is higher than that of normal energy, the government has asked big national companies to take the lead in buying it. It has been made clear that green power should occupy a certain percentage of total energy consumption. Participating companies can get a tax refund as a form of compensation and encouragement. Stimulated by these measures, investments in renewable energy in China totaled 12 billion US dollars in 2007 – second in the world only to Germany's

total investment of \$ 14 billion. Meanwhile the Chinese government has set the following goals for the development of renewable energy:

1. Wind power: In 2005 China set two goals: 5 gigawatt (GW) by 2010 and 30 GW by 2020. But it had already reached 5 GW by 2007 and has now raised its 2020 target to 100 GW.
2. Solar Power: China produced 35 % of the global supply of solar power in 2007, up from 26 % in 2006. China already accounts for 70 % of global production and use of solar hot water heating systems.
3. Non-fossil energy: China added a 0.25 RMB feed-in tariff in 2007 to encourage biomass use in power production, with the goal of reaching 30 GW of biomass-to-power by 2030. China also set itself the goal of processing 30 % of total municipal waste into energy by 2030.

Much importance is also attached by the government to upgrading technology. The core aim is clean technology. In order to make full use of the opportunities provided by the Clean Development Mechanism (CDM), the Chinese government set up a CDM examination council and promulgated the Measures for Operation and Management of CDM Projects in China on 12th October, 2005. China is the biggest beneficiary of CDM up to now. It has proactively subsidiarized the projects of CDM. By February 2007, 375 projects have received official approval and 0.94 billion metric tons of carbon dioxide equivalent would be eliminated by 2012 if all the projects are carried out. It is realistic to believe that CO<sub>2</sub> emissions will be cut by 50 % per unit of GDP by 2020. This is a very encouraging aim.

Besides technology improvement and innovation, there is also much room for more energy conservation and better energy efficiency. In August 2006, the State Council issued the Decision to Strengthen Energy Conservation. China has already set itself the target of reducing national energy intensity (energy use per unit of GDP) by 20 % by 2010.

China has proposed a top 1,000 enterprises program. These enterprises are also on track to meet the 2010 target. They comprise 33 % of China's total energy consumption. In 2007 China closed 1,438 small coal power factories which produced a total of 14.4 GW of power, and shut down 1,000 cement plants, as well as inefficient steel, aluminum, paper, glass, and other production facilities. In order to promote the use of energy-efficient lights, the ministry of finance provides a subsidy that reduces the wholesale cost of these lights by 33 % and their retail cost by 50 %. In many areas, citizens pay only 10 % of the cost, because local governments offer an additional subsidy of 40 %.

Due to the fact that coal is still the biggest source of energy in China, clean coal technology is very important for energy efficiency and conservation. According to data from the International Energy Agency, about 80 % of the world's coal demand comes from China. In 1990, 76.2 % of China's primary energy consumption was supplied by coal and in 2005 this was still 68.9 %, while the world average was only 27.8 %.<sup>5</sup> Thus the National Development and Reform Commission (NDRC) has required all new coal-fired power plants to be either supercritical or ultra-supercritical.<sup>6</sup>

In a government-led system, the role of government is particularly crucial. The Chinese government has recognized that development should be monitored in the interests of the environment. On the 3rd of June 2007 the State Council promulgated a comprehensive measure regarding energy conservation and emission reduction. It set energy conservation and emission reduction as two of the important duties of different levels of government. Poor performance in this area alone suffices for local official leaders to fail their term examinations. The central government has developed a more comprehensive assessing criterion for officials which can be called "Green GDP".

Profits from exportation are causing Chinese companies to expand their production, thus aggravating emissions in China. In 2007 China removed the Value Added Tax (VAT) rebate on steel, cement and other energy-intensive exports. That is the equivalent of a 50 US-dollar-per-ton carbon tax on steel exports. Exports are largely dropping. China now exports only 1.5 % of its cement and 3.5 % of its steel. It is conceivable that the government will reduce more energy-intensive exports in order to improve the domestic environment.

### 3 Conclusions

What has China achieved with these measures and efforts? Compared with the past, the change has been huge. First of all, the growth rate of emissions is slowing. It was 7% in 2007, but rose to 11% in the past two years. The budget for environmental improvement in China is expected to be as much as six times that of the US from 2009 to 2010. In 2008 China issued an economic stimulus plan of 4 trillion RMB. The parts of this plan relating directly to climate change were allocated 580 billion RMB. From 2006 to 2008, energy consumption per unit of GDP dropped by 10.1%. In the past 30 years, China has reforested 54 million hectares, the most in the world.

Legal means are important to make ensure that the fight against climate change will be successful. Since the 1990s, China had passed a series of laws on climate change, including environment protection laws, energy saving laws, renewable energy laws, recycling economy laws, clean production promotion laws, coal laws, etc. These laws have become the guidelines for various levels of government. When they make reports to their parliament, the representatives can use these laws to check the government's performance.

Renewable energy is central to these actions. The government has already set the goal of developing renewable sources of energy to satisfy 10% of total energy consumption needs by 2010. In 2008 China produced renewable energy equivalent to that produced by 0.25 billion tons of standard coal, i.e. 9% of total energy consumption. This percentage will increase to 15% by 2020. The report on global trends in renewable energy investment in 2009 presented by the UN Environment Agency said that China is the biggest user of renewable energy in Asia.<sup>7</sup> The total amount in 2008 reached a value of 15.6 billion US dollars, representing a growth rate of 18% compared with 2007. Wind power has been the biggest part of this, and China is second only to the US in the wind power market in terms of new projects. That will lead to a total amount of wind power of 1,100–1,250 GW and will make China the fourth largest producer of wind power in the world.

China has been the biggest producer of hydroelectric and solar power in the world since 2008. 26 million families throughout the country were already using methane-generated power in 2007, thus reducing the consumption of standard coal by 16 million tons and reducing CO<sub>2</sub> emissions by an estimated 44 million tons. What is more, the restriction of plastic bags introduced in China in 2008 has had the effect of saving 2.4–3 million tons of oil and reducing emissions of CO<sub>2</sub> by 7.2 to 9 million tons.

These achievements highlight the huge gap in recognition by the international community of China's domestic efforts. This is mainly due to misconceptions about China and failure to identify China as a developing country. The resulting assumption is that China should have the same responsibility as a developed country. The attitude is taken that China is uninterested in committing to quantitative limitation on emissions, and all of its other efforts are regarded as meaningless. This is absolutely unfair from the Chinese perspective. The United States, for example, has maintained its lead in carbon dioxide emissions per person: the average American is responsible for 19.4 tons, followed by Russia with 11.8 tons, Western Europe with 8.6 tons, China with 5.1 tons, and India with 1.8 tons.<sup>8</sup> Thus China ranks far below more developed countries in this regard.

E3G, the climate change think-tank that published the report in September 2009, said that reforestation and a low-carbon transport sector, along with improvements in energy efficiency and investments in renewable power, had put China on a considerably lower trajectory of greenhouse gas emissions than would be expected under "business as usual".<sup>9</sup>

China will continue its domestic efforts even without subscribing explicitly to international conventions. Sustainable development is the national consensus in China, because a green or low-carbon-emission economy is good for China itself. So the Chinese efforts are not just a reaction to international pressure!

### References

1. Netherlands Environmental Assessment Agency (June 17, 2007): China now no. 1 in CO<sub>2</sub> emission; USA in second position, <http://www.pbl.nl/en/news/pressreleases/2007/20070619Chinanowno1inCO2emissionsUSAinsecondposition.html> (June 1, 2010).

2. Netherlands Environmental Assessment Agency (June 13, 2008): China contributing two thirds to increase in CO<sub>2</sub> emission, <http://www.pbl.nl/en/news/pressreleases/2008/20080613ChinacontributingtwothirdstoincreaseinCO2emissions.html> (June 1, 2010).
3. Center for Global Development (August 27, 2008): China passes U.S., Leads World in Power Sector Carbon Emissions – CGD, <http://www.cgdev.org/content/article/detail/16578/> (June 1, 2010).
4. Prepared under the Auspices of National Development and Reform Commission People's Republic of China (2007): China's National Programme of Climate Change, p. 19, <http://en.ndrc.gov.cn/newsrelease/P020070604561191006823.pdf> (June 1, 2010).
5. Ibid. p. 9.
6. Supercritical and ultra-supercritical technology: New pulverised coal combustion systems operate at increasingly higher temperatures and pressures and therefore achieve higher efficiencies than conventional PCC units and significant CO<sub>2</sub> reductions. For further details please refer to: World Coal Institute, <http://www.worldcoal.org/coal-the-environment/coal-use-the-environment/improving-efficiencies/> (September 10, 2010).
7. Dixon, Robert K. (ed., February 2010): Mitigation and Adaption Strategies for Global Change, Springer Netherlands, Volume 15, No. 2.
8. Rosenthal, Elizabeth (June 14, 2008): China Increases Lead as Biggest Carbon Dioxide Emitter, in The New York Times, <http://www.nytimes.com/2008/06/14/world/asia/14china.html> (July 1, 2010).
9. E3G – Change Agents for Sustainable Development / World Wide Fund (November 2009): The best and worst policies of climate and economic recovery, [http://assets.panda.org/downloads/e3g\\_wwf\\_scorecards\\_ii\\_briefing\\_note\\_nov\\_2009.pdf](http://assets.panda.org/downloads/e3g_wwf_scorecards_ii_briefing_note_nov_2009.pdf) (June 1, 2010).

### **3.2 Potential Instability Caused by the Financial Crisis – Measures Taken by the Chinese State<sup>1</sup>**

*Yang Long*

#### **1 Introduction**

The global financial crisis stemming from the United States has led to the decline of China's economic growth, caused rising unemployment, stock market declines, business failures, and reduced import and export trade. History and international experience have shown that an economic crisis or recession and a shift from a period of growth are prone to cause problems of political and social stability. Once economic growth slows down significantly, social contradictions and conflicts easily intensify. Alexis de Tocqueville found that social unrest was infrequent in places which experienced long-term economic stagnation, but was more likely to happen after a certain amount of economic growth. It most likely happens at a point when an economy has stopped growing and begun to decline. The French Revolution, for example occurred in just such circumstances.<sup>2</sup> Thus deterioration of a stable economic environment leads to explosive social contradictions. When the deterioration is slight, it will cause local social tensions; but when an economy deteriorates seriously, it will cause severe problems in political stability, such as social turmoil, political crisis or even a regime change. Conversely, political instability will cause the government to respond to an economic crisis feebly, thus deepening the economic crisis and initiating a vicious circle.

Influenced by the U.S. financial crisis, China is now facing the risk of social instability from two sides. First, former potential instability was intensified by the economic downturn, including a class conflict of interest resulting from the large gap between rich and poor and an urban and rural confrontation caused by a gap between urban and rural areas. To this was added a lack of security on the part of low-income groups caused by poor coverage from the social security system and government corruption. Second, the financial crisis could still lead to further instability issues, including panic resulting from the failure of personal investments, asset shrinkage, currency devaluation, dissatisfaction triggered by unemployment and non-employment of peasant workers and university students, lack of confidence in the government because of a decline in living standards, and public discontent due to the unsuccessful government response to the crisis.

The relationship between financial crisis and social stability is not one of a directly causal nature, but rather takes the form of a transmission mechanism. To study this transmission mechanism will be beneficial as a means of exploring ways to reduce the impact of a financial crisis on social stability. Based on research related to social stability and economic crisis, this paper will analyze the new problems of social stability which arise when an economic environment changes and then offer suggestions on how to build public confidence in the government while also enhancing confidence in the market and exploring ways to ensure social stability.

#### **2 Challenges to China's social stability in the international financial crisis**

Previous international financial crises in history have brought disaster to human society not only in the form of tremendous economic impact but also in a series of social problems. The "Great Depression" in 1930s brought serious social problems; "Stagflation" in the 1970s caused a high level of unemployment; the Asian financial crisis brought many Asian countries into difficulties; the recent "subprime mortgage crisis" stemming from the United States not only turned into a global "working-class disaster", but also triggered social crisis in many countries. Influenced by the international financial crisis, China's import and export trade suffered from continuous negative developments starting in November 2008. According to data from China's State General Administration of Customs, China's import and export value declined 22.7% in the first seven months of 2009 compared to the same period in 2008. In the process the value of exports decreased by 22% and that of imports by 23.6%.<sup>3</sup> Economic growth has continued to slow. According to data from the Chinese National Bureau of Statistics, the economic growth rate in the fourth quarter of 2008 was 6.8%, while China's GDP growth was only 6.1% in the first quarter of

2009 – the lowest economic growth rate of the past two decades.<sup>4</sup> The World Bank predicted that China's GDP growth rate in 2009 could drop to 6.5%. Even though China's GDP growth increased to 7.9% in the second quarter of 2009, this mainly resulted from government investments. If this type of investment fails to maintain this level in future, the government's target of 8% economic growth per year will be rather difficult to achieve. The sudden changes in the external environment and the resulting economic decline have disturbed the pace of reform and development. Former social problems may now be difficult to control, and China is facing enormous challenges of social stability.

Since introducing the reform and opening policy in 1978, China has been on a fast track of modernization. At the same time, China has also faced a series of social problems. Although China's economy has been growing rapidly, China is still a developing country. Similar to other developing countries in the process of social transformation, China also faces problems of employment, income distribution, poverty, corruption, resource depletion and environmental pollution. For developing countries like China which are trying to catch up with developed countries, economic growth rates above 8% help to control social issues to a certain degree. However, as long as these countries face economic crises, with the concomitant disruption in economic development and economic growth, such social problems will become volatile and difficult to control and therefore threaten the stability of the country directly.

Unemployment in China caused by the financial crisis has become the greatest problem. China's unemployment exhibits two parts: 1) unemployment caused by an insufficient number of available jobs compared with the total labor force; and 2) a lack of demand in certain sectors, resulting in overcapacity and unemployment in these particular areas. No matter how fast China's economy grows, 200 million people still remain unemployed. The financial crisis has resulted in a slowdown of economic growth and a rise in unemployment. Because of closure of enterprises in coastal areas and/or large-scale layoffs, a large number of unemployed peasant workers have returned home. Among the 130 million peasant workers in China, nearly 20 million lost their jobs and returned to their villages. The number of layoffs has exceeded earlier predictions. The actual urban unemployment rate may reach 9.6%, which is twice the official projection. In 2008, 5.59 million students graduated from college and another 6.1 million in 2009. According to a survey, the current unemployment rate for college students is 12%, which is three times higher than the rate for those officially registered as unemployed.<sup>5</sup> With the decline in industrial production, unemployment will become even more serious. Unemployment may bring disadvantaged groups a sense of frustration and anxiety, thus affecting social stability. Therefore this rapid deterioration of unemployment has been perceived as one of the biggest threats for social stability in China.

No matter whether this situation results from the market economy, policy deviations or poor organizational effectiveness, it is an indisputable fact that there is a huge gap between rich and poor in China. According to the "Social Blue Book"<sup>6</sup>, in 2006 China's Gini coefficient was 0.475. It is estimated that since then the Gini coefficient has risen to 0.48–0.5. In particular China's urban-rural gap has expanded. The ratio of per capita net income between urban and rural households in 2006 rose to 3.82; the ratio between the highest and lowest per capita net operating income of local urban residents was 9.19 in 2006, the corresponding rural ratio was 4.605.<sup>7</sup> Affected by the financial crisis and the following economic downturn, personal income decreased significantly.

Low-income people suffer most from such losses. For example, if everyone loses 100 RMB, those in the high-income bracket lose only 1% or 1‰ or even less of their total income, but the poor may lose 10% or even more of their total income. Hence, China's financial crisis will widen the income gap and may exacerbate social polarization.

Poverty is another problem during a financial crisis; it is caused by serious unemployment and the effects of polarization. By the third quarter of 2007, 27.8 million people in China were covered by the rural minimum living standard guarantee, whereas in September 2007 only 22.3 million were receiving the city minimum guarantee. It is estimated that the minimum living guarantee in China covers only one third of those who qualify for this welfare.<sup>8</sup> The financial crisis has made unemployment, polarization and poverty problems even more complicated, especially after a large number of unemployed peasant workers returned home, making rural poverty even more serious.

Expanding domestic demand, maintaining economic growth, and increasing employment opportunities are basic tools for dealing with the financial crisis. But another major problem for the Chinese government is how to ensure that emergency activities do not make economic growth return to the old, extensive style. In addition, population issues and public order issues also become prominent under the impact of financial crisis, thus threatening social stability in China.

### **3 Mechanisms of transmission from a financial crisis to a social crisis in light of market confidence**

Experience has shown that financial crisis does not always lead to social crisis, i.e. that there is no direct causal relationship between social stability and a financial crisis. The present article argues that there is rather an unstable causal relationship between the two. The reason for this is that there is a series of transmission mechanisms from financial crisis to social unrest through which financial crises expand from the financial sector to the economic, social and political spheres, leading to stability or instability. If accidental or man-made factors cut off or alter the pathway of financial crisis transmission, it is possible to avoid or mitigate the impact of financial crisis to social stability.

The U.S. subprime mortgage crisis illustrated four closely related risks which may develop from small to big, from real to virtual, and from shallow to deep during the risk transfer process. The first is artificial prosperity on the part of the real estate industry, leading to relaxed lending criteria, with mortgage and mortgage product innovation. The second is “asset securitization” which in the U.S. caused a transfer of credit risk from real estate and financial institutions to the capital market. The third is the rise of benchmark interest rates, making a weak real estate market the fuse for crisis. Fourthly, as the economy of the United States slowed down and capital markets sank into trouble, the use of the depreciation of the dollar caused systemic risk to spread to the rest of the world.<sup>9</sup> If a virtual economy deteriorates further, thus interrupting the funding supply chain of the real economy, a financial crisis can evolve into economic crisis. Once economic crisis is established in the production area, the factories will produce a large backlog of goods. There will be a large number of business failures and massive unemployment. The entire economy would fall into a state of paralysis and confusion. Commerce and business would stagnate, prices would fall sharply, shops would shut down, and factories would stop or cut their production. There would be more business failures. Unemployment would increase, and people’s income may drop sharply. Some people may even fall into a survival crisis. The integrated purchasing power of the society would decline. At the same time, the market would suffer from a serious setback in confidence. Lacking confidence in the market, companies would have less interest in investment and could not provide sufficient production. This would make the crisis in the production sector even worse. Under a lack of confidence in the market, effective demand by consumers would decline seriously, with a negative effect on the commerce area as well.

The first step in transmission of such a crisis is from a financial crisis to an economic crisis. The next step is the transmission from an economic crisis to a social crisis. Social problems caused by financial crisis will evolve into social crisis after the economic crisis emerges. The transmission mechanism is unemployment. Unemployment is not only an economic problem, but also a social problem. Economic theory shows that there is a negative correlation between unemployment and economic growth. When the unemployment rate is one percentage point higher than the natural rate of unemployment, actual economic growth will be three percentage points lower than the potential economic growth. At the same time, the reason for employment is not only to make a living or satisfy the basic needs of life, but also to get the individual involved in social relations. If unemployment increases sharply, it becomes difficult to form a stable income growth mechanism, and the number of low-income workers will rise, thus further expanding the gap between rich and poor within a short time. Polarization and poverty may become more prominent due to the deterioration of employment. In most cases a high unemployment rate leads to poverty, crime and social unrest. Therefore, the rapid deterioration of unemployment, together with an inadequate social security system and low tolerance of mental stress, may easily cause an evolution from an economic to a social crisis.



The first manifestation of social crisis is disorders in social life, such as suicide on the part of individuals because they cannot bear the pain physically and psychologically; the rise of crime rates; and strikes and demonstrations by the unemployed and other groups. However, as social panic develops, social life crisis may spread to the political sphere, leading to political crisis. The reason is that when an economic crisis has developed to a certain extent a crisis of confidence follows. When society has lost confidence in the market, people will naturally think of the government, and treat government as their only hope for saving society. Whether such a political crisis happens almost always depends on whether the government can meet people's expectations. Once the government has failed to play its due role, the public will cast doubt on the legitimacy of the government. Thus a crisis of confidence can cause a political crisis, leading to the emergence of riots, a military coup, or even war. At the same time, social crisis has a reverse impact on financial crisis and economic crisis, resulting in a vicious circle.

To sum up, transmission from a financial crisis to a social crisis depends not only on the evolution of the crisis itself, but also on human intervention. Therefore, the transmission process may not occur completely. It depends on the response to it and intervention in it. If the financial crisis can be prevented by human intervention from spreading to the economic sphere and social spheres, social crisis can be avoided and social stability can be maintained.

#### 4 Measures for enhancing government confidence in China

In order to avoid the problems of social stability triggered by financial crisis, the best approach is not to let it spread to the social sphere. Analysis shows that crisis transmission not only requires a series of transmission processes but also has to do with confidence, which is an important variable in promoting the transmission and spread of a financial crisis. A crisis of confidence leads to panic, thus adding fuel to the flames during crisis transmission. If confidence in the market can be rebuilt and panic eliminated, it is possible that a spread of the crisis will be prevented. This shows that during a financial crisis rebuilding confidence in the market is another key stratagem in blocking the above-described vicious circle between a financial and a social crisis. However, the problem is that, in the context of the financial crisis, the market does not have the ability to automatically restore market confidence. Government must therefore take responsibility. In order to restore public confidence to the market, the government must help the public believe that the government is capable of helping them out of difficulty. That is to say, the government should establish public confidence in itself. Only when the public has confidence in the government (we name this "Government Confidence") can confidence in the market be restored. Then it becomes possible to avoid the impact of financial crisis on social stability. In order to increase confidence in the government, the government should consider two aspects: the prevailing spirit and the possibility of practical action. Regarding the first, the government should present itself as the people's government, one which can be trusted by the public. Regarding the second, the government should show its capability to act, thus gaining the public's trust in the government.

**Building up a trustable government:** Crisis caused by market failure can destroy human beings. Therefore the current crisis prompted the Chinese government to intervene in the market so that negative impacts could be reduced. However, the main object of government intervention is to maintain social stability. Only under the prerequisite of social stability can market economy's self-repairing capacities take effect. Therefore to deal with a financial crisis the Chinese government does not need to return to the old planned economy or go back to totalitarian ways of government, but rather to build a limited market-oriented government.

Under this circumstance, it is necessary to build a government that can provide public services while paying attention to people's livelihood. As part of the rescue package, the Chinese government has tried to "protect people's livelihood", e. g. by expanding social security coverage and providing more central government financial input. In 2009 the Chinese government launched a new medical insurance system reform to solve the problems of insufficient medical service. This series of policies encouraged people and promoted cooperation between different interest groups.

In addition, the government has also helped low-income groups improve their life. Solving the employment problem has become the primary task of the government. Central and local governments have esta-

blished policies to provide job opportunity for peasant workers, for example, thus encouraging the companies to reduce layoffs. They have also provided training projects for peasant workers and offered financial support. For college students, the government encourages college graduates to work at the grassroots level, open their own businesses, and take on flexible employment. Various types of enterprises, especially small and medium enterprises and private enterprises, are encouraged to employ college graduates, and to provide facilities and the corresponding services.

For poverty alleviation, the party adopted “the decision of promoting the major issue of rural reform and development” at the Third Plenary Session of the 17th meeting of the Central Committee of CCP. It requires the government to “improve national poverty reduction strategies and policy system, adhere to the principle of development and poverty alleviation, and link the rural minimum living security system and pro-poor development policies effectively”. All these policies tend to provide support to people who may live a hard life during the crisis. It will increase the public’s confidence in the government.

Under the financial crisis, it is necessary to build an honest and trustworthy, open and transparent government which can get through these hard times together with the people. An open government can earn public respect and people’s trust. What is more, opening up information sources not only encourages the public to support the government’s policies but also provides an opportunity for the public to join the policy decision-making process. Confidence comes from transparency and increases if the government provides information; people have more confidence in the government and are willing to support it in getting through hard times together. The “Government Chief Information Disclosure Rules” published in May of 2008 specify rules for opening up government sources of information. Government information, especially when related to the vital interests of the people, as well as some information about people’s livelihood, must be made open to the public. The National Development and Reform Commission has presented a four trillion RMB investment plan to deal with the crisis and has introduced this plan on many occasions. The investment structure and other details are also open to the public on its website.

**Shape a trustable image of the government:** Under the financial crisis, the government should convey a message to the public that the Chinese state has the ability, commitment and leadership capacity to overcome difficulties. The government’s self-confidence is an important factor in boosting morale and alleviating panic. Only the government’s concrete actions can give people hope for the future. The self-confidence of the government relies on such a solid foundation.

After three decades of rapid growth, the Chinese government has the ability to lead people all across the country in overcoming difficulties and overcoming the crisis. As Premier Wen said, “The optimistic fundamentals and long-term trend of China’s economic and social development have not changed. We are fully confident of overcoming difficulties and overcoming the challenges. [...] 30 years of reform and opening up have established the foundation of material, technology infrastructure and institutional conditions.”<sup>10</sup> All these messages should be expressed to the public so that a confident government can be stand before the public, enhancing courage and the spirit of people to overcome the economic crisis. The media should insist on positive content. They should avoid stressing the seriousness of the crisis by an over-exaggerated and over-pessimistic content. They rather should encourage people to take a correct way of living under the economic crisis, to undertake rational planning for their lives and to soothe the emotions of vulnerable groups.

Government efficiency is another important factor that influences confidence. When a crisis arrives and the government can take effective action, this can improve people’s mental attitudes and alleviate the panic. Efficiency is an important value orientation of modern government. Woodrow Wilson made it clear: “The administration’s goal is to study [...] the highest possible efficiency.”<sup>11</sup> At the same time, efficiency is an important standard for evaluating the government’s management activities. In the context of the financial crisis, efficiency is an important way to get credibility. As soon as the financial crisis attacked China, the Chinese government responded quickly and made a rapid adjustment of macro-economic policies. Central government set the principle of “keep and control”, which means to keep economic growth and control the rise in prices. In order to reverse the economic decline trend, the government introduced a four trillion RMB economic stimulus plan, including active fiscal policies, appro-

appropriate monetary policy, tax cuts, and other measures. This increases the public's recognition and confidence.

For many years China's economy has relied mainly on export-led growth. In 2005, 2006 and 2007 the net export contribution to economic growth was 24.1 %, 19.3 % and 21.5 % respectively. Affected by the financial crisis, in 2008 the trade surplus was 295.46 billion U.S. dollars, an increase of 12.7 % over the same period of the year before.<sup>12</sup> The trade surplus shrank sharply (although the trade surplus in 2007 increased by 47.5 %), and net exports as a contributor to economic growth decreased significantly.<sup>13</sup>

When exports slow down, the policy of stimulating domestic demand is the first choice. The four trillion RMB economic stimulus plan has already achieved remarkable results. 44 % of public investments from the central government in 2009 have been completed. By increasing railway and housing construction investment, iron ore and steel prices were stimulated to climb. In addition, according to data published by the People's Bank of China in January 2009, China's newly-increased loans (237 billion U.S. dollars) nearly doubled compared to the same period in 2008, and reached the highest level in history. Leading central investment, the Beijing Municipal Government has arranged a total of 120 to 150 billion RMB for the next two years, which is expected to lead the community to invest 1 trillion RMB. Guangdong province alone plans to invest 300 billion RMB in key projects; this is expected to stimulate further society investment by about 1.3 trillion RMB.<sup>14</sup> Shandong province introduced 240 projects in eight key sectors, with a total investment of 800 billion RMB. Shanghai, Fujian, Jiangsu and other strong economic provinces followed up quickly. Asia-Pacific economist Ting Lu at Merrill Lynch said: "China is likely to become the first major economy to recover from the current economic crisis." Wang Qian, a J.P. Morgan Chase Bank economist for the Asia-Pacific region, says that the growth rate of China's economy will gradually increase to 7.2 %. She also thinks that the Chinese government's economic stimulus program will have a 3 % positive effect on economic growth. In addition, the Credit Suisse Group's chief Asia economist Dong Tao believes that the increase in bank lending and the increased investment in public projects can prove that China's economy has bottomed out.<sup>15</sup>

The financial crisis itself may not yet have reached bottom. It is too early to say that China's economy is out of the woods now. Should the crisis continue to develop, China's public expenditures are likely to continue to expand in scale. In the short term, the key for stimulating consumption is to increase the income of low-income groups, especially rural residents. China's rural areas have a huge number of low-income groups (more than 52 million people joined the minimum living standard security program in 2007). In addition, in order to maintain economic growth, an increase in public financial support for medium and small enterprises is also an important instrument at present. Economic growth depends on consumption, which can be encouraged by more employment. Small and medium-sized enterprises are major sources of jobs. What is more, in the long run it will be necessary to increase investment in education, science and technology, because those sectors are a source of sustainable economic growth in China.

In the social sphere, the government should take action to reduce unemployment and eradicate poverty. Under the financial crisis, the government needs to solve the unemployment problem to get public trust. On the one hand, the government should be able to provide adequate jobs to the society; on the other hand it should be able to send competent human resources to these jobs.

Under the economic crisis, one effective way to reduce unemployment is to encourage employers and employees to cooperate. Enterprises tend to reduce staff in order to reduce risks. However, high unemployment will decrease demand, with further negative effects on enterprises. Hence it is necessary for the government to coordinate relations between employers and employees and to establish an effective mechanism of cooperation. China can learn from foreign experience here, for example, by "sharing" as a means of realizing cooperation. The Japanese government proposed a "sharing mechanism" in December 2002, asking the government, employers and employees to cooperate in order to maintain and ensure employment opportunities. The key of sharing is that all three actors shared the costs of the crisis: the government was to provide adequate financial support, the enterprises were to bear rising labor costs, and workers were to bear the shortened working hours due to the reduction of income. This appropriate

allocation of employment, wages and working hours created job opportunities as a means of overcoming economic difficulties.

The government should not create job opportunities through aimless project and low-level duplicate construction projects. It is necessary to speed up structural adjustment and product replacement and vigorously develop tertiary industries in order to absorb more of the labor force. What is more, the government should expand its investments in education in order to provide qualified human resources for new jobs.

Furthermore, financial crisis provides an opportunity to improve the social security system. China's current social security system should change from an urban-dominated to an urban and rural coordination style, covering more rural residents. The most important task is to establish an unemployment insurance system especially for peasant workers. The government should establish a new type of rural endowment insurance system and an urban minimum living standard security system. An effective supervisory mechanism is also important for the social security system. Guangdong province offers a good example of such a new system: income and expenditures are kept separate and create multi-sector coordination mechanisms for monitoring the operation. The social security fund is managed by fiscal accounts, deposited in the state bank or used to purchase government bonds, and regularly audited by the Audit Commission. Ensuring the safety of social security funds will greatly enhance the public's sense of security and confidence in the government and unleash a huge potential for consumption of goods.

## 5 Conclusions

The financial crisis has had an unprecedented impact on the world. It not only attacked the global economy but also challenged social stability in many countries. When market failure becomes serious, it is necessary for the respective governments to guide the market and restore the self-repair functions of the market. It is the government's responsibility to lead the people as a means of re-establishing market confidence and maintaining social stability. We believe that a "people-oriented" government will be able to get the trust of the public, restore market confidence, and realize economic recovery and social stability.

## References

1. I thank Fei Gaungsheng and Jiang Lu for their contribution to this paper.
2. Eatwell, John / Milgate, Murray / Newman, Peter (eds., 1990): *The new Palgrave: a dictionary of economics*, London: Palgrave Macmillan.
3. General Administration of Customs of the People's Republic of China: <http://www.customs.gov.cn/publish/portal0/tab1/info182371.htm> (August 15, 2009).
4. National Bureau of Statistics statistical data (2009): *Gross Domestic Product (2009 Q1)*, <http://www.stats.gov.cn/> (May 25, 2010).
5. (2008): *Survey of the Chinese Academy of Social Sciences: Unemployment rate of university students is over 12 %*, China News, <http://www.chinanews.com.cn/gn/news/2008/12-15/1487784.shtml> (May 25, 2010).
6. Ru, Xin (ed., 2008): *The social situation in China in 2008: Analysis and Forecast (Social Blue Book)*, Beijing: Social Sciences Academic Press.
7. *Ibid.* pp. 215–219.
8. *Ibid.* pp. 58–61.
9. Cao, Longqi (2009): *The United States subprime mortgage crisis for the global financial tsunami: choose the path of analysis and counter measures*, in *Journal of Shenzhen University (Humanities and Social Science Edition)*, No. 1, pp. 80–85.
10. Jiabao, Wen (2009): *The Government Work Report*, [http://www.gov.cn/test/2009-03/16/content\\_1260221.htm](http://www.gov.cn/test/2009-03/16/content_1260221.htm) (May 25, 2010).

11. Woodrow, Wilson (1887): The study of administration, in *Political Science Quarterly*, No. 2, pp. 197–222.
12. National Bureau of Statistics (2009): Report on the Social and Economic Development in 2008: annual imports and exports, [http://www.stats.gov.cn/tjgb/ndtjgb/qgndtjgb/t20090226\\_402540710.htm](http://www.stats.gov.cn/tjgb/ndtjgb/qgndtjgb/t20090226_402540710.htm) (May 25, 2010).
13. Calculation from the PR China National Bureau of Statistics (2008).
14. Shi, Junsheng (2001): *The financial crisis and preventing the formation mechanism*, Beijing: China Financial Publishing House.
15. Bloomberg News: 4 trillion China's economic stimulus plan to recover the economy, <http://gb.cri.cn/> (May 25, 2010).

### 3.3 Green Governance and Sustainable Development in China: Two Problems – One Solution?

Anja Senz

#### 1 Introduction

There is no doubt that China's rapid economic development currently goes hand-in-hand with massive environmental pollution and a high level of greenhouse gas emissions.<sup>1</sup> But since large parts of the Chinese population still live below the poverty line, economic growth is considered to be necessary in order to ensure not only an increase of incomes but also popular support for the political system. Concerns that environmental protection could negatively affect economic growth are often raised by Chinese officials, and many are in favor of supporting economic development by postponing investments in environmental protection. Thus for China protecting the climate and environment is very much related to the issue of development, as the Chinese president Hu Jintao pointed out at the UN Summit of Climate Change in September 2009: "Climate change is an environmental issue, but also, and more importantly a development issue."<sup>2</sup> Consequently, protection of the climate and the environment at the cost of development seems to be just as unacceptable for China as for many other countries.

What is more, China adheres to the principle of "common but differentiated responsibilities" and in so doing requires fairness in the assessment of greenhouse gas emissions. From the Chinese perspective, China as an economic late-comer can only be blamed for 8% of the existing global CO<sub>2</sub> concentration; its per capita rate of CO<sub>2</sub> emissions is below the international average, and around one quarter of its annual emissions results from the production of export goods.<sup>3</sup> It thus appears that limiting China's CO<sub>2</sub> emissions to a certain level before the country has reached the stage of an advanced economy would mean hobbling economic development.

It is debatable whether institutional requirements for green governance exist in China. As a result, it remains unclear in this constellation whether an ecological rerouting will be possible and whether China can attain the goals for climate protection it articulates. However, in recent years the Chinese government has made numerous efforts at better protection of the environment and has invested large sums of money in clean technologies. What is more, it seems that sustainable development and a low-carbon economy as a compromise between ecology and economy are being viewed more and more positively in China.

#### 2 Environmental challenges and measures taken by the Chinese state

In Chinese history the downfall of dynasties often has been presaged by natural disasters. The emperor, so the common interpretation, had lost the mandate of heaven in such cases.<sup>4</sup> Bearing in mind this political tradition, environmental degradation and the increasing frequency of natural disasters due to the effects of climate change could challenge the current Chinese government and its legitimacy if questioned by a discontented public. A heightened awareness of the Chinese government for effective management of environmental issues and the respective demands of the population under these conditions would not be astonishing.

Without doubt, China today has environmental problems in every conceivable way. The 2010 Environmental Performance Index Report of Yale University, which evaluates indicators like people's health and air and water pollution, ranks China as 121st-lowest of 163 countries. According to the World Bank, the majority of the world's most polluted cities are located in China due to their high use of coal and motorization.<sup>5</sup> A rapid loss of arable farm land and a deterioration of soil quality, along with air and water pollution, droughts, a fast drop in the level of groundwater (especially in the northern parts of China), and a large acid rain belt in the south are negatively affecting people's livelihood. According to official data, many conflicts related to environmental pollution occur in China each year. The majority of these take place in the countryside, because rural areas in particular suffer under heavy environmental degradation as industrial production shifts from large agglomerations to the hinterland.<sup>6</sup> But although

China is spending 1 % of its GDP for environmental preservation, pollution and environmental degradation still amount to between 8 % and 13 % of GDP each year. Hence, environmental costs offset the average annual economic growth of the last decade. What is more, calculations show that climate change could hamstring Chinese economic capacities by 20 % by the year 2050, thus aggravating already existing distribution conflicts.<sup>7</sup>

Environmental challenges are therefore sensitive political issues and are taken seriously by the Chinese central government, especially since the number of protests and conflicts resulting from environmental issues is growing. In spite of governmental concern, however, ecological and economic challenges in general still have the potential to turn into threats to political stability if the Chinese system does not perform well. Good performance is an important element of the party-state's legitimacy, and governmental inadequacy followed by a popular loss of confidence could therefore challenge the authority of the party-state in principle. For that reason, coping effectively with urgent challenges has overall relevance for the Chinese party-state. How much attention is paid to the issue by the central government is demonstrated by its rising expenditures for environmental protection<sup>8</sup>, education programs, and a policy framework which includes a set of modern environmental laws and regulations.<sup>9</sup>

China faced major ecological problems as early as 1972, and thus prior to the beginning of economic reforms. This alerted the government to pay greater attention to environmental issues. In the following years, China began to establish institutions for environmental protection; it integrated an environmental agenda into the five-year plans and the constitution, enacted laws to protect the environment, and implemented international standards for environmental measurements.<sup>10</sup> In 1998 China established the State Environmental Protection Administration (SEPA) as a central authority for environmental protection, and upgraded it in 2008 to the status of a ministry.

Since 2006, expenditures for environmental protection have been officially included in the central budget. In 2007 the Chinese government launched both a National Climate Change Program and the National Comprehensive Plan for Action on Energy Saving and Emission Reduction.<sup>11</sup> Hence, in comparison with other so-called developing countries China started its environmental policies early. What is more, the density of governmental measures has increased enormously in the last 5 to 10 years.<sup>12</sup> In addition, the Chinese government today looks favorably on the concept of sustainable development, supports renewable energies, and aims to increase the use of solar, wind and hydropower from the current 8 % of China's entire energy production to 15 % by 2020. Chen Yugang's paper in this edition has elaborated on the different measures in detail.

Unfortunately, attempts between 2004 and 2006 to include an assessment of environmental degradation into the calculation of GDP (Green GDP) could not be realized,<sup>13</sup> but environmental performance has been incorporated into procedures for evaluating the performance of government officials. Since this evaluation scheme is relevant for the career perspectives of Chinese officials, this new regulation is regarded as having an impact on environmental protection as well.<sup>14</sup> Moreover, positive developments can be found in the economic sector as well. In 2009, a Chinese company (Yingli) received the Global Renewable Energy Award as a promising firm in solar technology. The prize, commonly called "the Green Oscar", is a way of recognizing projects, companies and individuals with significant ecological achievements.<sup>15</sup>

In many ways, however, China still lacks effective institutions for implementing environmental policies, and the central programs, however well-intentioned they may be, often do not have the expected results in Chinese cities, counties and townships.<sup>16</sup> As a result, compliance with the law is the exception rather than the rule for many companies: firms which do not release the required information about their environmental performance are seldom punished. In assessing the Chinese economic context this has been addressed as the Chinese "low public-interest cost-average", meaning cheap labor, cheap resources and low environmental costs.<sup>17</sup>

To conclude, the balance sheet looks ambivalent. On the one hand, environmental issues seem to be taken seriously by the Chinese party-state and the political Center in Beijing, while on the other hand the system is characterized by institutional deficits that obstruct the enforcement of environmental regu-

lations. In addition, incongruities between environmental protection and economic growth as well as contradictory incentives for the different actors are serious impediments to environmental protection and the fight against climate change.<sup>18</sup> Thus factories which cause pollution are welcomed by Chinese local governments – and not only in times of economic recession – as a means of improving economic performance and strengthening their own positions. But China has already paid a heavy cost, and greater environmental efforts will be required in order to ensure long-term development.

### 3 The financial crisis and the Chinese stimulus package

Much has been written about Chinese development and the potential impacts of economic crises on political stability. According to experts, a growth rate of 8 % will be necessary in order to preserve political stability in China. Since the urban labor force is growing each year by around 10 million people, a constant increase in economic activities is needed in order to create enough new jobs and prevent greater tensions in Chinese society. In this regard, the global financial crisis was a huge challenge that has been managed by the Chinese state effectively so far. The government's horror scenario would have been protests on the part of discontented university graduates, unemployed urban residents and students or peasants without income perspectives against rising living costs, declining wages and high unemployment, followed by questions about the legitimacy of the party-state. Yang Long's paper in this edition has touched upon such fears.

When the financial crisis hit China, the economic situation was already tense due to an economic structure characterized by overinvestment in heavy industry, reliance on cheap labor, overcapacities, and high regional imbalances.<sup>19</sup> Although the Bank of China and the insurance company Pin An lost painful billions from their Fannie Mae- or Fortis-investments, the Chinese financial sector in general was not existentially threatened by insolvencies due a rather low level of commitments abroad. Chinese trade was far more affected by the financial crisis: at the beginning of 2009, exports had declined by 17 % and imports by 43 %.<sup>20</sup> Many export-oriented enterprises on the East Coast shut down. Consequently, around 20 million migrant workers lost their jobs and had to return home, usually to rural areas in the inner provinces. Shortly thereafter, food shortages and rising poverty in rural areas were reported by the Chinese media and made clear the influence of economic shocks in aggravating poverty.<sup>21</sup>

Generating domestic demand was the Chinese government's response to the Asian financial crisis in 1998, and this time too the Chinese government opted for a stimulation of the domestic market in order to reduce economic dependency on exports. Massive state expenditures in a package of 460 billion Euros – equivalent to 13 % of China's 2008 GDP – were aimed at supporting the economy and assuring the further economic growth needed to keep stability.<sup>22</sup> Chinese consumption rates are low, since the Chinese prefer to save their money as a hedge against life risks due to a lack of adequate medical insurance, social security, and pensions. Accordingly, one of the main reasons for the poverty which affects large segments of the population is sickness, since medical treatment is extremely expensive and most Chinese do not have health insurance.<sup>23</sup> Therefore, in order to increase private consumption a long-discussed social welfare system was fostered in addition to a high amount of loans provided by Chinese banks.

To sum up, China's strong fiscal situation, low leverage, and relatively strong banks left space for a fiscal and monetary stimulus to beat the recession, and currently it seems that China is emerging from the crisis sooner than other large economies. However, the financial crisis demonstrated first the degree to which China is already integrated into the global economy, second how far economic shocks set back poverty alleviation even in a rapidly developing country like China, and third the ability of the Chinese party-state to steer and manage the economic process in such a way that larger social tensions have been avoided so far.

With regard to the global financial system, it is widely assumed that the crisis will accelerate China's rise and expand China's global role in the economic and financial arena. In a future global financial order whose outlines are still only dimly visible, the relevance of the US will decline, while the importance of China and the RMB will increase. Greater Chinese influence in the IWF and World Bank and the fact that three Chinese banks are already among the largest in the world can be seen as a first indication of



this. It is likely that the *Greenback* will slowly lose its place as the primary unit of global currency in the medium-to-long term, while the RMB – currently merely a regional currency – will continue to gain importance as an international settlement currency. China probably will also promote South-South trade in order to reduce its dependency on consumer markets in the advanced economies and gain better access to raw materials. However, China and the US remain deeply intertwined due to China's huge foreign exchange reserves; cooperation will therefore be necessary for both nations, meaning that the power of both countries will remain limited, and any attempts for unilateralism seem unrealistic.

#### 4 Green governance in China – what is achievable?

As shown above, China is facing serious economic and ecological challenges. While the ecological situation is constantly deteriorating due to the long-term effects of climate change and environmental degradation, the financial crisis has rather been a sudden shock.

As mentioned before, China has put much emphasis on environmental policies in the last years. In reaction to the financial crisis, the stimulus package was first of all an instrument to support the domestic economy and buffer the negative influence of the global economic downturn. But the package of 460 billion Euros also contained around 30 billion Euros earmarked for environmental protection and energy conservation. Another large amount of money has also been spent on the infrastructure. Of these expenditures, a high proportion has been used to extend railways (70 billion Euros) and to better organize water and waste management (35 billion Euros); both types of projects are ecologically relevant, since they can help to reduce environmental pollution. Taking all this into account, the ecological dimensions (135 billion Euros in all) amounted to around 35 % of the Chinese stimulus package, while in comparison the US (11 %) and Japan (2 %) spent less and only the EU (58 %) and South Korea (80 %) spent more money for “green projects” than China did.<sup>24</sup> However, a negative side effect of the stimulus package was that high investment in heavy industry prevented China from achieving its own short-term targets in reducing energy intensity: while the goal was a reduction of 20 % by 2010, the actual result was a cut-back of only 14 %. Moreover, this outcome is difficult to verify due to a lack of accurate data, systematic reporting, and standardization.<sup>25</sup>

Nonetheless, China has not really followed a clearly outlined strategy in coping with the effects of the ecological and economic challenges: GDP growth was set as a priority, but some support was given to green projects as well. As a means of saving or creating jobs, the government heavily subsidized Chinese companies in the renewable energy sector, which suffered heavily from the crisis due to a high dependency on European customers; as a result these companies not only endured the crisis but jumped into markets previously dominated by international firms. Hence, fostering green technologies has proven to be a way of combining the interests of the central government in Beijing with those of local governments. While the central government views climate change and environmental degradation as serious threats to China's stability and assesses green technologies as a competitive advantage, local officials are keen to support GDP growth and employment at all costs. Thus promoting low-carbon development through green technology and production promises to be a way to connect the different priorities. Initial encouraging examples can be found in eastern Shandong province, where 800,000 workers are employed in the solar industry, or in Shengzhou, where clean-burning wood stoves fired with crop waste briquettes are so successfully produced and exported to India, that the Chinese company received an Ashden Award for Sustainable Energy for its achievements.<sup>26</sup> Altogether the number of people working in the renewable energy sector (solar power, wind power, biomass energy) is 1.1 million.<sup>27</sup>

As elaborated in the introduction to this edition, green governance involves five aspects that will now be discussed in conclusion with regard to China as a state and society:

1. With regard to incentives for a green economy and the sustainable use of resources and clean technologies, it appears that Chinese priorities are still mainly set with the aim of growth-driven economic development in order to ensure a growth in incomes and better living conditions for the population. Nevertheless, first positive examples for a turn to low-carbon development can be found.

2. With regard to the ability of the state and society to educate people about environmental issues, to inform them systematically about pollution, and to raise the level of awareness for ecological concerns, it seems that the party-state is willing to enhance the availability of knowledge and information. What is more, several international environmental NGOs are operating in China, and small local environmental movements are developing.<sup>28</sup> But Chinese NGOs are mostly weak and intimidated by local authorities whose goals are contrary to environmental protection; thus these NGOs remain locally oriented towards acute environmental problems. Provided that environmental activists do not challenge the party-state and its authority in general but merely denounce local violations, the central state tolerates them. What is more, it uses them to gain information about local conditions, since these are often not clearly reported by local authorities.
3. With regard to environmental laws and regulations, as shown above, efforts have been made by the Chinese government in the last decade to introduce standards and build up state institutions which address environmental issues. Hence, the political will of the central government in Beijing to protect the environment is clearly visible.
4. However, the implementation of environmental standards and the evaluation of adherence to them through adequate administration is still insufficient in China. China's political system is characterized by both a horizontal and a vertical fragmentation of power and the involvement of a multitude of actors with various self-interests.<sup>29</sup> This kind of structure makes a uniform countrywide implementation of policies, laws, and standards difficult. The policy of liberalization since the 1980s has significantly widened the leeway for provinces and municipalities to bargain. Consequently, local authorities often pursue policies diverging from those of the central government. Rather, they use their local sphere of action to decide according to their local socio-economic interests if and how the policies of the central government should be implemented.<sup>30</sup>
5. Concepts and effective institutions for the management of natural disasters and the transfer of resources for recovery are further important aspects of green governance. A potential threat to stability in China is the malfunction of certain state institutions in response to the huge amount of environmentally provoked challenges; this ties up financial, technical, administrative and human resources within the system and therefore can drastically reduce the political scope of action. Thus an inter-connection between stability and environmental issues in China could occur if pollution, natural disasters, or other effects of climate change were to cause a massive curtailment of effectiveness in meeting the basic needs of relevant parts of the population. China, with its long bureaucratic tradition, has the basic means for crisis management, and the major challenges of the last decade have taught the government some lessons in this regard. What is more, in comparison to many other countries China in principle has the resources for at least financially compensating the victims of environmental disasters.

To conclude, China has made promising efforts in crisis management and green governance so far, but is still looking for a proper balance between the market, companies, the party-state, Chinese society, and nature itself.

## References

1. For actual data on Chinese CO<sub>2</sub> emissions and measures of the Chinese state, please refer to Lo, Alec (2010): China's response to Climate Change, in *Environmental Science & Technology*, Volume 44, No. 5, pp. 5689–5690.
2. Hu, Jintao (September 23, 2009): Join Hands to Address Climate Challenge, President Hu Jintao's Speech at the Opening Plenary Session of the United Nations Summit on Climate Change, <http://www.china-un.org/eng/hyyfy/t606111.htm> (May 5, 2010).
3. Oberheitmann, Andreas / Sternfeld, Eva (2009): Climate Change in China – The Development of China's Climate Policy and Its Integration into a New International Post-Kyoto Climate Regime, in *Journal of Current Chinese Affairs*, No. 3, pp. 135–164.
4. Gernet, Jaques (1998): *Die chinesische Welt*, Frankfurt am Main: Suhrkamp.

5. Environmental Performance Index (2010): <http://epi.yale.edu/> (August 23, 2010); World Bank: China Quick Facts, <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,,contentMDK:20680895~pagePK:1497618~piPK:217854~theSitePK:318950,00.html> (August 20, 2010).
6. Yan, Shihui: Jianshe ziyuan jieyue he huanjing youhaoxing shehui (Construction of an energy saving and non-polluting society), in Ru Xin et al. (eds., 2005): *Shehui lanpishu 2006 nian: Zhongguo shehui xingshi fenxi yu yuce* (Bluebook of the Chinese Society 2006: Analysis and Prognosis of China's Social Situation), Beijing: Shehui kexue wenxian chubanshe, p. 184.
7. Heberer, Thomas / Senz, Anja (2010, in press): Impact of Environmental Change on Stability and Conflict Potentials in China, in Hans Günter Brauch (eds.): *Coping with Global Environmental Change, Disasters and Security – Threats, Challenges, Vulnerabilities and Risks*. Hexagon Series on Human and Environmental Security and Peace, Volume 5, Berlin, Heidelberg, New York: Springer.
8. Expenditure on environmental protection increased considerably in the last years, see News Office of State Council (June, 2006): *Zhongguo huanjing baohu baiqi shu (1996–2005)*, (China's Environmental Protection White Book, 1996–2005); see [http://www.gov.cn/zwqk/2006-06/05/content\\_300288.htm](http://www.gov.cn/zwqk/2006-06/05/content_300288.htm) (May 20, 2010).
9. OECD (ed., 2007): *Environmental Performance Reviews: China*, Paris: OECD.
10. Klein, Susanne (2004): *Umweltschutz in China*, Frankfurt am Main [et al.]: Peter Lang; Bechert, Stefanie (1995): *Die VR China in internationalen Umweltregimen*, Münster: Lit Verlag.
11. Online available at: [http://www.ndrc.gov.cn/rdzt/jsjyxsh/t20070604\\_139465.htm](http://www.ndrc.gov.cn/rdzt/jsjyxsh/t20070604_139465.htm) (May 10, 2009).
12. State Council Information Office (ed., October 29, 2008): *White Paper: China's Policies and Actions on Climate Change*, [http://www.china.org.cn/government/news/2008-10/29/content\\_16681689.htm](http://www.china.org.cn/government/news/2008-10/29/content_16681689.htm) (February 10, 2010).
13. Li, Vic / Lang, Graeme (February 2010): China's 'Green GDP' Experiment and the Struggle for Ecological Modernization, in *Journal of Contemporary Asia*, pp. 44–62.
14. *Zhongban yinfa "yijian" Zhong zuzhi zhiding sange kaohe banfa, jianquan ganbu kaohe jizhi* (Document distributed by the Bureau of the Central Committee of the CCP. Three evaluation methods in order to perfect the system of cadres' evaluation), in *Renmin Ribao* (October 20, 2010).
15. For further information please refer to company's homepage: Yingli Solar, [http://www.yinglisolar.com/about\\_awords.php](http://www.yinglisolar.com/about_awords.php) (August 20, 2010).
16. Heberer, Thomas / Senz, Anja (2008): Chinas Umweltpolitik zwischen Implementationsproblemen und internationaler Kritik, in *Zeitschrift für Umweltpolitik und Umweltrecht*, No. 4, pp. 567–589; Heberer, Thomas / Senz, Anja (2010, in print): Environmental Governance: Institutional Deficits and Local Flexibility, in *Journal of Current Chinese Affairs*.
17. Tang, Hao (November 4, 2009): Corporate values, green governance, in *China Dialogue*, <http://www.chinadialogue.net/article/show/single/en/3306-Corporate-values-green-governance> (August 20, 2010).
18. Ran, Ran (2009): *Environmental politics at local levels in China – Explaining policy implementation gap and assessing the implications*, PhD thesis, University of Duisburg-Essen.
19. Overholt, William H. (2010): China in the Global Financial Crisis: Rising Influence, Rising Challenges, in *The Washington Quarterly*, Volume 33, No.1, pp. 21–34.
20. The large difference between imports and exports is result of the fact that former import goods are exported again after further processing in China.
21. Traub-März, Rudolf (2008): *Finanzkrise: China will mit Binnenwachstum an der Weltwirtschaftskrise vorbei*, *Dialogue on Globalization*, Berlin: FES.

22. Overholt, William H. (2010): China in the Global Financial Crisis: Rising Influence, Rising Challenges, in *The Washington Quarterly*, Volume 33, No.1, pp. 21–34.
23. For further details please refer to Heberer, Thomas / Senz, Anja (2007): *China's Significance in International Politics. Domestic and External Developments and Action Potentials*, Bonn: German Development Institute, pp. 25–26.
24. Robins, Nick [et al.] (February 25, 2009): *A Climate for Recovery*, HSBC Global Research, London.
25. Levine, Mark [et al.] (March 5, 2010): *How green is the 11th Five Year Plan?*, see American Chamber of Commerce, <http://www.amchamchina.org/article/5682> (August 31, 2010).
26. *The Ashden Awards for sustainable energy: 2009 Ashden Awards case study*, [http://www.ashdenawards.org/files/reports/Aprovecho\\_case\\_study\\_2009\\_final\\_map.pdf](http://www.ashdenawards.org/files/reports/Aprovecho_case_study_2009_final_map.pdf) (August 22, 2010).
27. For further details on green employment in China please refer to: International Labour Office, Office for China and Mongolia (ed., March 2010): *Study on Green Employment in China*, [http://www.ilo.org/public/english/region/asro/beijing/download/greenjobs/2010study\\_green\\_employment.pdf](http://www.ilo.org/public/english/region/asro/beijing/download/greenjobs/2010study_green_employment.pdf) (August 20, 2010); International Labour Office, Skills and Employability Department (ed., 2010): *Skills for Green Jobs in China*, Geneva: ILO, [http://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---ifp\\_skills/documents/publication/wcms\\_142486.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_142486.pdf) (August 20, 2010).
28. Xie, Lei (2009): *Environmental Activism in China*, London, New York: Routledge.
29. Lieberthal, Kenneth (1992): *The 'Fragmented Authoritarianism' Model and its Limitations*, in Lieberthal, Kenneth/ Lampton, David (eds.): *Bureaucracy, Politics, and Decision-Making in Post-Mao China*, Berkeley, Los Angeles, Oxford: Univ. of California Press, pp. 1–30.
30. Ting, Gong (2006): *Corruption and Local Governance: the Double Identity of Chinese Local Governments in Market Reform*, in *The Pacific Review*, No. 1, pp. 85–102.

## **4 India: Problems and Perspectives**

### **4.1 Climate Change in India with Special Reference to Women**

*Dinoo Anna Mathew*

#### **1 Climate Change: India's role**

A deal maker and not a deal breaker – This is how India should be seen, said India's Minister for Environment prior to the Copenhagen Summit on Climate Change.<sup>1</sup> But even as the whole world looked on with both hope and uncertainty at the deliberations at the Copenhagen Summit, a promising deal remained a far cry at the end of the summit. A lack of consensus resulted in non-adoption of the Copenhagen Accord as an outcome of the summit.

In his address to the Indian Parliament regarding the summit, the Minister stated that India was able to play a constructive role at the summit. India was invited along with twenty-five other countries to assist the President of the Conference in building a consensus on various outstanding issues. The so called BASIC group (comprising the countries of Brazil, South Africa, India and China) was seen as a powerful group in the negotiations at the summit.

Prior to the Copenhagen Summit, India as an Asian and especially South Asian country was actively engaged with other member countries in jointly working on addressing the various issues of climate change. On 21 October 2009, India and China signed a Memorandum of Agreement on climate change. It was decided here to establish an Indo-China partnership for strengthening bilateral talks and practical cooperation. In addition to ministerial consultations, it was also decided to establish the India-China Working Group on Climate Change. This working group will hold annual meetings alternately in the two countries for an exchange of views on international and domestic policies and projects on climate change.<sup>2</sup>

Similarly, the Environment Ministers of the South Asian Association for Regional Cooperation (SAARC) countries<sup>3</sup> at their eighth meeting, held in New Delhi in October 2009, decided to hold a joint side event on climate change as a SAARC entity at the Copenhagen summit COP-15. It was decided that Sri Lanka, the current Chair of SAARC, will make a joint statement on behalf of the member countries. Among others, the Delhi Statement published immediately after the ministerial meeting highlighted the need to jointly tackle the vulnerabilities that the SAARC countries face with respect to drought, earthquakes, floods etc., and “underscored the need to fully implement the commitments under the Convention in accordance with its principles, especially that of equity and common but differentiated responsibilities and respective capabilities”.<sup>4</sup> Further, with the objective of enhancing cooperation among member states on areas of environment and coordinating the response to climate change, the Ministers agreed to institutionalize an annual workshop called the South Asia Workshop on Climate Change Actions. The Ministers also decided to set up 50 automated weather stations in the region as a step towards meeting the challenges posed by climate change.<sup>5</sup>

On the domestic front, India has taken various steps and measures to tackle the challenges posed by climate change. Twenty-four initiatives related to climate change were announced recently by the Ministry of Environment and Forests in the areas of Science and Research, Policy Development, Policy Implementation, International Cooperation, and Forestry. The initiatives include the Indian Network for Climate Change Assessment, the Himalayan Glaciers Monitoring Programme, the Expert Group on Low Carbon economy, the Energy Efficiency Standards for Appliances, the Intensification of Forestry Management, etc. India has in place a National Action Plan on Climate Change. It should be stressed here that India must pursue a high growth rate both to enhance the living standard of its people and reduce their vulnerability to climate changes. The development path must therefore be one which enhances both economic and environmental objectives. Eight National Missions form the core of the National Action Plan. These are the National Solar Mission, the National Mission for Enhanced Energy Efficiency, the National Mission for a Sustainable Habitat, the National Water Mission, the National Mission for

Sustaining the Himalayan Ecosystem, the National Mission for a Green India, the National Mission for Sustainable Agriculture, and the National Mission on Strategic Knowledge for Climate Change.

India has till now followed the principle of common but differentiated responsibility in addressing climate change and global warming. It has always argued for urgent emission cuts by the rich industrialized countries and the need for them to provide for financial technologies that would help developing countries in adaptation. At the same time, India has also called for identical standards for per capita emissions of developed and developing nations. India has constantly argued against any legally binding emission restrictions. The reason<sup>6</sup> cited is that climate change has resulted not due to present emissions but due to the accumulated impact of greenhouse gases (GHGs) in the atmosphere generated by carbon-based industrial activities of the industrialized nations over the centuries. Moreover, the UNFCCC and the Kyoto Protocol emphasize the need of developed nations to make urgent emission cuts but do not specify commitments by developing nations. Even in other respects, India's CO<sub>2</sub> per capita emissions are only 1.1 metric tons when compared to 20 tons for the US and over 10 tons for the OECD countries.<sup>7</sup> In addition, the primary task for India is more in terms of adaptation to climate change, given its exposure to high climate risks.

Even though India's total GHG emissions are regarded as third-largest in volume in the world after the US and China, figures show that there is a huge gap between India and the US and China in terms of CO<sub>2</sub> emissions (over 16 % by the US and China and only 4 % by India<sup>8</sup>). Even by 2030–31, India's per capita emission of GHGs would be between 2.77 tons and 5.00 tons of carbon dioxide equivalent. This was a finding of five independent studies conducted with the support of India's Ministry of Environment and Forests<sup>9</sup>. Four of these studies also estimate that even in 2031 India's per capita emission of GHGs would be below 4 tons of CO<sub>2</sub>, i.e. lower than the global per capita emission of 4.22 tons of CO<sub>2</sub> in 2005.

India is highly vulnerable to challenges posed by climate change. The Report on the State of the Environment<sup>10</sup> in 2009 listed the following visible impacts of climate change in India: (a) the prevalence of heat spells and extreme temperatures in northern India; (b) storms and cyclones that can cause massive displacement of people, along with flooding and destruction of economic assets and infrastructure; (c) the incidence of around 15 major droughts in the last fifty years affecting food production and food and livelihood security; threats to species in the Sunderbans, the largest mangrove area in the world; and concern over diseases, especially vector-borne diseases consequent to changes in climate.

The Department of Environment, Food and Rural Affairs of the United Kingdom and the Indian Ministry of Environment and Forests conducted a collaborative project on the impacts of climate change in India in various sectors of the economy<sup>11</sup>. According to the key findings, the impacts of climate change in the water sector include an increase in the intensity of rainfall, greater prevalence of water scarcity, the potential for a significant rise in precipitation intensity and variability, with consequent impacts on water resource management, urban planning and agriculture etc. In the agricultural sector, climate change can impact on agricultural productivity and shifting crop patterns, which in turn can impact on food security, livelihood activities, water conservation issues etc. Alterations in existing biome types, forest dieback, and loss of biodiversity have an impact on communities which depend on forest resources. Predicted human health impacts include increases in temperature-related illnesses, vector-borne diseases, health impacts related to extreme weather events, and health effects due to food insecurity. The incidence of malaria in areas that are already malaria-prone will increase, and new areas will also be infected. As far as sea levels are concerned, predicted impacts include a rise in the sea level as well as possible increases in the frequency and intensity of coastal surges and cyclones that already cause significant damage to coastal populations. These threaten life, livelihoods and the infrastructure. This takes on all the more significance in view of the fact that one quarter of the Indian population lives along the country's coasts and is largely dependent on coastal livelihoods.

The state's fluctuating weather conditions suggest that it is reeling under climatic chaos; for this reason Orissa, one of India's poorest areas, is probably an example of visible climate change and its consequences. According to the Centre for Science and Environment in New Delhi, extreme weather conditions there have taken more than 30,000 lives during the last four years. Orissa's economy has largely vanished due to these calamities, which have hit normally invulnerable areas.

In 2001 the worst flood ever recorded accompanied the monsoon season. It inundated 25 of 30 districts. Even western districts in Orissa which have never suffered from floods were inundated according to Greenpeace India.<sup>12</sup> In the aftermath the people had to suffer through a severe drought which caused an economic loss of about Rs. 649.82 crore because of crop damage. Coastal Orissa, previously known for its moderate temperatures, experienced in 1998 a heat wave which killed a total of around 1,500 people. South and western Orissa have witnessed an exceptional rise in daily maximum and minimum temperatures.

In addition to floods and heat waves, the number of cyclones in coastal Orissa has increased. In 1999, 15 million people were affected by a cyclone that lasted three days; two million tons of the rice crop and 17,000 square kilometers of agricultural land were destroyed. The loss was estimated at around Rs. 10,000 crore.

After 200,000 trees in 25,000 ha of reserved forest were uprooted, the microclimate of the region changed. Due to this loss in vegetation, “temperature data of the coastal region in the last three years show wide fluctuations and average temperatures have risen” and as a result of those calamities, “food production has decreased by 40 %” in the last 50 years.<sup>13</sup>

## 2 Women and Climate Change

Adequate in-depth studies and research on the various aspects and the differential causes and impacts of climate change with regard to men and women and boys and girls have yet to emerge. In fact, the discourse on climate change has long remained largely gender-neutral. The term “gender” was completely absent in the United Nations Framework Convention on Climate Change (UNFCCC). It was only in December 2008 at the 14th Conference of Parties held in Poznan, Poland that the UNFCCC Secretariat formally recognized the gender dimensions of climate change.

As a result, the Committee on the Elimination of Discrimination Against Women (CEDAW) in its 44th Session (2009) noted with concern that the United Nations Framework Convention on Climate Change as well as other global and national policies and initiatives lacked a gender perspective. After examining state party reports, the CEDAW Committee commented that climate change has a gender-differentiated impact. In the high-risk category are poor women who live in “densely populated coastal and low lying areas, dry lands and high mountainous areas and on small islands; vulnerable groups like older women and disabled women; and minority groups such as indigenous women, pastoralists, nomads and hunters and gatherers”.<sup>14</sup> The CEDAW Committee called for sex-disaggregated data, gender-sensitive policies that will ensure gender equality in terms of “access, use and control over science and technology, formal and informal education and training”<sup>15</sup> that will help nations meet the challenges of climate change. Gender equality is strongly recommended and is planned to be an overarching guiding principle in an upcoming UNFCCC agreement.

Similarly in its 52nd Session, the Commission on the Status of Women stressed that climate change has differentiated impacts on women and men. Like the CEDAW Committee, the Committee on the Status of Women also highlighted that women are not merely victims but are also to be seen as powerful agents in addressing the challenges posed by climate change. The Committee called upon the States to “integrate a gender perspective into the design, implementation, monitoring, evaluation and reporting of national environmental policies, strengthen mechanisms and provide adequate resources to ensure women’s full and equal participation in decision-making at all levels on environmental issues, in particular on strategies related to the impact of climate change on the lives of women and girls”.<sup>16</sup>

Factoring in the variable of gender, particularly that of women, in the climate change discourse is equally important in the Indian context. On the one hand, women are powerful actors in achieving the goals of addressing climate change. On the other hand, various factors make women vulnerable to the dangers of climate change. One third of India’s population lives below the poverty line. Among them, a large proportion lives in rural areas, and the majority of these are women. In general terms too the vast majority (72.2 %) of the Indian population lives in the rural areas. The particular concern here is that the livelihood of these 700 million rural residents directly depends on climate-sensitive sectors like agriculture,

forests and fisheries and on natural resources like water, biodiversity, mangroves, coastal zones, and grasslands.<sup>17</sup> According to the 2001 Census, women constitute 39 % of the agricultural labor force, which includes cultivators and farm laborers. In addition 23 % of the labor force in livestock and fishery are also women. Naturally, climatic variations tend to affect the poor disproportionately. Among these, women and members of the disadvantaged groups (the Scheduled Castes and Scheduled Tribes) tend to be doubly affected.

Discrimination against women and girl children in India continues to be a challenging issue both in the private and public sphere. This is a major hampering factor in a country's resilience to climate change, according to a report recently published by the United Nations Population Fund (UNFPA). "Marginalization of and discrimination against women and the lack of attention to the ways gender inequality hampers development, health, equity and overall human well-being all undermine countries' resilience to climate change ... By their numbers and the inequality of gender relations worldwide, women are most at a disadvantage in navigating and surviving the sorts of stresses – from chronic food insecurity and water scarcity to natural disasters and violent conflict – likely to increase as the planet heats up".<sup>18</sup>

These and other factors like limited access to economic opportunities, market and credit facilities, information, and avenues of mobility as well as a disproportionate burden of reproductive responsibilities exacerbate the impact of disaster and/or conflict, putting women at the high-risk end of the vulnerable population.

The Gender and Climate Change Network in its Position Paper UNFCCC COP 13, Bali, 2007, argues that "there will be no climate justice without gender justice". It provided a list of reasons why both women and men should participate in addressing climate change, including the following:

1. Social roles and responsibilities of women and men lead to different degrees of dependency on the natural environment.
2. Women and men differ with regard to their respective perceptions of and reactions to climate change.
3. Women's and men's contribution to climate change differs, especially with regard to their respective CO<sub>2</sub> emissions.
4. The participation of women in decision-making regarding climate policy – namely mitigation and adaptation – and its implementation in instruments and measures is very low. Thus in general it is men's perspectives that are taken into account in planning processes;
5. Since the male perspective dominates, climate protection and climate adaptation measures often fail to take into account the practical and strategic needs of women.

Hence, women's activities have a different impact on the climate than men's; the effects of climate change affect women and men differently, and climate protection and adaptation instruments and measures affect women and men differently.

As mentioned earlier, adaptation is a main focus with regard to climate change in the Indian context. Adaptation is defined as the "adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities".<sup>19</sup>

National and international policies and strategies are needed to combat the dangers of climate change. At the same time in many places, and over time, different local and indigenous communities have been traditionally practicing environmentally sound measures. In India, there have been numerous cases where local communities, particularly women, have evolved their own traditional ways of adaptation and mitigation, thus illustrating their powerful agency in dealing with climate change. Few were on a comprehensive scale, while many are limited to specific regions or areas.

The most popular case of women preserving the environment is that of the *Chipko* movement. This movement, dating back to the early 1970s, was led by local people against influential and commercial forest contractors and logging companies. *Chipko* meaning "to hug" began in Uttarakhand in the Central Himalayan region. An inspirational leader of the movement was Gaura Devi who received great support from the women of Reni village. By hugging the trees and obstructing the work of the contractors, these



women played a decisive role in preventing the felling of trees. This coupled with rallies and protests etc. by the local communities forced the government to ban the felling of trees in the area. The movement was so influential that it soon spread to other areas in the region.

In a study on Adivasi women engaged in the issue of climate change, Govind Kelkar (see Literature) points out that Adivasi women are evolving autonomous adaptation strategies to withstand the challenges of climate change. This is despite the limited support that they receive in planning and implementing adaptation techniques.<sup>20</sup> For example, with variations in climate affecting their natural livelihoods, Adivasi women in Tong, Bastar and Chhattisgarh have developed skills in traditional male vocations like terracotta, bell metal and wood sculpture. Women members are also cultivating new varieties of cash crops that can withstand the extreme climate variations prevalent in their area.

“Traditional Wisdom in Natural Resource Management”, published by The Rural Litigation and Entitlement Kendra, a non-governmental organization, in Dehradun, provides an in-depth discussion of traditional practices and self-imposed rules of hill communities in Uttaranchal for protecting and preserving the environment. It particularly documents the efforts of women in these communities in conserving the environment. One such traditional practice evolved by the women is known as the “Maiti Ritual” (upon marriage the home of the bride’s parents is referred to as the “mait”). This ritual interweaves environmental conservation with the people’s religious and emotional sentiments.<sup>21</sup> The assumption is that since women are the main stakeholders in the utilization of forest and water resources, women should be the main stakeholders in the initiation of environment conservation. The process involves the formation of a *Maiti Sangathan* comprising the unmarried girls in the village. Each member has to plant at least one seedling and has to take good care of the seedling until it is ready for plantation. At the time of marriage of a girl, the bride and groom plant a seedling given by the sangathan in the house of the bride. The planted seedling is then the responsibility of the bride’s parents who develop an emotional sentiment as it reminds them of their daughter.<sup>22</sup>

Civil society organizations, especially Non-Governmental Organizations (NGOs) have been playing a vital role in strengthening the adaptive capacities particularly of local communities. Adaptive capacity<sup>23</sup> has been defined as “the ability or potential of a system to respond successfully to climate variability and change”. The following case of a collective of 5,000 women from 75 villages is illustrative of this point in relation to the aspect of sustainability:

A new kind of agriculture has been established by Dalit women, who are at the lowest level of India’s stratified society. The planted crops of the women do not need any extra water, chemical inputs or phyto-pharmaceutical substances for production; furthermore there are 19 types of indigenous crops which grow on an acre. The Deccan Development Society (DDS) helped the women to regenerate used-up land.

For example in Bidakanne village, where Samamma lives, this 50-year-old woman intersperses various kinds of crop. Her linseeds, green peas, chickpeas, and different types of millets, wheat, safflower and legumes are growing between the rows of sunflowers. “The sunflower leaves attract pests and its soil depletion is compensated by the legumes which are nitrogen-fixing”.<sup>24</sup> Samamma explains that one plant absorbs and another one gives to the soil and for this reason she is able to get all her required food. This system has already spread, and many women in the area have adopted this method of crop-financing and food-distribution.

The women receive a fistful of grain from the community grain bank to whom they “pay back five times the borrowed amount in grain”. These grains are divided “for good seed, [...] sold in the open market, sold to members in crisis at low rates or distributed to poor families in the village”.<sup>25</sup>

In addition, “DDS has now involved the women in a monitored system of organic produce that is certified by the global Participatory Guarantee Scheme (PGS)’s Organic India Council. The method is a system of third party certification by organic growers themselves, initiated in India in 2006 by the Food and Agriculture Organization (FAO) and the Indian ministry of agriculture in consultation with farmers and NGOs.”

### 3 Local governments, women and climate change

It is widely acknowledged that local governments can take pragmatic action in dealing with the challenges of climate change. From the very first Conference of Parties held in 1995, local governments have been actively engaged in climate change talks and deliberations. More importantly they have been advocating the potential of local governments in adaptation and mitigation. In the 13th Conference of Parties held in Bali in December 2007, local government representatives and Mayors agreed to work collectively to reduce greenhouse gas emissions. Prior to the recent Copenhagen summit on climate change, an International City Climate Catalogue was developed by the City of Copenhagen and the ICLEI (Local Government for Sustainability). This was created as “the first global attempt to collect and centralize facts and figures on community climate action – from targets to achievements”.<sup>26</sup> It seeks to underline communities as important actors and the need to include them in United Nations climate collaboration.

In India, the local governments provide an excellent institutional mechanism through which women can engage actively in addressing the concerns of climate change. In significant legislation, the 73rd and 74th Amendments to the Constitution provide among other things for not less than one-third of the total number of seats in the local governments to be reserved for women. In some states in India, the proportion of seats reserved for women is 50%. The number of women presently in local governments in India is 1,039,058.

Pointing out the adverse impacts of climate change on agriculture and food security, Dr. Swaminathan, the renowned agricultural scientist, advises that panchayats – the local assemblies at village level – can play an active role in the preservation of crops as a contingency measure during calamities.<sup>27</sup> Reviving crops that have become extinct, developing seed and grain banks, preparing a catalogue of drought-prone crops and varieties that could be cultivated after floods, animal welfare, use of the agro-climatic map for preparation of local plans, etc. are other activities that panchayats can undertake to mitigate the impact of climate change on agriculture.

The following case from Kerala is an illustration of how a woman elected member refused to tolerate the conversion of paddy fields to shopping malls and complexes.

Susan Thankappan is a member of the Edathala Gram Panchayat in Ernakulam district, and she is seen as the protector of vanishing paddy fields. She learned how dangerous her work when “miscreants deployed by land sharks assaulted Susan and her rubber-tapper husband for opposing conversion of paddy fields”.<sup>28</sup>

After her election her priority was to put a stop to the vanishing paddy fields in her ward. Even if it seems to be a lonely fight, Susan has an unchallengeable moral strength, and she receives help from young supporters. Lately she “succeeded in closing down a 20-year-old polluting unit”.<sup>29</sup>

Thus it is important to listen to and integrate the experience and voices of women in combating the threats of climate change. Based on field visits to indigenous areas in Yunnan, China and the states of Andhra Pradesh, Arunachal Pradesh, Chhattisgarh, Jharkhand, Meghalaya and Nagaland in India, Govind Kelkar names the strategic priorities identified by women in these areas for reducing their vulnerability to climate change. These include: Ownership and control rights to land; housing and livestock; crop diversification, including flood and drought-resistant varieties; extension of knowledge in the sustainable use of manure, availability of pesticides and irrigation; south-south sharing of information on how women and men in other areas are managing their livelihoods and adapting to environmental stressors; capacity building and training in alternative livelihoods; flood protection shelters to store assets, seeds, fodder, and food for livestock and poultry; access to affordable and collateral free credit for consumption, production and health care needs; access to markets and marketing knowledge to enhance confidence in trading agricultural produce; equal participation of women in community affairs; management of community resources and “the commons”; and decision-making in both negotiations and regarding the development of means of livelihood and the financing of adaptation strategies.<sup>30</sup>

## 4 Conclusions

To conclude, opportunities exist for women to effectively engage with the issue of climate change; however many areas remain where women and a gender perspective remain to be integrated. The problem lies in ensuring that the discourses and policies on climate change remain gender-neutral and that data on the vulnerabilities and threats of climate change are not sex-disaggregated with regard to men and women and boys and girls. Otherwise it becomes difficult to evolve gender-differentiated strategies. India too is not an exception. Much more public debate and deliberation is required on the issue. Greater awareness needs to be built among people. Capacities need to be built. Gender needs to become a mainstream issue in policies, and program awareness in this area needs to be built up among decision-makers. More women who advocate awareness of the gender-related dimensions of climate change need to be included in decision-making processes and negotiations on climate change.

## References

1. Copenhagen summit: India keen to be deal-maker, [http://www.dnaindia.com/world/report\\_copenhagen-climate-meet-opens-tomorrow-amid-hopes-for-a-deal\\_1320757](http://www.dnaindia.com/world/report_copenhagen-climate-meet-opens-tomorrow-amid-hopes-for-a-deal_1320757) (May 22, 2010).
2. Ministry of Environment and Forests (October 21, 2009): Agreement on Cooperation on Addressing Climate Change between the Government of the Republic of India and the Government of the People's Republic of China
3. SAARC countries comprise Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.
4. Government of India, Ministry of Environment and Forests, SAARC Ministerial Statement on Cooperation in Environment (October 20, 2009): Delhi Statement.
5. SAARC to make statement in Copenhagen, in *The Hindu* (October 21, 2009).
6. Government of India, Press Information Bureau (June 4, 2009): India's Position on Climate Change Issues, [www.pib.nic.in](http://www.pib.nic.in); Government of India, Ministry of External Affairs, Public Diplomacy Division (February 2009): The Road to Copenhagen: India's Position on Climate Change Issues, [http://www.indiaenvironmentportal.org.in/files/climate\\_0.pdf](http://www.indiaenvironmentportal.org.in/files/climate_0.pdf) (June 30, 2010).
7. International Energy Agency: IEA World Energy Outlook 2007, Paris.
8. Ibid.
9. Government of India (September 2, 2009): Press Note.
10. Government of India, Ministry of Environment and Forest (2009): The State of Environment Report, India 2009.
11. Department for Environment, Food and Rural Affairs (Government Department in the United Kingdom): Investigating the Impacts of climate change in India, <http://www.defra.gov.uk/ENVIRONMENT/climatechange/internat/devcountry/india2.htm> (August 13, 2009).
12. Greenpeace India: Climate Change: A Case Study of Orissa, <http://www.greenpeace.org/india/campaigns/choose-positive-energy/what-is-climate-change/climate-change-a-case-study-o> (July 1, 2010).
13. Center for Science and Environment: Climate Change and Orissa, <http://old.cseindia.org/programme/geg/pdf/orissa.pdf> (July 1, 2010).
14. CEDAW 44th Session (July 20–August 7, 2009): Statement of the CEDAW Committee on Gender and Climate Change, New York, [http://www2.ohchr.org/english/bodies/cedaw/docs/Gender\\_and\\_climate\\_change.pdf](http://www2.ohchr.org/english/bodies/cedaw/docs/Gender_and_climate_change.pdf) (May 30, 2010).
15. Ibid.

16. Commission on the Status of Women, Report on the 52nd Session (February 25, March 7 and 13, 2008) Economic and Social Council, Official Records 2008, Supplement No. 7, <http://daccessdds.un.org/doc/UNDOC/GEN/N08/290/62/PDF/N0829062.pdf?OpenElement> (May 30, 2010).
17. Government of India, Ministry of Environment and Forests (2009): State of Environment Report.
18. United Nation Population Fund, State of World Population 2009: Facing a changing world: women, population and climate, p. 45, [http://www.unfpa.org/swp/2009/en/pdf/EN\\_SOWP09\\_Ch4.pdf](http://www.unfpa.org/swp/2009/en/pdf/EN_SOWP09_Ch4.pdf) (July 1, 2010).
19. IPCC: Glossary of Climate Change Acronyms, [http://unfccc.int/essential\\_background/glossary/items/3666.php](http://unfccc.int/essential_background/glossary/items/3666.php) (May 30, 2010).
20. Kelkar, Govind (ed., June 2009): Adivasi Women – Engaging with Climate Change, UNIFEM, p. 26, [http://www.unifem.org/attachments/products/ativasi\\_women\\_engaging\\_with\\_climate\\_change\\_1.pdf](http://www.unifem.org/attachments/products/ativasi_women_engaging_with_climate_change_1.pdf) (May 30, 2010).
21. Seshia, Sh. / Garoupa, C. / Lenzer, B. / Gulati, N. (eds., 2005): Traditional Wisdom in Natural Resource Management: The Only Way to Conserve, Rural Litigation and Entitlement Kendra, study supported by National Law School of India University, Bangalore.
22. Ibid.
23. Climate Change 2007: Working Group II: Impacts, Adaption and Vulnerability; Intergovernmental Panel on Climate Change (IPCC), [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/ch18s18-6.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch18s18-6.html) (May 30, 2010).
24. Acharya, Keya: Environment-India Women Farmers Ready to Beat Climate Change, in Inter Press Service, <http://ipsnews.net/news.asp?idnews=46131> (June 30, 2010).
25. Ibid.
26. The City Climate Catalogue: Local Government for Sustainability ICLEI, <http://www.iclei-europe.org/index.php?id=6905> (May 30, 2010).
27. Ananth Krishnan (October 28, 2007): Swaminathan calls for national policy on climate change, in The Hindu, <http://www.thehindu.com/2007/10/28/stories/2007102861281000.htm> (May 22, 2010).
28. Radhakrishnan, M.G. (April 14–20, 2009): Mobilize and empower, in India Today, Volume XX–XIV, No. 16, <http://indiatoday.intoday.in/site/Story/36130/Mobilise+and+empower.html?page=2> (July 1, 2010).
29. Ibid.
30. Kelkar, Govind (June 2009): Adivasi Women Engaging with Climate Change, UNIFEM, p. 26, [http://www.unifem.org/attachments/products/ativasi\\_women\\_engaging\\_with\\_climate\\_change\\_1.pdf](http://www.unifem.org/attachments/products/ativasi_women_engaging_with_climate_change_1.pdf) (July 1, 2010).

## 4.2 Coping with Climate Change and Financial Crisis – the Indian Narrative

Ash Narain Roy

### 1 Introduction

The story of the global financial crisis is a tale of two worlds. In one, there is gloom and doom, and in the other there is light and hope. One is part of the problem; the other is part of the solution. This paper argues that India is part of the solution: not because India along with China is leading the world out of the global economic crisis, not because it emits about 1.1 tons of carbon per capita yearly (while the corresponding figure for US is more than 20 tons), and also not because India is presently enjoying its *Slum-dog Millionaire* (a movie by Danny Boyle, 2008) moment of success.

### 2 The Gandhian concept of inclusive growth

India is seen as part of the solution inasmuch as the Gandhian idea of inclusive growth has seen fruition. Here is a country where about 70 % of the people live in villages and follow a lifestyle that promotes sustainable development. The historic Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)<sup>1</sup> which, despite its poor implementation, has begun to change the face of employment among the rural poor, has added substantially to purchasing power and has stimulated rural markets and the economy.

Gandhi once said, “The earth has enough for man’s need but not for man’s greed”<sup>2</sup> Gandhi practiced what he preached. Every day when bathing in the freely flowing waters of the Sabarmati River in the 1920s, he consciously used only the smallest quantity of water he needed for taking bath. Asked why he was using the river water so sparingly when it was available in abundance, Gandhi remarked that “all that is flowing in the river is not mine”. On another occasion he said: “Those who don’t know when enough is enough will never have enough, but those who know when enough is enough already have enough.”<sup>3</sup> He was perhaps the greatest protagonist of sustainable development the world has seen. He believed in the economics of permanence. He got to the heart of the matter. In India people had “lived for thousands of years in harmony with the surroundings, ... wearing homespun clothes, eating home-grown food, using homemade goods ...” Blind industrialization ruined their lives. As Gandhi said, “Mass production is only concerned with the product, whereas production by the masses is concerned with the product, the producers and the process.”<sup>4</sup> Individuals and nations have not taken the Gandhian wisdom to heart. And they are paying the price. Large numbers of Indians still live in harmony with their surroundings, eat homegrown food and use homemade goods. Thanks to their frugal lifestyle and modest means, they are pretty high on the National Geographic greendex survey of attention to sustainable consumption.<sup>5</sup> We will come back to this discussion later.

The current global economic crisis is the result of greed, vanity and the ego of super-managers in large corporations. This is not about entrepreneurship. This is about the failure of government to be a good, decent regulator. Muhammad Yunus of Bangladesh’s Grameen Bank, winner of the Nobel Peace Prize, told The Indian Express, “Let us ask the old question we raised 32 years ago when banks told us that the poor are not creditworthy. Who is creditworthy: the rich who don’t pay or the poor who do?”<sup>6</sup>

### 3 Paying the price for glorifying the market

The current global financial crisis has been variously described as a *slow motion train wreck* and as “science fiction turning into real life”. It is seen as the inevitable consequence of “footloose capitalism” and a “free-wheeling” free market and an outcome of the US’s financing its Iraq war totally on the credit card. In short, it is greed. This is exactly what Gandhi warned the world against.

The democratic renaissance that began in the wake of the collapse of the Berlin Wall also coincided with the glorification of the market. Once the West claimed ideological victory over socialism, capitalism became the reigning ideology. The Economist wrote rather pompously, “its (i. e. capitalism’s) health will now determine the future of civilization. On planet earth at least, it matters.”<sup>7</sup> It further claimed that

capitalism “works well for most of the people most of the time” and that “the rough-and-tumble of the capitalist market place is the surest and quickest way of lifting most of the country’s population out of poverty.”<sup>8</sup> Market strength emerged as the ruling international ideology, more potent than any military and political power. And with geo-economics replacing geopolitics, globalization hardened into a dogmatic and monolithic creed that brooked no opposition.

The neo-liberals made a god of the market. Every nation was asked to drink globalization’s cup of hemlock for the greater glory of the market. Worse still, the Mecca of capitalism advised the developing world “Don’t do what we do. Do what we say.” The globalization zealots promised that unhindered trade and the rising tide of prosperity would lift all boats. But what happened? While the share of world trade grabbed by the only superpower increased rapidly, and the boats of the rich countries got bigger, those of the poor shrank and finally sank. “Have-money-must-lend” institutions like the International Monetary Fund (IMF) and the World Bank were never tired of chanting the market mantra. Like the Titanic, the “glorious market” had acquired an aura of invincibility. The global economic crisis shattered that self-serving image.

#### 4 What is India’s story?

India was the world’s largest economy in the first millennium AD. It produced one-third of the world’s income in the first century, and nearly one third in the 11th century. In the 17th century, India’s share of world income was one quarter, i.e. greater than that of the whole of Europe. However, it began to shrink in the post-Independence period.<sup>9</sup> By 1951, it had shrunk to 4 %. According to present calculations, India and China could be back to contributing half of the world’s GDP by 2020, which is what they did until the 19th century.<sup>10</sup>

India and China are viewed as part of the solution, and not part of the problem. The rise of Chindia has shifted the center of the world to the east. But China and India are not in the same league. What democratic India has done, Communist China has done even “better”. But what China can do, India cannot as democracy. No one expects India to overtake China, at least in the short and medium terms; but the lumbering Indian elephant is fast catching up with the hyperactive dragon. What is more significant is that today the world views China’s rise as a threat but India’s as a wonderful success story. The transformation of the mango republic to a mobile republic is phenomenal. Thanks to Indian democracy, India produces not only dollar millionaires, but also *Slumdog Millionaires*.

When India became independent in 1947, it was insecure about itself, not confident of its ability to compete with the world. But it had the power of democracy. Despite being mired in poverty of heart-breaking proportions, India created a new paradigm. It rejected the view that a country must first become economically fit for democracy. It chose to be economically fit through democracy unlike countries in East and Southeast Asia and Latin America, which decided first to become economically fit for democracy. Indian leaders were confident that in spite of poverty, illiteracy and the hierarchical social structure of their country, democracy would succeed.

Amartya Sen said during the foundation ceremony of the World Movement for Democracy in Delhi in 1999 that the rise of democracy was the most pre-eminent development of the 20th century.<sup>11</sup> He also debunked the perception that democracy impedes development. India’s success extended the hand of democracy globally. By holding the banner of democracy aloft, India blazed a new trail in a regional neighborhood surrounded by democratic darkness. That prompted Bernard Levin, renowned columnist of *The Times* (London), to say that “if democracy in India falls, the end of democracy itself will be in sight.”<sup>12</sup>

According to Sen, famines are easy to prevent if there is democracy.<sup>13</sup> Not surprisingly, while India suffered from famines under British rule, these disappeared in independent India. What happened during the famines of 1958–61 in China is an open secret. At least 30 million Chinese died of hunger. Up to the 1980s the Indian economy saw a Hindu rate of growth of about 2–3 %. India began economic liberalization in 1991. But the path that it adopted was in many ways unique. Rather than adopting the classic Asian strategy – exporting labor-intensive, low-priced manufactured goods to the West – India has relied

on its domestic market more than exports, consumption more than investment, services more than industry, and high-tech more than low-skilled manufacturing. That explains why India has remained largely insulated from global downturns.

## 5 Are Indians among the world's 'greenest'?

Gandhi had given a clarion call to the people to “go to the villages; that is India, therein lives the soul of India”. In the Gandhian scheme of things, “Every village will be a republic with full powers. Life will not be a pyramid with the apex sustained by the bottom. But it will be an oceanic circle whose centre will be the individual always ready to perish for the circle of villages ...” He called panchayats (village councils) “village republics” arguing that only by empowering the villages could real swaraj (freedom) be achieved.<sup>14</sup>

India may have moved far away from Gandhi and his vision, but India continues to be dominated by villages where 70 % of its people live. The second annual survey conducted by National Geographic Society and the Globescan recently came out with interesting findings.<sup>15</sup> It said that Indians have overtaken Brazilians and taken the top spot with a Greendex score of 59.5. The Chinese retained the third spot with 55.2. It explained how Indians' frugal ways and modest lifestyle make them among the greenest in the world. Most Indians use cold water for bathing because either there is no electricity or they are simply used to it. They use earthen pots for drinking water because they cannot afford a refrigerator, and they take long walks to school and work because they cannot afford either expensive private transport or shoddy public transport. It is not hard to see the upside to such a hard life<sup>16</sup>: Indians are the most frequent consumers of self-grown food, with 35 % eating this type of food several times a day. They are also the least frequent consumers of meat, which requires greater energy to grow. Meat is a wasteful use of water and creates a lot of greenhouse gases. Direct emissions of methane from cows and pigs are a significant source of greenhouse gases. Indians also have the highest rate of purchase of used goods, thereby avoiding environmentally unfriendly products. Indians are thus the friendliest denizens of Planet Earth, concluded the findings.<sup>17</sup>

India is well known for successfully adopting green technologies. The Point Carbon, a research body associated with the UN, after analyzing the clean development mechanism projects of all developing countries, found India's performance to be best in four of the five indicator categories (hydropower, biomass generation, thermal power, wind energy, and landfill site management).<sup>18</sup>

In some ways the Indian farmers have beaten Malthus. Their zero-tillage rice-wheat farming and customized crops for arid lands have pulled millions out of hunger. Zero-tilling means that farmers do not plough their land but rather put seeds straight into holes drilled in the land. This also helps conserve water and preserve soil quality. The Indian way of life did not come into conflict with the ecosystem until the second half of the 20th century, when massive pressure on land areas with growing populations and lifestyles emulating those of the developed world accentuated problems. The result has been an increase in the resource intensity of growth to more or less the same levels as in the developed world.

India has begun to address the climate change issue, but has a long way to go. Besides the best practices discussed above, it has taken several other commendable steps. For example, India's National Auto-fuel Policy mandates cleaner fuels for vehicles. The Energy Conservation Act of 2001 encourages the use of renewable energy.<sup>19</sup> Today renewable energy accounts for 10 % of India's total energy output. Prime Minister Manmohan Singh has launched a “Solar India” mission whereby India plans to install 20 million solar lights and 20 million square meters of solar panels to generate 20,000 megawatts by 2022. By installing 20 million square meters of solar thermal collectors India hopes to save 7,500 megawatts of power generation capacity. This will save one billion liters of kerosene every year.<sup>20</sup>

The Indian government plans to launch a National Mission on Biodiesel<sup>21</sup>, using about 11 million hectares of land to produce biodiesel fuel, by 2011–2012. Besides that, a National Solid Waste Management, a nationwide effort to create a huge carbon sink of afforested land, and a Water Conservation Mission are also in the pipeline. India has also pledged to adopt international best practices and efficiency norms for a range of key industries on a public-private partnership basis. These are good beginnings, but India will need to do much more.

## 6 India's strengths

This section discusses the inherent strengths of India. Spurred by an \$ 80 billion stimulus package, the Indian economy showed a surprising growth of 7.9% in the quarter ending on September 30, 2009. Industry grew 9.2% compared to 5.1% in the corresponding period a year before. There is a boom in many consumer sectors like education, health care, insurance, and utilities. The infrastructure is attracting a lot of investment. Car sales are soaring. The Indian government says it expects the Indian economy to grow by 7% to 8% by the end of the fiscal year in March 2010, and it may hit 9% growth the following year. This turnaround is impressive by any measure.<sup>22</sup>

Why did India suffer so little in the great recession that laid low the biggest economies of the West? India has some structural advantages, such as high savings as a percentage of GDP (about 35%), low debt-GDP ratio, a strong and robust banking system, high domestic consumption, and low dependence on exports. Chanda Kochhar, managing director of ICICI (a bank in India), gives the following explanation: "The banking system is the heart of the economy, while all other sectors are its limbs. In the West, the problem started with the heart, while in India, the heart continued to pump, enabling other sectors to draw strength from it."<sup>23</sup> Given prudent regulations and a proactive regulator, the Indian banking sector remained more or less unaffected, at least directly, by the global crisis.

A few other key factors also merit mention at this stage. India is much less dependent on exports for acceleration of growth.<sup>24</sup> In fact India has reduced its exports to Western economies, unlike China. In fact, India is not as connected with the global economy as many other countries, including China. For example, India exports about 21% of its GDP, while the figure for China is almost 50% of GDP. Thus when the world economy tanks, China is affected in the first instance more than India is. Hence the impact of recession in developed economies on India was less dramatic. The Indian banking system is not directly exposed to sub-prime mortgage assets. In the past two decades, the size of the middle class has quadrupled to 250–300 million. At the same time, population growth has slowed from 2.2% a year to 1.7%. Not many countries enjoy the demographic dividend as much as India, where half the population is under 25 – a very youthful population with a surplus workforce.

Rural India is shining. It has seen 4 years of good agricultural growth. Today the rural populace has better purchasing power. The zooming sales of mobile phones, TV sets, bikes etc. are signs of a new transformation. In January 2009, India added 15.26 million mobile phone subscribers in a single month. India's automobile industry is one of the fastest-growing in the world, boasting exports greater in number than those of China.

The public sector in India is still strong. The Indian Railways employs 1.5 million people. It is making huge profits. India is the highest importer of gold. India imports 3,000 tons of gold every year, which is equal to the consumption of rest of the world. The fundamentals of the Indian economy are strong. In 2008, India's high foreign exchange reserves prevented any panic, even after foreign institutional investors withdrew \$12 billion from the stock market. So resilient was India's performance that the very foreign investors who had withdrawn \$12 billion in 2008 flooded back into the Indian stock market at the rate of \$1 billion per week in May 2009. In contrast to China, there is no large scale migration of people from rural to urban sectors. Indians are also more entrepreneurial. Strong family connections are a key to India's business dynamism.<sup>25</sup>

## 7 "Development as freedom" and the rural employment scheme

The case of India clearly indicates that even with a low income one can achieve higher human developments like a higher life expectancy, lower fertility, and a high rate of literacy. Amartya Sen, Nobel Laureate of India, has characterized it as "development as freedom". As Sen argues, "Development requires the removal of major sources of unfreedoms: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities as well as intolerance or overactivity of repressive states."<sup>26</sup> Lack of substantive freedoms is inextricably linked to economic poverty which deprives people of the freedom to satisfy hunger and to meet the requirements of adequate clothing and shelter. Sen sees poverty as 'capability deprivation'.<sup>27</sup>



Nearly all states in India have succeeded in reducing poverty, but those with better human development have fared better. India has realized that the trickle-down mechanism alone will not spread the benefits of reform; hence the emphasis on inclusive growth. Measured state intervention and adequate provision of safety nets for vulnerable sections of the population are needed to make development more sustainable. Democracy and development go hand in hand. Democratic, accountable, and transparent governance is the best insurance against poverty and marginalization.

The majority of India's poor is concentrated in the rural areas. Nearly all the Indian states have succeeded in reducing poverty. A unique feature of Indian economic reform was that it coincided with the devolution of power and the empowerment of grassroots institutions. In other words, India has the democratic structure in place to take the benefits of economic growth to the grassroots. That perhaps explains why the global crisis has not impacted so much on rural India. In fact, rural India is shining. Poverty alleviation measures are being implemented by local government institutions. Millions of women, low caste and tribals have been empowered. As Sen says, it is empowerment that leads to entitlements, and entitlements that lead to enrichment.

In February 2006, the Indian government launched the National Rural Employment Guarantee Scheme (now Mahatma Gandhi National Rural Employment Guarantee Scheme/NGREGA) to alleviate poverty in rural India. It envisages a legal guarantee of a minimum of 100 days' work per year to one person in each of India's 60 million households. If a job is not provided within 15 days, unemployment allowance is given by the government. This is slowly becoming a powerful mechanism for helping poor communities to invest in the building of durable assets and generating employment. It contributes to environmental as well as social and economic sustainability. The most jobs being created under this mega scheme are green jobs. These include water conservation and drought proofing through conservation of water bodies. One can already see some reversal of the trend of migration to urban centers.<sup>28</sup>

This flagship program has now gotten a thumbs-up from the International Labor Organization (ILO), which has said that had it not been for the scheme, the labor class in India would have been badly hit by the recession. The Indian government is now contemplating the idea of coming up with a similar program for the urban poor. In the past few years, the government has spent huge sums of money on the social sector. There has been a four-fold increase in expenditures on poverty alleviation and rural development, from Rs. 76 billion in 1993–94 to Rs. 340 billion in 2003–04. The 2009–10 allotment is about Rs. 1,250 billion.

Rural development programs in India have remained mostly dependent on the munificence of the state. They were implemented "top-down". This has now begun to change. But there are still many loopholes like leakages and delays in wage payments, fudged muster rolls, and corruption in implementation. As Mihir Shah says, the rural employment guarantee program is "potentially revolutionary ... but transformative only on paper ..."<sup>29</sup> Of course, the poor have not become poorer but the rich have become infinitely richer as a result of India's reform program. Amartya Sen calls it "extremely asymmetrical development."<sup>30</sup>

## 8 The Flip Side

The robust economic growth of the past two decades has lifted millions in India out of poverty. Child survival has also improved considerably. But the gains have been overshadowed by deepening disparities. Let us briefly look at the Indian story in terms of the UN Millennium Development Goals (MDGs).<sup>31</sup>

**Goal 1 Eradicate extreme poverty and hunger:** Despite tangible progress, about 200 million people lack access to enough food to meet their basic nutritional needs. 50 % of children in India are malnourished.

**Goal 2 Universal primary education:** There has been considerable progress in terms of universalization of primary education. But 110 million children are still not in schools, two-thirds of them girls.

**Goal 3 Gender equality:** India has a long way to go. But quotas for women in local government institutions have begun to change the picture. Some states in India have reserved 50 % seats for women in the elected village councils (panchayats).

**Goal 4 Reduce child mortality:** About 1.7 million infants in India die every year. An additional one million die before they reach their fifth birthday. The main killers are asphyxia, premature birth, diarrhea, pneumonia, and other respiratory infections.

**Goal 5 Improve maternal health:** There have been significant improvements, but much remains to be done.

**Goal 6 Combat HIV/AIDS, Malaria etc.:** Tuberculosis is still a major health problem. Each year over 108 million people contract tuberculosis, and about 450,000 die from it. India has 2.3 million people who are infected with HIV.

**Goal 7 Environmental sustainability:** Around 40 million households in rural areas do not have a safe source of drinking water, and about 100 million rural households live without access to sanitation facilities.

**Goal 8 Global partnership for development:** India's target is to make available the benefits of technology to a wider public in cooperation with the private sector. There has been tremendous progress. The telecom revolution has reached every nook and cranny of the country.

It is very apparent that the world will fail to reach the MDGs unless India improves its record on health and child protection. As the UNICEF says in its State of Asia-Pacific's Children 2008 Report: unless India achieves major improvements in health, nutrition, water and sanitation, education, gender equality and child protection, global efforts to reach these goals will fail. The Indian government's expenditures on health and education, as a proportion of national income, are among the lowest in the world.

## 9 Lessons from India

Problems aplenty exist in India. India has a long way to go. It houses the majority of the world's poor. But the larger picture is positive. To favor the market and blow the whistle on society only perpetuates a "Marks & Spencer brand of politics". India has avoided that. The Indian example has clearly shown that democracy and development go hand in hand. India has exemplified a promising model of inclusive growth with inclusive governance. By empowering socially and economically marginalized groups, India has successfully created new stakeholders in the polity.

To conclude, the time has come to rethink the development paradigms that much of the world has followed all these years. The current global economic crisis is largely the result of a practice of divorcing politics and economics from ethics. As Gandhi said, an economics that inculcates the worship of Mammon and enables the strong to amass wealth at the expense of the weak is a false and dismal science. It spells death. True economics stands for social justice; it promotes the good of all equally, including the weakest, and is indispensable for a decent life.<sup>32</sup>

## References

1. Mahatma Gandhi National Rural Employment Guarantee Scheme (2010): <http://india.gov.in/govt/viewscheme.php?schemeid=1655> (May 15, 2010).
2. This quote is from Gandhi's Swadeshi. Intergovernmental Panel on Climate Change (IPCC) chief Rajendra K. Pachauri also quoted this phrase from Gandhi while receiving the Nobel Peace Prize in 2007.
3. Kumar, Satish (1996): Gandhi's Swadeshi: The Economics of Permanence, in Mander, Jerry / Goldsmith, Edward (eds.): The Case against the Global Economy: And for a Turn toward the Local, San Francisco: Sierra Club Books.
4. Ibid.

5. Greendex: Survey 2009, <http://environment.nationalgeographic.com/environment/greendex/2009-survey/> (August 27, 2010).
6. Yunus, Muhammad (April 12, 2009): Interview with Indian Express.
7. “Capitalism’s Visible Hand” (May 1, 1990), in *The Economist*, p. 9.
8. Ibid.
9. Maddison, Angus (2001): *The World Economy: A Millennial Perspective*, Paris: OECD Publishing.
10. *Hindustan Times* (November 1, 2009).
11. World Movement for Democracy, <http://www.wmd.org/about> (September 1, 2010).
12. Ash Narain Roy (2010): Pitfalls of democracy – Trust and social capital will make governance more transparent, says Ash Narain Roy, in *The Tribune*, <http://www.tribuneindia.com/2010/20100221/edit.htm> (August 27, 2010).
13. Sen, Amartya Kumar (July 1999): Democracy as a Universal Value, in *Journal of Democracy*, Volume 10, No 3, pp. 3–17, <http://terpconnect.umd.edu/~dcrocker/Courses/Docs/Sen-Two%20Pieces%20on%20Democracy.pdf>.
14. Baviskar, B.S. / Mathew, George (eds., 2009): *Inclusion and Exclusion in Local Governance: Field Studies from Rural India*, New Delhi: SAGE Publications Ltd., p. 2.
15. Handwerk, Brian (May 7, 2008): Brazil, India’s Citizen Are Greenest, Survey Finds, in *National Geographic News*, <http://news.nationalgeographic.com/news/2008/05/080507-greendex-results.html> (August 27, 2010).
16. *Times of India* (May 14, 2009).
17. Ibid.
18. *Hindustan Times* (August 8, 2009).
19. Ministry of Law, Justice and Company Affairs (Legislative Department) (September 29, 2001): The Energy Conservation Act, No. 52 of 2001, in *The Gazette of India*, [http://www.powermin.nic.in/acts\\_notification/pdf/ecact2001.pdf](http://www.powermin.nic.in/acts_notification/pdf/ecact2001.pdf) (August 27, 2010).
20. Manmohan Singh launches “Solar India”, in *The Hindu* (January 12, 2010), <http://hindu.com/2010/01/12/stories/2010011260911100.htm> (August 27, 2010).
21. Gonsalves, Joseph G. (October 18, 2006): United Nations Conference on Trade and Development – An Assessment of the Biofuels Industry in India, [http://www.sciencerepository.org/in\\_documents/IN1095.pdf](http://www.sciencerepository.org/in_documents/IN1095.pdf).
22. Economic Advisory Council to the Prime Minister (July 2010): *Economic Outlook for 2010/2011*, New Delhi, [http://eac.gov.in/reports/ecoout\\_1011.pdf](http://eac.gov.in/reports/ecoout_1011.pdf) (August 27, 2010).
23. *Hindustan Times* (November 1, 2009).
24. For detailed analysis: Chhibber, Ajay / Palanviel, Thangavel (October 21–23, 2009): *India Manages Global Crisis but Needs Serious Reforms for Sustained Inclusive Growth*, paper presented at Tenth Annual Conference on Indian Economic Reforms, Stanford University; Swaminathan Anklesaria Aiyar (September 13, 2009): *India Weathers 12 Months of Financial Crisis*, in *Times of India*.
25. For further information: Friedman, Edward / Gilley, Bruce (eds., 2005): *Asia’s Giants, Comparing China and India*, New York: Palgrave Macmillan.
26. Sen, Amartya (1999): *Development as Freedom*, Oxford University Press, p. 3.
27. For an excellent analysis of poverty as capability deprivation, see *ibid.*: chapter 4, pp. 87–110.
28. OECD (2010): *OECD Employment Outlook, Moving beyond the job crisis*, Paris: OECD Publications.

29. Shah, Mihir (2009): UPA's Challenge: Rural Governance Reform, in *The Hindu* (May 28, 2009).
30. Sen, Amartya (1999): *Development as Freedom*, Oxford University Press.
31. United Nations MDG: Millennium Development Goals Reports, <http://www.un.org/millenniumgoals/reports.shtml> (August 27, 2010).
32. For further reading: Bharathi, K. S. (1995): *Thoughts of Gandhi and Vinoba, A Comparative Study*, New Delhi: Ashok Kumar Mittal, chapter 5.

## **5 Bangladesh: Problems and Perspectives**

### **5.1 Climate Change and Security: A South Asian Perspective**

*Dalem Chandra Barman*

#### **1 Introduction**

Climate Change and environmental degradation are now important issues of discussion and decision at all national, regional and international levels.<sup>1</sup> This concern has adequately been expressed in the thinking of the World Bank. The World Bank considers climate change as an impediment to social-based economic development and strongly believes that failure to address this issue properly at the policy as well as project levels will hamper its goals of poverty eradication and environmental sustainability. The bank has therefore, adopted a seven-point agenda to tackle the problem.<sup>2</sup> The agenda aims to:

1. Bring adaptation and mitigation into the mainstream of its core development work
2. Provide innovative and concessional financing
3. Pioneer and advance new market mechanisms
4. Link private sector financing to environmental initiatives
5. Support technology development and adoption in developing countries
6. Support applied research on climate change economies in developing countries
7. Contribute to an international regime based on areas 1–6 above.

Other international forums have also expressed their concerns. The G-8 leadership now recognizes the growing impact of global warming, and the EU is trying to find ways to solve climate crisis. The EU states have for some time understood the reality of the situation. US President Barack Obama has expressed his commitment to a ‘clean energy economy’ to reduce global warming. The executive secretary of the United Nations Framework Convention on Climate Change (UNFCCC) warned, “Climate change impacts will be overwhelmingly severe for Asia. They will exacerbate existing vulnerabilities and they have the potentials to throw them back into the poverty trap.”<sup>3</sup>

#### **2 Consequences of Climate Change**

It is now clear that due to climate change billions of people will be condemned to poverty and much of civilization will collapse. Half of the world could face violence and unrest due to severe unemployment combined with scarce water, food and energy supplies and the cumulative effects of climate change.<sup>4</sup>

All countries of the world are likely to be more or less affected by climate change. However the poor countries are likely to be affected more than the developed countries. South Asia – a region of eight poor countries – Afghanistan, Bangladesh, Bhutan, India, The Maldives, Nepal, Pakistan and Sri Lanka – is highly vulnerable to climate change risks.<sup>5</sup> The region is mainly dependent on agriculture, natural resources, and the forestry and fishery sectors; an increased risk of floods and droughts would therefore decrease production in these sectors and exacerbate the condition of the poor. Geography coupled with high levels of poverty and population density has rendered South Asia essentially vulnerable to the impact of the climate change. Some of the major consequences of climate change that South Asia would suffer from are as follows:<sup>6</sup>

1. Increased flooding and problems with water resource management due to melting of the Himalayan glaciers
2. Added pressure on natural resources and environment because of rapid urbanization and industrialization
3. A decrease of almost 30 % in crop yields by the middle of the century
4. Higher mortality rates because of floods and droughts
5. Increased coastal hazards due to the rising sea level

### 3 Regional Approach

The consequences of climate change affect and will affect South Asian countries more or less equally. India's position is a bit different, and it may be said that it is far advanced in the field of science and technology development, with the leading and deciding role in South Asia in its hands. Nevertheless, South Asia should think and act together as one voice and one entity with, of course, due respect for every country's sovereignty. Participating in the South Asian Climate Change Conference (SACCC) (August/September 2009 in Kathmandu), Nepal, Mr. Purushottom Mhegheri, Joint Secretary of the Ministry of Environment of Nepal, said that the South Asian nations are trying to speak with a united voice at the table in international negotiations.<sup>7</sup> The delegates at the Conference stated their visions, saying that immediate actions were required to protect the water sources which climate change mostly affects. Mr. Fakruddin Ahmed, the Chief Advisor to the last caretaker government of Bangladesh, once observed that the South Asian Association for Regional Co-operation (SAARC) countries should speak with one voice to ensure that the developed countries commit new and additional resources to support regional adaptation efforts. SAARC has indeed played and may play a very constructive and facilitating role in this field.

The Inter-governmental Panel for Climate Change (IPCC), in one of its reports, says that the sea level rise will be rapid, a vast swathe of land will go under water, food security will be threatened, and the Millennium Development Goals (MDGs) will not be realized. A meeting of the SAARC experts and environment ministers issued a Joint Action Plan for three years covering 2009–2011.<sup>8</sup> The action plan, adopted at Dhaka, the capital of Bangladesh, seeks to identify and create opportunities for activities achievable through regional co-operation and with South Asian support in terms of technology and knowledge transfer. It also establishes a common regional understanding of the various concerns of SAARC member countries around the UNFCCC. The plan puts forth tasks for climate change mitigation, technology transfer, financing and investment mechanisms, education, training, and awareness, monitoring, and assessment and management strategies regarding impacts and risks.

Fruitful approaches must integrate both adaptation and mitigation activities. Adaptation is necessary to limit the damage caused by climate change. It will enable communities to pre-empt and manage climate risks and allow governments to protect 'climate-proof' high value assets and infrastructures. Mitigation is also vital inasmuch as no amount of adaptation planning can protect economies from the potentially catastrophic impacts of climate change. South Asia's heavy reliance on agriculture provides an important lesson for an integrated approach. The impact of climate change on agriculture cannot be decoupled from water resources, floods, droughts and the economic structure, since these interact in ways that determine vulnerability impacts and adaptation opportunities.

As Herbert Wulf, in his article 'The Role of Regional Organization in Conflict Prevention and Resolution', has observed, "The 19th and 20th centuries can well be described as centuries of nationalism and imperialism. In contrast, the 21st century could become one of regionalism."<sup>9</sup>

The UN Charter also says that nothing "precludes the existence of regional arrangements or agencies for dealing with such matters relating to the maintenance of international peace and security as are appropriate regional action ..."<sup>10</sup> Following this very important guideline, regional planning and action for climate change are of central importance. This should, of course, not exclude national and international plans and actions. Rather, we should demand unconditional commitment from the developed world for reduction of greenhouse gas emissions and increased allocation of funds to ensure the realization of the regional and national plans. However, the success of regional planning and actions will depend on good relationships among the regional countries and democratic polities at the national level. The importance of good relations among the regional countries and their mutual cooperation was clearly reflected in the fact that the SACCC in Kathmandu, Nepal on August 31 and September 1, 2009 ended without any formal concluding declaration. It was said there that "Though the government and non-government delegations discussed about the cooperation and setting common agenda for South Asia, the representatives could not come up with any official 'Kathmandu Declaration' as the Indian delegate left Nepal on Monday, the first day of the Conference, and Bhutan did not join the Conference."<sup>11</sup> One official also said that the Indian Environment Secretary, Mr. Vijay Sharma, left on the first day, which indicated that the Indian delegation did not want to sign any declaration.<sup>12</sup>

#### 4 Interstate Relations in South Asia

South Asia is an India-centric region. India is the largest democracy in the world and it is now one of the fastest growing economic states, with an 8–9% GDP. It is third in the world in terms of the strength of its armed forces. Of the eight constituent countries, India is thus at the most advantageous position but has serious problems with its neighbors.

India and Pakistan are the two major powers of the region. They are also nuclear powers. Upon gaining independence, the two countries became rivals. Pakistan was established on the basis of religion as a homeland for Muslims while India's leaders conceived of and tried to build their country as a secular nation. The history of relationships between the two is replete with ups and downs. The two countries have fought three wars since independence in 1947 and came dangerously close to a fourth following an attack on the Indian Parliament in 2001 by militants from Pakistan.<sup>13</sup>

Relations between India and Pakistan further deteriorated after attacks in the Indian financial capital of Mumbai in November 2008, in which gunmen killed 166 people. After this attack, the peace process, which was launched in 2004 to resolve all outstanding issues of conflict between the two neighbors, including a territorial dispute over the Himalayan territory of Kashmir, was left in tatters and the relations between the two nuclear rivals worsened dramatically. The Indian Prime Minister has categorically said that there would be no resumption of the peace process unless Pakistan takes actions against those involved in Mumbai carnage. Meanwhile, Prime Minister Syed Yousaf Raza Gilani of Pakistan has said that resolution of Kashmir issue is the key to establishing good ties with India and restoring peace in the sub-continent. Despite this he has expressed the desire to resume all peace-facilitating activities. He observed that a delay in the resumption of the Pakistan-India dialogue would benefit only the terrorists, and relations between the two countries could be improved only through talks.<sup>14</sup>

Very recently, India's Defense Minister has observed that there were dozens of Islamic militant training camps active near Pakistan's border with India that had not yet been dismantled by authorities there. It has further been observed that as long as the terrorist camps function on Pakistan soil in the border areas, India will certainly feel threatened. On 18 August 2009, Prime Minister Manmohan Singh said that militants in Pakistan are plotting new attacks on India and urged security forces to stay on high alert. In response, Pakistan assured India of its 'fullest cooperation' in preventing fresh acts of terror and asked India to share specific information about the threats. A government statement says that in all sincerity, we would request India to share the information that they have and for our part we stand ready to cooperate fully in preempting any act of terror. The statement also said that terrorism could only be combated by serious, sustained and pragmatic cooperation

Unlike India and Pakistan, Bangladesh and India started their relations exactly in the reverse way. Bangladesh is, in fact, the negation of the two-nation theory, which provided the philosophy and basis for founding Pakistan. India strongly supported and joined Bangladesh in its liberation war in 1971 and became a very friendly country to Bangladesh, whereas Pakistan declared India an enemy country to Pakistan after the 1965 war between them. India also extended financial and technical supports to Bangladesh in the latter's postwar reconstruction and development activities. However, only after a few years, relations became strained after the killing of the father of the Bengali nation, Bangabandhu Sheikh Mujibur Rahman in 1975. Since then there have been ups and downs in their relations.

The major problem between the two countries is the sharing of water from common rivers. The problem of the Farakka Barrage has existed since the Pakistan days. The new problem is with the Tipaimukh Dam, which is supposed to be built by India on its own territory. This has become an issue of everyday talk in Bangladesh. Speakers at a discussion on June 24, 2009 called on all to forge a movement against the Indian plan to construct Tipaimukh Dam, saying that it would wreak havoc on the environment, the biodiversity, and the ecology of Bangladesh.<sup>15</sup> Criticizing the Awami League government for its 'weak-kneed attitude' towards India regarding this issue, Nagarik Forum said some of the recent speeches of the ministers seem to be reflections of the Indian views.<sup>16</sup> Abdur Razzak, Chairman of the Standing Committee on the Ministry of Water Resources of Bangladesh, said that the government would do everything possible if the Tipaimukh Dam proves to be a threat to Bangladesh's environment.<sup>17</sup>

A major breakthrough has, however, been made in bilateral relations through the recent visit of Dr. Dipu Moni, the Bangladesh Minister of Foreign Affairs, to India. After intensive discussion between her and her Indian counterpart, Mr. S.M. Krishna, India agreed to improve Bangladesh's points of transit with Nepal and Bhutan, provide at least 100 megawatts of power on a priority basis, increase trade and communication facilities, and resolve other outstanding issues.<sup>18</sup> Recognizing the importance of bilateral and regional connectivity, Bangladesh agreed to examine the issues of allowing India to use Chittagong port and designating Ashuganj as a new port of call under the Inland Water Transit and Trade Agreement, as was stated in a joint press statement. Both sides also agreed to resolve other outstanding issues relating to Dahagram and Angurpota enclaves and the Tin Bigha corridor, to finalize the water-sharing agreement for the Teesta River, and to begin joint hydrological observations on that river immediately. Bangladesh's relations with Pakistan might also be bettered by a discussion of the return of certain Bangladesh assets, repatriation of about 250,000 non-Bengali refugees to Pakistan, and Bangladesh's demand for an official apology for crimes committed in 1971; however, these issues remain to be resolved.

Sri Lanka has been involved in fierce fighting with the Tamils for a long time and very recently won the war. During the war, allegations were that India had been involved in the fighting. India's relations with Sri Lanka seem to be better now. It has been reported that India, particularly its Navy, played a vital role in the victory of the Sri Lankan government over the Liberation Tigers of Tamil Eelam (LTTE). Nitin A. Gokhale in his book *Sri Lanka: From War to Peace* disclosed that India played a critical, albeit covert, role in the success of Sri Lanka's war against the Tamil Tigers, with the Indian Navy providing vital intelligence in locating and destroying at least a dozen LTTE rogue vessels laden with arms.<sup>19</sup> But one of the states of India, Tamil Nadu, has sympathy for the Tamils of Sri Lanka, and this may be behind strained relations between the two countries. Sri Lanka's relations with other countries of the region are good and do not warrant any serious discussion.

India's relation with Nepal has been mostly good and cordial. However, Nepal's request to India for a transit route through India to Bangladesh to use Chittagong and Mongla ports for trading purposes has never been granted by India. Only recently, India and Bangladesh agreed to facilitate Nepal-Bangladesh and Bhutan-Bangladesh connectivity.<sup>20</sup> In concluding her India visit, the Foreign Minister of Bangladesh said, "We agreed to work together and move together not only in bilateral relations but also for entire South Asia."<sup>21</sup>

Small countries like Bhutan and the Maldives do not play any significant role in regional affairs, though their cooperation is very important in combating the risks of climate change. Their relations with other regional countries are, however, good and cordial. Afghanistan is a newly inducted member of the South Asian Association for Regional Co-operation (SAARC), though it is closer to Central Asia than South Asia. Its relation with Pakistan is presently troubled, mainly because of its internal problems. It is expected that a stable government in the country will take measures to improve its relations with Pakistan. Its relations with other regional countries are good but are also influenced by its internal situation.

## 5 Conclusions

Given the scenario of the interstate relations in the region, particularly the uncertain and fragile relations between India and Pakistan, it is difficult to envision a united effort to combat the risks of climate change. However, each of these nations is aware of the fact that minus a combined action the dangerous impact of climate change is impossible to resist. This awareness is a great source of hope. The higher the level of awareness, the greater is the possibility of cooperation. An Asian Development Bank-sponsored study report warns that if current trends of climate change persist until 2050, the yields of irrigated crops in South Asia will decrease significantly, with a 17% fall in maize production, 12% in wheat, and 10% in rice. Almost half of the world's absolute poor live in South Asia, where they tend to depend on rain-fed agriculture and live in settlements that are highly exposed to climate vulnerability.<sup>22</sup> This hard fact will surely both induce and compel the regional actors to come forward for greater cooperation. This compulsion on the part of the regional governments to act as one entity will be stronger if all the regional countries practice democracy, since democracy is a form of government that allows and ensures people's right to speak about the well-being for which the government remains accountable.



It is a pleasure to note that of the last two monarchies of the region, Nepal has already become a people's republic and Bhutan has also started the process toward people's rule. Of the two nuclear powers, Pakistan was formerly ruled periodically by military rulers, but there is now a very strong demand for measures to prevent the emergence of any dictatorship in future. It has been demanded that all dictators, including General Ayub Khan, General Yahya Khan and General Zia-ul-Haq, should be tried and their bodies exhumed and hanged. Talking to the media, one political leader of the Pakistan Muslim League Nawaz (PML-N), Mr. Javed Hashmi, has said that autocratic rulers should be treated in the same way the British treated Oliver Cromwell in 1661 to prevent the emergence of any dictator in future. The body of Oliver Cromwell, an English military and political leader, was exhumed from Westminster Abbey, subjected to a court trial, and condemned to posthumous execution. Symbolically, this execution took place on 30 January 1661, the same date Charles I. was executed.<sup>23</sup> Democracy prevails in Bangladesh, India, The Maldives and Sri Lanka. The situation in Afghanistan may improve after the presidential election of 2009.

## References

1. For further reading: Hickey, James E. / Linda A. Longmire (eds., 1994): *The Environment: Global Problems, Local Solutions*, London: Greenwood Press; Williams, Christopher (ed., 1998): *Environmental Victims: New Risks, New Justice*, London: Earthscan.
2. World Bank, <http://www.worldbank.org/> (August 27, 2010).
3. Dr. Md. Mashreque, Shairul (July 15, 2009): Green beckoning: Combating Climate Change, in *The Daily Star*, Dhaka, <http://www.thedailystar.net/newDesign/news-details.php?nid=96885> (August 27, 2010).
4. *The Daily Star* (July 14, 2009), Dhaka.
5. For further reading: Islam, M. Aminul (1995): *Environment, Land Use and Natural Hazards in Bangladesh*, Dhaka: University of Dhaka; Parnwell, Michael J. G. / Raymond, L. Bryant (eds., 1996): *Environmental Change in South-East Asia: People, Politics and Sustainable Development*, London: Routledge; Rahman, A. Atiq / Huq, Saleemul / Conway, Gordon R. (eds., 1990): *Environmental Aspects of Surface Water Systems of Bangladesh*, Dhaka: University Press Ltd.
6. For further reading: Ghosh, G.K. (1994): *Environment and Development: Virtues of India's Vegetations*, New Delhi: Ashish, Volume 2; Hardoy, Jorge E. / Diann Mitlin / David Satterthwaite (1992, 1995 Printing): *Environmental Problems in Third World Cities*, Earthscan, London; Hussain, Majid (ed., 1996): *Environmental Management in India*, New Delhi: Manak Publications.
7. *The Daily Star* (September 1, 2009), Dhaka.
8. SAARC: Area of Cooperation – Environment, [http://www.saarc-sec.org/areaofcooperation/cat-detail.php?cat\\_id=54](http://www.saarc-sec.org/areaofcooperation/cat-detail.php?cat_id=54) (August 27, 2010).
9. Wulf, Herbert (ed., 2009): Still Under Construction: Regional Organizations' Capacities for Conflict Prevention, in INEF-Report 97/ 2009, University of Duisburg-Essen: Institute for Development and Peace, p. 5.
10. *Ibid.* Art. 52, p. 1.
11. *The Daily Star* (September 2, 2009), Dhaka.
12. *Ibid.*
13. *The Daily Star* (August 19, 2009), Dhaka.
14. *The Daily Star* (August 2, 2009), Dhaka.
15. Dr Jahangir, Nadim (2009): Tipaimukh Dam: a real concern for Bangladesh, <http://banglapraxi.wordpress.com/2009/06/22/tipaimukh-dam-a-real-concern-for-bangladesh/>, (May 18, 2010).
16. *The Daily Star* (June 25, 2009), Dhaka.
17. *The Daily Star* (June 22, 2009), Dhaka.

18. The Daily Star (September 11, 2009), Dhaka.
19. Gokhale, Nitin A. (August 23, 2009): Sri Lanka: From War to Peace, New Delhi: Har Ananda Publication; The Daily Star, Dhaka.
20. The Daily Star (September 11, 2009), Dhaka.
21. The Daily Star (September 11, 2009), Dhaka.
22. The Daily Star (September 3, 2009), Dhaka.
23. The Daily Star (September 12, 2009), Dhaka.

## 5.2 Anthropogenic Intervention in Natural Eco-Systems and Climate Change Adaptation in Bangladesh

*Dil Rowshan*

The planet earth has developed its “territory” and “physical environment” very slowly and quietly over last few billion years. But for the last two hundred years the intervention of mankind has contributed – with differing intensity in different areas – to an acceleration in the trends of change. The ultimate result might be an incapability to cope with change.

Some countries with a low population density and a somewhat better economy will eventually enjoy in the short run some benefits of global warming or climate change, but most other countries, like Bangladesh, will suffer extremely. Several factors are associated with the relative acuteness of the threat imposed by climate change on Bangladesh: a rapid increase in a vulnerable population group, unplanned manipulation and destruction of natural eco-systems, limitations of national policies, and conflicting roles of public organizations. Extreme natural events occurring in Bangladesh are not solely produced by global warming or climate change. The potential impacts of climate change predicted to arise in Bangladesh are mostly due to overcrowding in the areas where drastic changes occur in natural eco-systems, due in turn partly to a lack of transborder understanding and partly to internal abuse of natural resources.

### 1 Areas of human intervention

Several forms of severe human intervention in Bangladesh and India which are independent of climate change nevertheless cause environmental degradation and a decline in living conditions, especially for poor people in both rural and urban areas. Planned and unplanned changes in natural ecosystems have become common.

Political and administrative influence is often applied in Bangladesh to gain control over lands which are under public or weak private ownership. Administrative malpractice has led to a disappearance of wetlands and forest patches. Planned but imprudent physical changes in natural areas in order to develop the infrastructure has led to water logging, floods, and soil and water contamination in different areas of the country. Hilly regions are found in the south-east and north-eastern part of Bangladesh. Mining, industrial expansion, residential development and commercial farming have given rise to new dimension of problems. Deforestation of slopes has led to severe landslide problems in hilly regions.

Flood control and irrigation structures have created obstructions to the flow of water between perennial water bodies and adjacent landmasses. Nutrition brought by flood waters for the soil as well as the fish population and green vegetation is reduced to a great extent due to the unavailability of flood water. As a result, the natural fertility of soil has decreased. This has also led to a migration of certain indigenous fish species and has affected their life cycle. As a whole, the total supply of local fish varieties has been greatly affected negatively.

Wetlands are habitats of local fish varieties and reservoirs of rain water. They can also play an important role in eco-tourism. Encroachments into rivers have reduced water and the sediment-carrying capacity of perennial rivers. This whole process leads to siltation at the bottom and on the banks of rivers, along with the development of sandbars and frequent flooding. The government of Bangladesh so far has made only token efforts to maintain the navigability of major rivers. Many of the tributaries and distributaries of principal river systems of the country have dried up due to the rise of river beds through siltation. No significant effort at full-fledged mechanized dredging has been initiated so far.<sup>1</sup> The present Awami League Government has initiated an extensive river dredging program. If fully implemented, it will eventually increase the navigability and silt transportation capacity of rivers and reduce the country’s flooding problems.

Unbalanced harvesting of forest resources and forest clearance for decades has contributed not only to a loss of biodiversity but also to numerous environmental threats. The decreasing forest belts along the

coast and in the interior parts of the country once provided not only protection against cyclones but also evapo-transpiration, which in turn retained soil moisture and prevented desertification.

River bank erosion in the main part of the country has devoured urban and rural settlements and has rendered people shelterless. People of this category either settle down in urban slums or on the newly emerging islands. They can be categorized as environmental refugees, an old feature of Bangladesh. People who settle down on newly-formed islands locally known as chars are repeatedly exposed to flooding and cyclones.

The Farakka barrage in the Indian State of West Bengal was constructed by the Indian government on the Ganges river to divert water to the Hoogly river in order to ensure the navigability of the port of Calcutta. Diversion of water from this river started in 1975 and soon resulted in a limited flow of water during dry seasons and a sudden onrush of water during monsoon seasons. The reduced flow of water increased both the salinity of the water and concentrations of contaminants and pollutants in the water and impeded navigation. Desertification also resulted from the reduction of moisture formerly provided by the river's flow and flooding. Some villagers have had to dig wells as deep as 65 meters in order to obtain drinking water, and over the past 25 to 30 years the dam also has ruined the region's ecology. It will take 50 to 60 years to repair this environmental damage, and even that will require great effort and extensive international assistance.<sup>2</sup>

## 2 Potential impacts of climate change on Bangladesh

In addition to these human interventions, further environmental degradation is being caused by climate change. The following is a discussion of the current and potential future impact of climate change in Bangladesh.

Climatic variability will reduce rice production in Bangladesh by an average of 7.4 % every year from 2005 to 2050; this may go as high as 12.8 %.<sup>3</sup> A decrease will similarly be evident in the case of wheat, potatoes, and other crops. Apart from climate change, rapid urbanization is the leading cause of the loss of agricultural lands, which amounts to 1 % every year. This must be compensated for by planting intensive and high-yield varieties of crops.

Instances of flash flooding and riverine floods have increased in terms of frequency and severity. In 2007 Bangladesh experienced two devastating floods during the monsoon and post-monsoon periods. Two cyclones destroyed croplands, homesteads, the infrastructure, and natural ecosystems. The damage was irreversible in some cases.

Man-induced riverbank erosion and drought will also increase the vulnerability of people living in the northern and central part of the country. Sea water intrusion in the coastal zone and over-withdrawal of ground water for irrigation will affect groundwater tables. Recharging of these water tables will be impeded because of land-use change. The ultimate result will be an acute shortage of potable water.

According to predictions by the Intergovernmental Panel on Climate Change (IPCC), there will be a loss of territorial landmass in Bangladesh due to the rising sea level. The predictions are based on different scenarios. Already during the last century the rise in sea level devoured 65 % of the 250 square kilometers of Kutubdia island, 227 square kilometers of Bhola, and 180 square kilometers of Sandwip island.<sup>4</sup>

The silent rise in sea level has led to an intrusion of saline water into agricultural lands and water bodies during the last three decades.<sup>5</sup> By the end of the 21st century, 75 % of the mangrove forest may disappear due to human intervention in the Sunderban and due to a 45 cm rise in sea level. On the other hand, the Bengal Basin is gradually tilting towards the east due to neo-tectonic movement; this will cause fresh water to flow toward the Bangladesh area of Sunderbans, which may in turn reduce the salinity effect.<sup>6</sup>

Population migration as a result of natural calamities has a long history in Bangladesh. Recent global awareness about this issue has drawn fresh attention to such vulnerable groups as environmental refugees. In Bangladesh, this group mainly emerges as a result of floods, cyclones, and river bank erosion. It is predicted that the size of this group will increase many times due to a future increase in the frequen-

cy and devastation of natural calamities in Bangladesh. Gradual reduction of habitable land, repeated natural calamities, and a shortage of food will eventually lead to conflicts and security problems; the shrinkage of land may also result in migration to bordering countries, thus prompting border conflicts.<sup>7</sup> This may also lead to civil unrest inside the country.

### 3 National response to climate change and possible courses of action

The National Adaptation Program of Action (NAPA), Bangladesh<sup>8</sup> was adopted in 2005 in response to the seventh session of Conference of Parties (COP 7) of the UN Framework Convention on Climate Change (UNFCCC). NAPA proposed to strengthen future coping mechanisms. It emphasized coastal zone management, increased awareness concerning disaster preparedness and management, development of eco-specific adaptive knowledge through training and formal education at the primary, secondary and tertiary levels, adaptation of agriculture and fisheries in hazard-prone zones, and exploration of social and financial security measures for coping with future climate change issues. In response to the UN Bali Action Plan, Bangladesh prepared a Climate Change Strategy and Action Plan in 2008, followed by minor changes in 2009.<sup>9</sup> The Action Plan will be embedded within national development plans and programs and will be based on six pillars: (1) food security, social protection and health; (2) comprehensive disaster management; (3) infrastructure development; (4) research and knowledge management; (5) mitigation and low-carbon development; and (6) capacity-building and institutional development.

Any sophisticated and ambitious strategy for Bangladesh must deal with the severe problems and aspects named below, and a successful strategy must take into account different scenarios of future development regarding population growth and disaster areas:

**Case-specific population growth control:** The present population growth rate of Bangladesh is 1.41 % (2008).<sup>10</sup> The major part of this growth occurs among low-income, illiterate and vulnerable persons who, to a great extent, live in marginal lands. They exert pressure not only on the food supply but also on livelihoods and space. Marginal and vulnerable areas like offshore islands, low-lying coastal areas, or river banks become populated as people migrate from mainland areas. Such vulnerable groups originate from forced migration due to socio-political intervention or natural calamities.

**Improved disaster zoning:** The country is constantly threatened by various types of natural hazards such as floods, cyclones, tornadoes, landslides, and earthquakes. Desertification and arsenic contamination are evident in different parts of the country. A major part of the country is under the threat of repeated occurrence of multiple hazards. On the other hand, new hazards may be created due to changes in the climatic situation. These have an effect on agriculture, livelihoods and settlement. Since it is predicted that the frequency and intensity of natural calamities will increase in future due to climate change, special development planning approaches would be required in this case. Regionalization based on a weighted index of disasters will help the government to prioritize development projects and devise better coping mechanisms.

**Readjusted national land-use plan:** It is inevitable that the country will lose a significant part of its landmass due to a rise in the sea level. Under such circumstances, competition for space to accommodate different land-uses will become severe. A national land-use plan both for urban and rural areas will become imperative for the country's survival as a nation. This will also ensure effective and efficient use of the limited land and natural resources which will be available in future.

**Goal-oriented regional planning:** With contraction of the livable land and an increase in both population and the frequency of natural calamities, the country will be left with a new order of landmass. A whole new approach for regional planning will have to be devised in order to cope with the changed environmental situation. The principal parameters to be considered for regional planning should be: population density, agro-ecological characteristics, and disaster vulnerability. Better distribution of economic activities will become necessary based on the changing natural environment and population distribution.

**Prevention of ecosystem change and ecosystem loss:** Administrative and legal weaknesses currently permit land grabbers to acquire land, river and ocean water territory and thereby change its use. Natu-

ral ecosystems of forests, riverbeds and coastal zones along the Bay of Bengal are being transformed into industrial, settlements and ocean shipping areas. This poses a threat to biodiversity and the natural ecology.

**Strengthening public awareness:** General awareness about the issues linked with climate change can be increased through public education and training programs. But specific technical education related to agricultural adaptation, compact township and village development, prediction models, a resolution of border and internal conflicts and crises, health hazard management, innovative technology for efficient coping strategy, water and watershed management etc. must come through higher education curricula. To this end new collaborative programs must be introduced at the university level.

**Case-specific skilled labor migration:** The loss of landmass will render many people jobless. International assistance will be required to explore new areas of skilled population development. Special funding and understanding at the international level must be generated for skilled labor migration outside the country. Remittances sent by migrant workers may compensate for income lost due to sea level rise, land-use change, and aggravated natural hazards.

**Global fund for land reclamation projects:** the gradient of land toward the south is very gradual. Some land reclamation projects are going on in Bangladesh with unsatisfactory efficiency. Strengthening land reclamation projects could save lands from being lost under the new sea level, prevent mangrove forests from extinction, preserve agricultural lands and the cultural heritage of the coastal zone, and preserve groundwater tables and their use for human consumption.

#### 4 Conclusions

The ecological system of Bangladesh is very delicate and could easily be destroyed. Much destruction which has occurred in the past probably cannot be undone, but it is necessary to avoid further destruction in future.

#### References

1. A note worthy effort was made during the regime of President Ziaur Rahman (1977–1981). His canal-digging program (Khal Kata Karmasuchi) for controlling the menace of annual flooding was unique, and he engendered participation of people from all walks of life. Some program projects were exemplary success stories like the Ulshi Jadunathput project. The country registered significant rise in food production and near-autarky was achieved.
2. Ali, M.M (March 1997): India's Major Gains and Losses, in *World Affairs*, p. 25, <http://www.washington-report.org/backissues/0397/9703025.htm> (September 9, 2010).
3. UNESCO World Heritage Centre (2007): *Case Studies on Climate Change and World Heritage*; pp. 36–37, <http://unesdoc.unesco.org/images/0015/001506/150600e.pdf> (September 9, 2010).
4. Intellectual for Economy Growth of Bangladesh (December 18, 2009): Bangladesh: The food security and security of livelihood at an enormous risk due to climate change Friday, <http://gurumia.com/category/bangladesh/environment-bangladesh/page/4/> (September 9, 2010).
5. Zahurul, Prof. Karim (October 7, 2009): *Climate Change Impacts on Bangladesh: Agriculture and Food Security, Policy Strategy and Management interventions*, Paper Presented at the Consultative Workshop on Climate Change Impacts on Agriculture and Food Security, CIRDAP Auditorium, Dhaka.
6. UNESCO World Heritage Centre (2007): *Case Studies on. Climate Change and World Heritage*, pp. 36–37, <http://unesdoc.unesco.org/images/0015/001506/150600e.pdf> (September 9, 2010); Rahman, Laskar Muqsudur (2000): *The Sundarbans: A Unique Wilderness of the World*, in *USDA Forest Service Proceedings RMRS-P-15-VOL-2*, [http://www.fs.fed.us/rm/pubs/rmrs\\_p015\\_2/rmrs\\_p015\\_2\\_143\\_148.pdf](http://www.fs.fed.us/rm/pubs/rmrs_p015_2/rmrs_p015_2_143_148.pdf) (September 9, 2010).

7. Chowdhury, Mahfuz (2009): Population Increase Threatens Bangladesh, in PoliticalArticles.Net, <http://www.politicalarticles.net/blog/2009/04/23/population-increase-threatens-bangladesh/> (September 9, 2010).
8. Government of Bangladesh (November 2005): National Adaptation Programme of Action (NAPA), Final Report, <http://unfccc.int/resource/docs/napa/ban01.pdf> (September 9, 2010).
9. Government of Bangladesh (September 2008): Bangladesh Climate Change Strategy and Action Plan 2008, <http://www.moef.gov.bd/moef.pdf> (September 9, 2010).
10. World Bank (2010): World Development Indicators (WDI), Population Growth Rate, <http://search.worldbank.org/data?qterm=population+growth+rate+&language=EN&format=html> (September 9, 2010).

## 5.3 Sustainable Green Investments and Policies in Bangladesh: Two Problems – One Solution?

*Özlem Ipiv and Dieter Reinhardt*

### 1 Introduction

At a time when climate change seems to be the most present threat not only to the environment but to all social levels of humanity, the worldwide financial crisis appears as an additional burden on efforts to cope with climate change and measures to mitigate its impacts. However, even though the financial crisis is exacerbating climate change adaptation and mitigation activities, it also opens windows of equal opportunity for new economic and, more important, “sustainable” paths to solutions. A shift of production from non-renewable to renewable energy sources (solar, wind, biofuel) for instance, is not only a contribution to a cleaner environment but also opens doors to new sectors and employment opportunities; in so doing it could help to alleviate poverty in the world. This article will present first a brief overview of the effects of financial crises and then in its main part analyze the elements of a green economy and their potential for Bangladesh.

The Government of Bangladesh has formulated a number of climate change action plans, and several green economy pilot projects have already been initiated by both governmental and non-governmental organizations in Bangladesh. These projects have attracted much attention as well as support from the international donor community. The projects presented here are successfully demonstrating that environmentally friendly investments and approaches can open up new options for socio-economic development and hold far more potential than that being exploited at present. After an introduction of the projects which are mainly conducive to the agricultural sector of Bangladesh, projects addressing the demands of urban areas there will be presented, followed by a look at the country’s most vulnerable part, namely its coastal zone. This area is particularly affected by climate-induced hazards and is in need of specific measures from governmental and non-governmental actors.

### 2 Financial crises

Bangladesh was affected strongly by the food and fuel price crises in 2008; the impacts of the financial crises of 2008/2009 were not so hard than other developing countries.<sup>1</sup> Although the country’s banking system is less internationally integrated, the crises nevertheless caused a general economic deceleration. The GDP growth rate decreased from over 6 % in 2009/2010 to 5.5 %; exports declined by around 6 % between July and December 2009, and imports declined by nearly 4 %. During July and December 2008 the export growth rate was 19 % and the import growth rate 22 %.<sup>2</sup> “On the other hand, with the majority of the population making their living from agriculture, good harvests have meant that poverty impact of the crises may have been limited.”<sup>3</sup> Remittances from Bangladesh migrant workers did not drop significantly in 2009.<sup>4</sup>

The national budget of Bangladesh 2010/2011 is around 18 billion US dollars.<sup>5</sup> Government-allocated stimulus packages in the financial year 2010/2011 amounted to about 285 million US dollars; the first, in 2009/2010, amounted to about 700 million US dollars. 61 % of this was used in the agricultural sector (subsidies, credits and other instruments), 18 % in the power sector, 13 % for exports, and 11 % for social security (mainly food).<sup>6</sup>

### 3 Government programs

Bangladesh is heavily affected by climate change in various areas; agricultural production, health, resource degradation, industrial production and the poor are especially affected.<sup>7</sup> All five climate change threats exist in Bangladesh: drought, flood, storm, sea level rise, and decreases in crop production: “Minor environmental changes will have major consequences.”<sup>8</sup>

The leading climate change researcher in Bangladesh, Atiq Rahmann<sup>9</sup>, has advocated three strategies and proposals: a) community-led solutions, b) climate-proofing development efforts and the main-



streaming of climate actions into development activities, and c) the development of national climate change strategies. Only some of these have been implemented.<sup>10</sup> The government formulated the National Steering Committee on Climate Change (NAPA)<sup>11</sup> in 2005 and the Bangladesh Climate Change Strategy and Action Plan 2008,<sup>12</sup> which was revised in 2009.<sup>13</sup> Besides this, the Ministry of Environment and Forest, several other Ministries, and representatives from civil society and the private business sector are member in the NAPA.

The Bangladesh Climate Change Strategy and Action Plan 2008 is a comprehensive plan in which the government has set up new institutions and defined six pillars: 1) food security/social protection/health, 2) disaster management, 3) the infrastructure, 4) research, 5) laws regulating carbon emissions, and 6) capacity building (see the contributions of Dil Rowshan). However, in the case of Bangladesh implementation on the local level is very weak, which constitutes an obstacle to any plan. The plan's approach, however, has been strongly supported by the British government and the EU. The plan aims – besides other things – to stabilize the social system for the poorest and most vulnerable, especially for women and children, to build effective cyclone shelters and better urban drainage systems, and to integrate a reduction of GHG emissions into development programs over the next decades. The plan has announced that it “will be an integral part of national development policies, plans and programmes.”<sup>14</sup>

#### 4 Green Jobs

The International Labor Organization (ILO) is promoting the so-called “Green Jobs Initiative” among its member states. ILO defines “green jobs” as follows: “Green jobs do not lend itself to a precise definition but includes the direct employment which reduces environmental impact ultimately to the levels that are sustainable. This includes jobs that help to reduce the consumption of energy and raw materials, decarbonize the economy, protect and restore ecosystems and biodiversity, and minimize the production of waste and pollution.”<sup>15</sup> “Greening” of the national economies is seen as a significant future investment prospect and a win-win-solution for the environment and the economy. Other organizations such as the United Nations Environmental Organization (UNEP) have also launched green initiatives at the international level. At the national level, a significant number of countries have adopted economic stimulus packages with major investments.

For instance, Bangladesh has integrated green approaches into its National Adaptation Program of Action (NAPA).<sup>16</sup> These are being complemented by activities of non-governmental organizations at the micro-level either in cooperation with the government or independently. Although the extent of employment found to be green in Bangladesh so far is a small fraction compared to the total workforce, a significant number of local and international organizations, institutions and private companies are actively involved within the sector, creating potential green jobs and contributing to the development of the country:

“Main greening shifts in the economy and the labor market of Bangladesh have taken place strongly in renewable energy, but rather weakly in materials management, telecommunication and transport ... Bangladesh has embarked on several policies and programs for adaptation to climate change and mitigation of its adverse impact, but it has no policy for the formation and development of skills for greening the economy. A coherent policy for the formation and development of skills for green jobs in all the potential sectors should be put in place and implemented.”<sup>17</sup>

#### 5 Agricultural Sector

Like most developing countries, Bangladesh is highly dependent on its agricultural sector as the main employment and food provider for the local and international market. Almost 2/3 of the 40-million-strong labor force, the highest employee group in the country, is engaged in agriculture and related activities which are largely nature and water-dependent.<sup>18</sup> At the same time these are the sectors most likely to be hit hardest by climate change, particularly in the southern coastal and northern drought-prone areas of Bangladesh.<sup>19</sup> Thus the adaptation to climate change is indispensable. A Field Study Survey shows that out of 23,000,000 jobs in the agricultural sector nearly 10,000 are in the area of Green Jobs and a great deal more potential is being forecast by the year 2030.<sup>20</sup> Two successful projects will be introduced

here to illustrate current efforts and options in this field. The first one presents new farming methods, the second describes one of the most promising sectors in regard to Green Jobs, namely the promotion of renewable energy sources.

**Organic Farming.** Although organic product consumption in the industrialized countries is currently one of the most vigorously expanding sectors, so far it has been noticed little in the agricultural sector in Bangladesh. On the contrary, the use of pesticides has grown since the so-called “green revolution” in the country forced farmers to use more and more chemicals every year in order to grow the same amount of crops as a means of maintaining their income, thus causing irreparable harm to nature and the soil. However, one project of note is unique: located in the northern districts of the country, the company Kazi & Kazi Tea Estate Ltd. has managed an organic tea plantation since 2000, thus meeting international organic production standards.<sup>21</sup>

This company produces 230 tons of tea for local and overseas markets every year and so far has created 725 new jobs which can be classified as green jobs, employing mainly women.<sup>22</sup> Well aware of its role in the market and development sector, the company is following a multilevel approach which demonstrates responsibility not only in introducing new farming cooperatives but also in contributing to the social development of the region, especially the improvement of living standards of women and children. Despite growth in income and employment, the company is finding time to invite main actors of the area to the plantation to teach them about organic farming as part of the company’s Organic Farming Awareness Program. The company also distributes health improvement and hygienic products, such as safe latrines, amongst its workers. In terms of women empowerment, one hour every day after work is scheduled for teaching reading and writing to female laborers.

Several factors promise a bright future for organic cultivation in the area. Besides the availability and virginity of the land in the northern parts of the country<sup>23</sup>, the labor-intensity of organic farming in comparison to industrialized agriculture is a promising and growing source of green employment.<sup>24</sup> In addition, related and interacting projects are emerging out of organic tea farming, such as organic dairy production and cow farming, which also supports organic tea cultivation with biofertilizer.<sup>25</sup>

## 6 Renewable Energy

Renewable energy sources play a major role in Bangladesh’s economy and the development of the country. With an increasing demand for electric power due to a growing industry and population and the enormous gap in supply, the country is being forced to develop new energy generating forms, thus created a great potential for green jobs. Statistics show that sustainable renewable energy development is indeed a vital sector in Bangladesh, since 70 % of the population has no access to electricity and 65 % of the population lives in rural areas. The four main renewable energy areas in Bangladesh are solar energy, bio-energy, micro-hydro projects and wind energy. In addition to governmental organizations, NGOs and the private sector also play a key role in promoting renewable energy sources, among others notably Grameen Shakti.<sup>26</sup>

Grameen Shakti (GS) is one of the most successful promoters of solar energy generation and other renewable energy technologies in the rural areas of Bangladesh. This rural-based renewable energy company emerged out of the Grameen Bank’s micro-lending experience in 1996. To make solar systems affordable to rural communities, the company puts together financial packages based on installment payments in order to give rural people a chance to improve their quality of life and also take part in income-generating activities. As of June 2008, GS had installed more than 170,000 solar home systems (SHSs) in rural areas and aims to reach 1 million households by 2015.<sup>27</sup> In the same way as the private company Kazi & Kazi, GS follows a comprehensive approach: not only access to energy plays a major role but also social programs such as the training of youth and women in repairing and maintaining their technical equipment. To date, some 660 women (and 600 youths) are engaged in installing, repairing and maintaining solar systems, as well as producing accessories. In the coming years, GS aims to create 100,000 jobs through renewable energy and related businesses. New businesses such as solar-charged mobile phone centers and electronic repair shops are emerging. Existing businesses, meanwhile, are able to operate for extended hours, which helps to increase sales and employment.<sup>28</sup> The combination of com-

munity participation and the introduction of renewable energy resources, which links climate change adaptation with development initiatives, qualifies this as a “best practice” project, and it is receiving international support, for instance from the German Technical Organization (GTZ).

## 7 Urban Areas

The employment rate and life standards in rural areas are improving only slowly and are frequently disturbed and interrupted by natural hazards which are certain to increase in future. These conditions are pushing people to the urban centers of Bangladesh, mainly Sylhet, Chittagong and Dhaka and challenging them with specific problems of urbanization.<sup>29</sup>

**Transport Sector.** To begin with the transport sector and the problems associated with it, the increasing price and scarcity of petroleum oil, along with air pollution and related health hazards, have opened the way for a successful project. The introduction of Compressed Natural Gas (CNG) can be seen as a pioneer project in climate change mitigation efforts in Bangladesh and shows specifically the contribution and importance of the Government of Bangladesh to the success of the project through policies and joint cooperation.<sup>30</sup>

Although the World Bank had already introduced CNG as an alternative fuel in Bangladesh in 1982, the success story of CNG began early in 2000 when the Government of Bangladesh commissioned the Rupantarita Prakritik Gas Company Limited RPGCL with the development of cost-effective ways to commercialize CNG in the transport sector in Bangladesh and to set up 51 filling stations. In so doing, it was spurred by the fact that soot levels in 1997 were found to be 10 times higher than World Health Organization guidelines permitted, resulting in an additional 15,000 deaths and millions more illnesses as estimated by the World Bank.<sup>31</sup> Furthermore, the government has taken action by implementing policies to ensure that engine power is converted from oil-based fuel to CNG. To enforce its policies, it mandated in 2003 that taxis in Dhaka, particularly auto rickshaws, be henceforth converted to CNG.

The introduction of CNG has resulted in multi-layered benefits for the country: the fact that the country possesses large amounts of stranded gas saves significant amounts of foreign exchange; the gas is simultaneously cheaper for the consumer and contributes to cross-sectoral savings in the health sector, along with a reduction of health hazards as a result of lower levels of air pollution in Dhaka.<sup>32</sup> According to the Bangladesh CNG Filling Station & Conversion Workers Owners' Association, 250 filling stations and 121 conversion centers existed by mid-2008, creating nearly 150,000 new jobs.<sup>33</sup>

**Waste Recycling.** Another challenging factor of urbanization in Bangladesh is waste. Every day, urban areas of Bangladesh generate approximately 15,000 tons of waste, of which a large amount (almost 50%) remains uncollected in the roads and the rest is collected and carelessly disposed of in low-lying areas.<sup>34</sup> As a result, the unmanaged organic waste is likely to pose a serious threat to public health by contaminating drinking water, creating environmental pollution, and generating greenhouse gases.

Waste Concern, a non-profit research and development arm of Waste Concern Group founded in 1995, has set in motion a process for house-to-house collection of solid waste which is then taken to community-based composting plants for conversion into organic fertilizer. Up to now, Waste Concern has been involved in the design and operation of 47 compost/recycling plants in 26 cities and towns of Bangladesh. By promoting the motto “Waste is a Resource” and emphasizing the market aspects of organic waste, the organization is causing a chain reaction in multiple sectors in Bangladesh. Offering fertilizer companies the option of purchasing and nationally marketing compost-based enriched bio-fertilizers, Waste Concern provides jobs for the urban poor who collect the waste and work in the local plants; this also stimulates behavioral changes in urban communities and the waste management industry.<sup>35</sup>

Recently, Waste Concern, in partnership with a Dutch waste recycling private company, is establishing a number of composting plants around Dhaka city with the goal of producing environment-friendly compost from city organic waste by 2009 using funds ‘Clean Development Mechanism (CDM)’ of the Kyoto Protocol. A study by Waste Concern shows that out of 500,000 jobs in the waste recycling sector nearly 230,000 jobs can be categorized as green<sup>36</sup> and that the sector has the potential to create thousands of new jobs from the formal, private and informal sectors with little effort.<sup>37</sup>

## 8 Coastal Area

The coastal area of Bangladesh is extremely vulnerable to climate change. Already today, it is frequently overwhelmed by climate hazards like cyclones, floods and riverbank erosions.<sup>38</sup> Although natural hazards are nothing new to the people living in the coastal zones, the increasing intensity and frequency of extreme events such as cyclones and storms will make them more and more unpredictable. In combination with a sea level rise, which is forecast due to increasing temperatures, approximately 17 % of today's coastal zone will be lost in this scenario, forcing millions of people to leave the area.<sup>39</sup>

Coping with these extreme climate events is not new to the people of Bangladesh. However, external help from the government and non-government organizations is essential in order to enable people to equip themselves against climate hazards and to minimize the effects of extreme natural events. Here we will briefly introduce four important projects which currently attempt to address the needs of the coastal zone population. It should be noted, however, that no specific numbers or studies addressing Green Jobs in the coastal zone exist to date.

**Flood Shelter, Green Belt Project, Rain water Harvesting, Floating agriculture.** Some of the activities initiated by governmental and non-governmental organizations are the construction of flood and cyclone shelters, reforestation of the coastal area, harvesting of rain water, and floating agriculture. Beginning with the construction of flood shelters, the Government of Bangladesh has constructed nearly two thousand cyclone shelters in the coastal area and about 200 flood shelters for the evacuation of people threatened by cyclones or floods.<sup>40</sup> In total, 150 million US dollars have been invested in cyclone shelters and early warning systems.<sup>41</sup> These flood shelters have the advantage that they can be used throughout the year by converting them into schools, market places or storage areas during the dry season. In addition, the Government of Bangladesh initiated the Green Belt Project with community participatory approach, with the aim of reducing the adverse impacts of cyclones and storm surges and improving the livelihood of the community at the same time.

Reforestation serves as a natural reinforcement of the coastal area as a means of minimizing the violence of cyclones and storms. One of the gravest problems caused by sea level rise and by floods and cyclones is increased salinization of ground water. This exacerbates the scarcity of drinking water in the coastal zone. Thus, the dissemination of rainwater-harvesting technologies by governmental and non-governmental organizations is playing a significant role as an adaptation measure. Another mechanism for coping with climate hazards is the introduction of floating agriculture during the flood (monsoon) season. Although this agricultural method is not new in some parts of the coastal area, it is being introduced by different organizations to other parts through training and cross visits.<sup>42</sup>

## 9 Perspectives

Since becoming independent in 1971, Bangladesh has had enormous success in overcoming great difficulties in the form of political clashes and blockades, violence, and army dictatorships. It had made great progress in food production and has established a growing textile sector. The country was not so intensively hit by the financial crises of 2008/2009 as other countries. But the challenges ahead are enormous. The population suffered under fuel and food crises in 2008, will suffer again from these types of crisis in future, and will live in one of the countries affected most by climate change. These problems are huge, as are also the responsibilities and obligations of governments to provide bilateral and multilateral donor aid and for international NGOs to work with their local partners in Bangladesh.

The Bangladesh Prime Minister Sheik Hasina said at the UN Conference at the UN Climate Change Conference in September 2009 in Geneva:

“... my government has adopted a National Climate Change Strategy and a National Plan of Action that aims at sustainable, green development and adapting to climate change ... The principle of common but differentiated responsibility must be upheld. Only then shall we be able to realize a green global economy where sustainable livelihoods of all peoples of the world would remain ensured.”<sup>43</sup>

The term “common but differentiated responsibility” has been used by many other developing countries and by China and India in the international climate since it was first used in the Rio Declaration on

Environment and Development and proclaimed at the UN Conference on Environment and Development 1992.<sup>44</sup> Bangladesh ratified the UN Framework Convention on Climate Change (UNFCCC) in 1994 and very strongly supports the aims of the Kyoto Protocol. With similar words, Chinese President Hu Jintao declared at the same conference 2009: “We will step up effort to develop green economy, low-carbon economy and circular economy, and enhance research, development and dissemination of climate-friendly technologies.”<sup>45</sup> US-President Obama describes in a speech about his “Recovery and Reinvestment Plan” in January 2009 the elements of a stimulus package for creating millions of jobs “in the next few years”, mainly in the areas of energy, education, health and new infrastructure; aiming at “... the creation of a clean energy economy, we will double the production of alternative energy in the next three years.”<sup>46</sup>

These speeches offer proof that the concept of sustainable development and green economy has now reached the center of international environmental policies, in North and South likewise. However, these concepts are waiting for implementation.

## References

1. Rahman, Mustafizur / Iqbal, Md. Ashiq [et al.] (January 2010): Global Financial Crisis Discussion Series, Paper 12: Bangladesh Phase 2, Overseas Development Institute, <http://www.odi.org.uk/resources/download/4719.pdf> (September 9, 2010).
2. World Food Programme (March 2010): Executive Brief Bangladesh, Effects of the Financial Crisis on Vulnerable Households, Follow-up case study, <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp220174.pdf> (September 9, 2010).
3. Rahman, Mustafizur / Iqbal, Md. Ashiq [et al.] (January 2010): Global Financial Crisis Discussion Series, Paper 12: Bangladesh Phase 2, Overseas Development Institute, <http://www.odi.org.uk/resources/download/4719.pdf> (September 9, 2010).
4. World Food Programme (March 2010): Executive Brief Bangladesh, Effects of the Financial Crisis on Vulnerable Households, Follow-up case study, <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp220174.pdf> (September 9, 2010).
5. Press Bangladesh plans \$ 285 mln for stimulus programs in next fiscal year, in Xinhua Agency (June 11, 2010), <http://english.people.com.cn/90001/90778/90858/90863/7021569.html>.
6. Ibid.; Tk 3,424cr stimulus plan rolled out, Front Page Global Recession, in Daily Star (April 20, 2009), <http://www.thedailystar.net/newDesign/news-details.php?nid=84764> (September 9, 2010).
7. Khatun, Fahmida / Nazrul Islam (2010): Policy Agenda for Addressing Climate Change in Bangladesh: Copenhagen and Beyond, Centre for Policy Dialogue, Dhaka, [http://www.cpd.org.bd/pub\\_attach/op88.pdf](http://www.cpd.org.bd/pub_attach/op88.pdf) (September 9, 2010).
8. Center for Strategic & International Studies (December 1, 2009): Bangladesh’s climate change emergency, in Reliefweb Online, <http://www.reliefweb.int/rw/rwb.nsf/db900SID/DKAN-7YBQVL?OpenDocument> (September 9, 2010).
9. Rahman, A. Atiq [et al.] (2007): Risks, Vulnerability and Adaptation in Bangladesh, Occasional Paper, Human Development Report Office, [http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/rahman\\_alam\\_alam\\_uzzaman\\_rashid\\_rabbani.pdf](http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/rahman_alam_alam_uzzaman_rashid_rabbani.pdf) (September 8, 2010).
10. Ibid., p. 67, Community-led solutions: “The starting point for the project has been people’s current livelihood strategies and their local knowledge and observations of climate change and its impacts on agriculture and natural resources. Key to the project is a participatory approach, understanding the existing livelihood system and environmental assets available to the community.”

11. Government of the People's Republic of Bangladesh, Ministry of Environment and Forests (2005): NAPA (National Adaptation Programme of Action), <http://unfccc.int/resource/docs/napa/ban01.pdf> (August 22, 2010).
12. Government of the People's Republic of Bangladesh, Ministry of Environment and Forests (September 2008): Bangladesh Climate Change Strategy and Action Plan 2008, Dhaka, <http://www.sdnbd.org/moef.pdf> (September 9, 2010).
13. Government of the People's Republic of Bangladesh, Ministry of Environment and Forests (September 2009): Bangladesh Climate Change Strategy and Action Plan 2009, Dhaka, revised version, [http://www.moef.gov.bd/climate\\_change\\_strategy2009.pdf](http://www.moef.gov.bd/climate_change_strategy2009.pdf) (September 9, 2010).
14. Government of Bangladesh, Ministry of Environment and Forests (2008): Bangladesh Climate Change Strategy and Action Plan September 2008, p. 8, <http://www.moef.gov.bd/moef.pdf> (September 9, 2010).
15. Government of the People's Republic of Bangladesh, Ministry of Environment and Forests / ILO (July 30, 2008): Workshop on Green Jobs Initiatives in Bangladesh, Organization Venue: SURMA Hall, Hotel Sonargaon, Dhaka, p. 2, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms\\_099401.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms_099401.pdf) (September 9, 2010).
16. Government of the People's Republic of Bangladesh, Ministry of Environment and Forests (2005): NAPA (National Adaptation Programme of Action), <http://unfccc.int/resource/docs/napa/ban01.pdf> (August 22, 2010).
17. Mondal, Abdul H. [et al.] (2010): Skills for green jobs in Bangladesh, Unedited background country study, ILO Skills and Employment Department, p. vii, [http://www.ilo.org/wcmsp5/groups/public/--ed\\_emp/---ifp\\_skills/documents/publication/wcms\\_142299.pdf](http://www.ilo.org/wcmsp5/groups/public/--ed_emp/---ifp_skills/documents/publication/wcms_142299.pdf) (September 9, 2010).
18. Government of the People's Republic of Bangladesh (2005–2006): Key findings of Labour force Survey 2005–06, [http://www.bbs.gov.bd/dataindex/l\\_force\\_05.pdf](http://www.bbs.gov.bd/dataindex/l_force_05.pdf) (September 9, 2010).
19. Government of the People's Republic of Bangladesh, Ministry of Food and Disaster Management (May 2007): National Plan for Disaster Management 2007–2015, Ministry of Food and Disaster Management, p. 40, [http://www.bdresearch.org.bd/home/climate\\_knowledge/cd1/pdf/Bangladeshandclimatechange/Disastermanagement,adaptation/Draft\\_National\\_Plan\\_for\\_Disaster\\_Management.pdf](http://www.bdresearch.org.bd/home/climate_knowledge/cd1/pdf/Bangladeshandclimatechange/Disastermanagement,adaptation/Draft_National_Plan_for_Disaster_Management.pdf) (September 1, 2010).
20. Government of the People's Republic of Bangladesh, Ministry of Labour and Employment / ILO (July 30, 2008): Workshop on Green Jobs Initiatives in Bangladesh, p. 4, Organization Venue: SURMA Hall, Hotel Sonargaon, Dhaka, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms\\_099401.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms_099401.pdf) (September 9, 2010).
21. For further information: Organic farming to protect environment urged, in The Bangladesh Observer Friday (November 26, 2004), [www.bangladeshobserveronline.com/new/2004/11/26/economic.html](http://www.bangladeshobserveronline.com/new/2004/11/26/economic.html) (September 9, 2010); Bangladeshi tea may get place at Harrods, in The New Age (December 2, 2004), [www.newagebd.com/2004/dec/02/busi.html](http://www.newagebd.com/2004/dec/02/busi.html) (September 9, 2010).
22. Government of the People's Republic of Bangladesh, Ministry of Labour and Employment / ILO (July 30, 2008): Concept Note on Green Jobs Initiatives in Bangladesh, p. 5, Organization Venue: SURMA Hall, Hotel Sonargaon, Dhaka, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms\\_099401.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms_099401.pdf) (September 9, 2010).
23. According to a survey by the Bangladesh Tea Board, there are 16,000 hectares of land suitable for tea farming in Panchagarh alone and many more in Thakurgaon; however, only 2,200 acres have so far been brought under tea farming since 2002.

24. UNEP (2008): Towards decent work in a sustainable, low-carbon world, p. 6, Worldwatch Institute for UNEP, [http://www.unep.org/labour\\_environment/PDFs/Greenjobs/UNEP-Green-Jobs-Report.pdf](http://www.unep.org/labour_environment/PDFs/Greenjobs/UNEP-Green-Jobs-Report.pdf) (September 1, 2010).
25. A dairy farm has been established to support the tea plantation by producing organic fertilizer. Cow manure is processed to produce both biogas and fertilizer. At present, the cattle population of the tea company is 2,000 head. By installing its own milk processing plant, the company has been able to produce and distribute organic milk products, such as milk, butter, ghee, cheese, and sweets to the market, see [www.kazitea.com](http://www.kazitea.com) (September 12, 2010).
26. However, the Government of Bangladesh has only recently recognized renewable energy as cost effective and as a sustainable energy source which should be promoted through proper guidelines finalized in its “Renewable Energy Policy of Bangladesh 2008”.
27. Government of the People’s Republic of Bangladesh, Ministry of Labour and Employment / ILO (July 30, 2008): Workshop on Green Jobs Initiatives in Bangladesh, p. 6, Organization Venue: SURMA Hall, Hotel Sonargaon, Dhaka, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms\\_099401.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms_099401.pdf) (September 9, 2010).
28. UNEP, 2008: Towards decent work in a sustainable, low-carbon world, p. 13, Produced by: Worldwatch Institute for UNEP, [http://www.unep.org/labour\\_environment/PDFs/Greenjobs/UNEP-Green-Jobs-Report.pdf](http://www.unep.org/labour_environment/PDFs/Greenjobs/UNEP-Green-Jobs-Report.pdf) (September 1, 2010).
29. Dhaka is already the world’s eighth-largest city and will continue to grow, thus challenging the city with traffic, waste and electricity consumption. Moreover, a significant proportion of Bangladesh’s greenhouse gases are generated there, although the contribution is negligible relative to total emissions worldwide (Alam, Rabbani 2007, p. 81).
30. CNG is a fossil fuel substitute for petrol, diesel or propane fuel made by compressing natural gas to less than 1 % of its actual volume. In comparison to a modern catalyzed gasoline car CNG-operated cars release significantly lower emissions, see Rahman, A. Atiq [et al.] (2007): Human Development Report 2007/2008 – Fighting climate change: Human solidarity in a divided world, Human Development Report Office, Occasional paper, p. 14, [http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/rahman\\_alam\\_alam\\_uzzaman\\_rashid\\_rabbani.pdf](http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/rahman_alam_alam_uzzaman_rashid_rabbani.pdf) (September 11, 2010).
31. The Jakarta Globe (March 27, 2009).
32. A study by the Asian Development Bank ADB showed that the air pollution parameter PM is 60 % less in 2004 than in 2001 in Dhaka, see Government of the People’s Republic of Bangladesh, Ministry of Labour and Employment / ILO (July 30, 2008): Concept Note on Green Jobs Initiatives in Bangladesh, p. 5, Organization Venue: SURMA Hall, Hotel Sonargaon, Dhaka, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms\\_099401.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms_099401.pdf) (September 9, 2010).
33. Government of the People’s Republic of Bangladesh, Ministry of Labour and Employment / ILO (July 30, 2008): Workshop on Green Jobs Initiatives in Bangladesh, p. 5, Organization Venue: SURMA Hall, Hotel Sonargaon, Dhaka, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms\\_099401.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms_099401.pdf) (September 9, 2010).
34. Waste Concern Consultants (February 2009): Preliminary assessment of Green Jobs in 3 sectors: Renewable energy, Waste management and Construction, p. 10, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms\\_107516.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms_107516.pdf) (September 9, 2010).
35. Bangladesh Enterprise Institute (2010): Annex B – Contains an overview case studies of Bangladeshi social enterprises and a survey of Bangladeshi attitudes to social enterprises, in Bangladesh Social Enterprise Project (BSEP), Policy Brief, pp. 29–30, [www.bei-bd.org/downloadreports/view/44/download](http://www.bei-bd.org/downloadreports/view/44/download) (September 9, 2010).

36. Government of the People's Republic of Bangladesh, Ministry of Labour and Employment / ILO (July 30, 2008): Workshop on Green Jobs Initiatives in Bangladesh, p. 7, Organization Venue: SURMA Hall, Hotel Sonargaon, Dhaka, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms\\_099401.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/meetingdocument/wcms_099401.pdf) (September 9, 2010).
37. Waste Concern Consultants (February 2009): Preliminary Assessment of Green Jobs in three sectors: Renewable energy, Waste management and Construction, [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms\\_107516.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms_107516.pdf) (September 9, 2010).
38. Rahman, A. Atiq [et al.] (2007): Human Development Report 2007/2008 – Fighting climate change: Human solidarity in a divided world, Human Development Report Office, Occasional paper, p. 63, [http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/rahman\\_alam\\_alam\\_uzzaman\\_rashid\\_rabbani.pdf](http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/rahman_alam_alam_uzzaman_rashid_rabbani.pdf) (September 11, 2010).
39. Government of the People's Republic of Bangladesh, Ministry of Food and Disaster Management (May 2007): National Plan for Disaster Management 2007–2015, Ministry of Food and Disaster Management, p. 30, [http://www.bdresearch.org.bd/home/climate\\_knowledge/cd1/pdf/Bangladesh\\_andclimatechange/Disastermanagement,adaptation/Draft\\_National\\_Plan\\_for\\_Disaster\\_Management.pdf](http://www.bdresearch.org.bd/home/climate_knowledge/cd1/pdf/Bangladesh_andclimatechange/Disastermanagement,adaptation/Draft_National_Plan_for_Disaster_Management.pdf) (September 1, 2010).
40. Ibid. p. 37.
41. Friedman, Lisa, 2009: How Bangladesh is Preparing for Climate Change, in *Scientific American*, <http://www.scientificamerican.com/article.cfm?id=bangladesh-prepares-for-climate> (September 9, 2010).
42. Ibid. p. 38.
43. Hasina, Sheikh (September 22, 2009): UN Summit on Climate Change Statement by Her Excellency Hon'ble Prime Minister Government of the People's Republic of Bangladesh, <http://www.un.org/webcast/pdfs/climatechangesummit/bangladesh.pdf> (September 9, 2010).
44. UN Conference on Environment and Development (1992): Rio Declaration on Environment and Development, <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163> (September 22, 2010).
45. Hu, Jintao (September 22, 2009): President Hu Jintao Delivers a Speech at the Opening Session of the UN Summit on Climate Change, <http://www.china-un.org/eng/hyyfy/t605738.htm> (September 9, 2010).
46. President-elect Barack Obama on His American Recovery and Reinvestment Plan, in *U.S. News* (January 8, 2009), <http://politics.usnews.com/news/stimulus/articles/2009/01/08/president-elect-barack-obama-on-his-american-recovery-and-reinvestment-plan.html?PageNr=4> (September 4, 2010).



## 6 Conclusions: Risks, the Green New Deal, and Green Governance – Lessons from South and East Asia

*Dieter Reinhardt and Anja Senz*

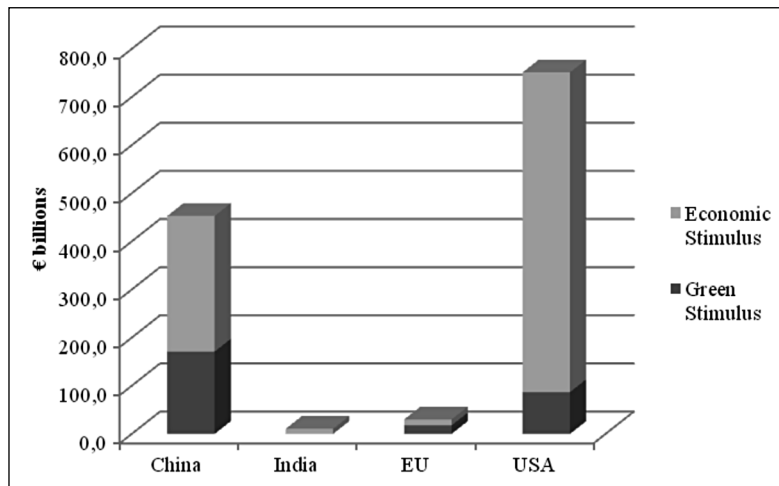
The recent international political process for dealing with the crucial challenges of our day – above all climate change and the instable financial system – has led to some positive results but also to dramatic weaknesses. The decisions arrived at in December 2009 by the Copenhagen Climate Change Conference regarding the post – Kyoto protocol were a signal of stagnation. The massive international stimulus packages of 2009 and 2010 aimed at countering financial crises and preventing worldwide recession were mostly successful in the short run; but the mid-term effects of the heavy burden of debt of many states in handling the financial crises remain unclear, and an effective global system for controlling risky financial transactions has yet to be implemented. With the exception of China and South Korea, only a few nations have seized the opportunity for combining stimulus packages with the promotion of green economic development (see Table 1 below).

These events provide clear confirmation for the assumptions of the concept of “risk society”. This term, originally applied to industrialized countries, is also transferrable to developing countries (see the contribution of Karen Shire in this volume). One characteristic of such “risk societies” can be seen in a growing, problematic interconnection of large processes of market transformation, political decentralization, transnationalisation, individualization, and the concomitant shift of responsibilities away from the state to the market, the individual, lower government levels, or a supra-state level. A fact already evident today is that man-made risks with wide-ranging implications are being created, but only weak structures for managing and overcoming them exist. The disaster management of the 2010 flood catastrophe in Pakistan is an example of the inadequacy of local and international institutions to deal with huge natural disasters. The Gulf Coast Oil Spill Disaster of 2010 and the smaller – but also serious – oil accident in the north-eastern Chinese port of Dalian are examples of technical disasters caused by the high-risk policies of multinational energy companies and a lack of governmental supervision. The destructive effects of natural hazards in China, India and Bangladesh will certainly be intensified in future by climate change, which will also hamper or endanger poverty reduction policies. The same is true for globally induced effects of economic slowdowns, e.g. the financial crises that have not only hit the three countries just mentioned in different ways but have also had a negative effect even on China and India, the stars of economic growth, with regard to their poverty alleviation attempts.

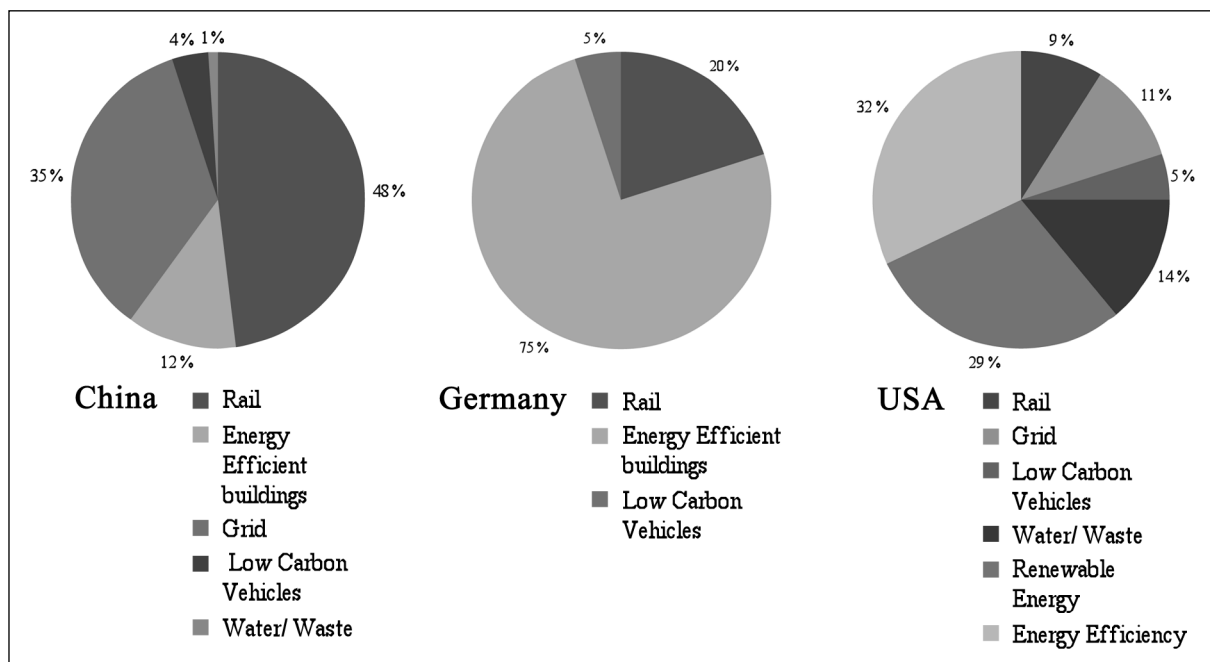
The aim of the old concept of sustainable development – and the rather new ideas of Green Economy, the so called “New Great Deal” and Green Governance which are very much related to this concept – was to transform risk societies into risk-avoiding and risk-resistant societies and states. The UN Rio Declaration on Environment and Development of June 1992, a key document for environmental, poverty reduction and development policies in the last two decades, defined sustainable development as follows:

“In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it [...] All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development [...] States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities ...”<sup>1</sup>

UN agencies, NGOs and some governments are committed to a policy which evaluates measures against climate change or environmental degradation on the one hand and poverty reduction and economic growth on the other hand as two sides of one coin in order to reduce man-made risks. This perspective envisions a new form of economic growth which takes into account the high price of using and destroying natural resources in order to prevent climate change, protect or restore bio-diversity, overcome poverty, and create opportunities for participation of the poor in this process. Robert Zoellick, the World Bank President, said in the World Development Report 2010: Development and Climate Change that the World Bank’s mission is “inclusive and sustainable development.”<sup>2</sup> Thus the bank is in favor of

**Table 1: The economic stimulus package and its green elements (2009)**

Source: Robins, Nick / Clover, Robert / Singh, Charanjit (2009): A Climate for Recovery, HSBC Global Research, London.

**Table 2: Green stimulus spending per sector (2009)**

Source: UNEP (September 2009): Global Green New Deal, <http://www.unep.org/greeneconomy/LinkClick.aspx?fileticket=ciH9RD7XHwc%3d&tabid=1394&language=en-US> (September 9, 2010).

a “veritable energy revolution with the immediate deployment of energy-efficient, available low-carbon technologies, accompanied by massive investments in the next generation of technologies without which low-carbon growth cannot be achieved.”<sup>3</sup>

The concepts of Green Economy and New Great Deal are recent steps taken in the development of sustainable development policies and have been pushed prominently since the end of 2008 by UNEP.<sup>4</sup> These approaches have been widely accepted not only inside the UN but also by some industrialized countries and emerging market economies like South Korea. The idea of using economic stimulus packages to overcome financial crises and simultaneously promote green policies fits very well with the basic ideas of both concepts. Globally, the Green New Deal stands for “reviving the global economy and boosting employment while simultaneously accelerating the fight against climate change, environmental degradation and poverty.”<sup>5</sup> UN Secretary General Ban Ki-moon shares this view: “A big part of that spending should be an investment – an investment in a green future. An investment that fights climate

change creates millions of green jobs and spurs green growth. We need a Green New Deal. This is a deal that works for all nations, rich as well as poor.”<sup>6</sup>

US-President Obama’s describes in a speech about his “Recovery and Reinvestment Plan” in January 2009 the elements of a stimulus package for creating millions of jobs “in the next few years”, mainly in the areas of energy, education, health and new infrastructure.<sup>7</sup> Aiming at “... the creation of a clean energy economy, we will double the production of alternative energy in the next three years.” At a meeting with Indian Prime Minister Singh, Obama said: “I commended the Prime Minister for India’s leadership in areas like green buildings and energy efficiency, and we agreed to a series of important new efforts: a clean energy initiative that will create jobs and improve people’s access to cleaner, more affordable energy; a green partnership to reduce poverty through sustainable and equitable development; and an historic effort to phase out subsidies for fossil fuels.”<sup>8</sup> The Chinese President Hu Jintao declared at the UN September 2009: “We will step up effort to develop green economy, low-carbon economy and circular economy, and enhance research, development and dissemination of climate-friendly technologies.”<sup>9</sup> And the Bangladesh Prime Minister Sheik Hasina said “... my government has adopted a National Climate Change Strategy and a National Plan of Action that aims at sustainable, green development and adapting to climate change.”<sup>10</sup> The government of South Korea has been praised widely for its green policy, and Prime Minister Lee Myung-bak said “The Green New Deals are a strong expression of the government’s will to exert all its efforts to ease people’s pain and create jobs.”<sup>11</sup> These speeches, hold before the Copenhagen conference (Conference of the Parties / COP 15) about the post-Kyoto process, offer proof that green is now becoming a central color of the international mainstream in political speeches.

The term of Green Governance is seldom used in political and academic debates, and then mostly with an undefined, metaphorical meaning rather than as a clear concept involving policies and coordination mechanisms aimed at environmental and climate change issues. However, the term, based on a comprehensive and detailed concept, can be an element for analyzing policies which seek to transform risk societies into risk-avoiding and risk-resistant societies and states. Thus, the term should be used to describe the extent to which national political processes and institutions are capable of and committed to the implementation of principles, norms and procedures as well as to established agreements, conventions and international treaties that constitute the backbone of sustainable development.

Green Governance, as already mentioned in the introduction to this volume, should be based on a set of environmental policy instruments, namely:

- a) The enactment of laws and regulations for environmental protection and the use of incentives to ensure that national economies meet the standards of a green economy (i. e. sustainable use of resources, clean technologies, and investments in “green jobs”).
- b) Educating and informing citizens about environmental protection and raising awareness for the dangers of environmental degradation and climate change.
- c) Implementation of environmental/economic laws and standards through adequate administration and coherence between different policy fields.
- d) Regulations and procedures for effective management of natural and man-made disasters and resources for recovery, including allocation of resources and the capacity to transfer them quickly to areas of need.

One precondition for the use of these instruments is, of course, a high level of risk perception and the political will by state and private actors to implement decisions regarding sustainable development.

Governance structures can differ in the number and types of the actors involved. In general, three basic modes can be distinguished: (a) coordination by leadership and authority, (b) consensus-oriented cooperation, (c) constant bargaining processes and competition. A combination of these modes of governance is also possible. Some structures are based on a multi-stakeholder form of cooperation which unites a government and its administration with private actors (i.e. the business sector and civil society) and donors. The result is a complex cooperative structure. Other governance structures may be based mainly

on the nation state as the main actor.<sup>12</sup> The extent of regional and international cooperation is another aspect for distinguishing and characterizing governance structures.

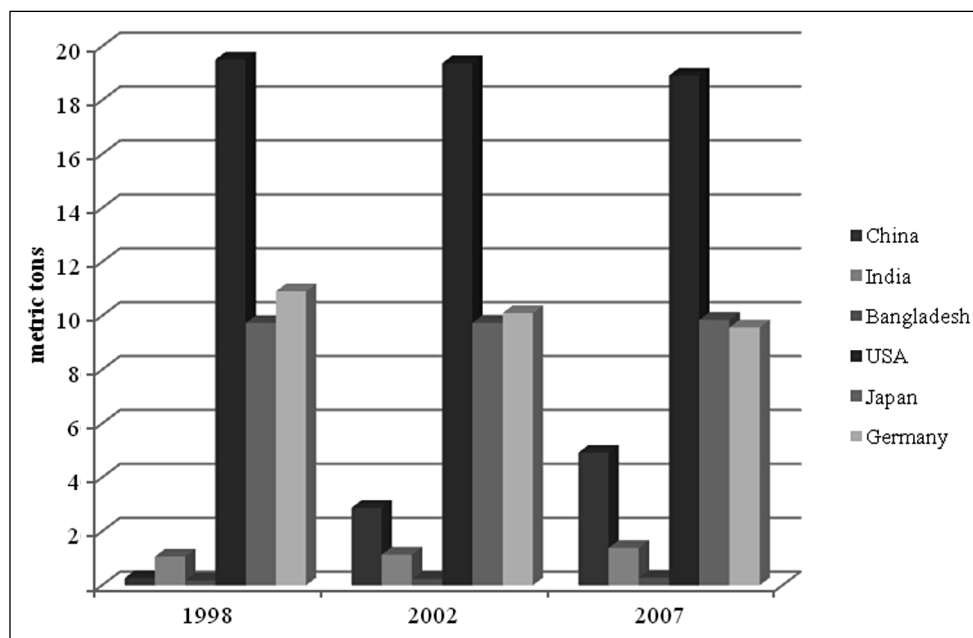
## 1 Differences and Similarities

In order to compare Green Governance structures in China, India and Bangladesh, it will be useful to take a) risk perception and political will, b) the governance mode, along with forms of regional and international cooperation, and c) the four instruments mentioned above as criteria. This procedure provides valuable insights into policy successes and failures in each country.

China and India, representing one third of mankind, are increasingly influential global players in the economic and political arenas. Each has a very dynamic, strong and modern market sector, but in each the huge majority of the population depends directly on agriculture. Although the two political systems are totally different, the richer city populations of both countries have similar aims, lifestyles, and patterns of consumption. Bangladesh, on the other hand, is a developing, low-lying delta country whose 156 million inhabitants must already deal with the massive impacts of climate change and will continue to do so in future. The UNDP's Human Development Index, based on per capita income and socio-economic factors like education, health and life expectancy, ranks Norway 1st (HDI 0.971 out of a possible 1.0), China 92nd (0.772), India 134th (0.612), Bangladesh 146th (0.543), and Niger last (183rd; 0.340).<sup>13</sup>

The governments of China, India and Bangladesh differ widely regarding their political and social systems, the competency of their state administrations in each case, the impact of civil society on national policies, and the outcomes of governance processes. While the state is the main actor with regard to environmental issues in China and civil society has a crucial function in India, international donors are very important and influential actors in Bangladesh in addition to civil society. China, India and Bangladesh, which are at different levels of economic development, have different levels of per capita carbon dioxide (CO<sub>2</sub>) emissions and hence set different priorities with regard to internationally coordinated climate change policies (see Table 3 below).

**Table 3: CO<sub>2</sub> emissions per capita (1998, 2002 and 2007)**



Source: United Nations / MDG Indicators: Carbon dioxide emissions (CO<sub>2</sub>), <http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=751&crd=> (September 9, 2010).

While Bangladesh is in favor of a strict Post-Kyoto agreement and is demanding compensation for climate change-induced damages from the industrialized countries, India and China stress the liability of the developed countries without denying their own responsibilities regarding climate change and the obligation to reduce emissions. Despite these differences, there is an ongoing mutual exchange of posi-

tive experiences and information about green governance projects among these three countries. Due to their successful economic development, China and India are now recognized as international players regarding negotiations to mitigate climate change. The artificial term “Chindia” not only articulates the mutual and complementary developments and characteristics of the two countries but is also a reference to the similar interests that the countries share and might be willing to pursue jointly in future.<sup>14</sup> In contrast to both, Bangladesh is extremely dependent on international, multilateral and bilateral donor policies. Although already heavily affected by climate change, the country cannot be seen as an influential actor in international negotiations on climate change.

Nevertheless, despite many differences, all three countries are closely ranked in the recently published Environmental Performance Index 2010 (EPI). The EPI regularly evaluates environmental conditions in the states of the world based on 25 indicators tracked across ten categories covering both environmental health and ecosystem vitality, and lists 163 countries altogether. In 2010, Iceland had the best ranking, while China was in 121st place, India 123rd, and Bangladesh 139th.<sup>15</sup> Hence all three countries suffer from heavy environmental degradation.

**Table 4: Environmental Performance Index (2010)**

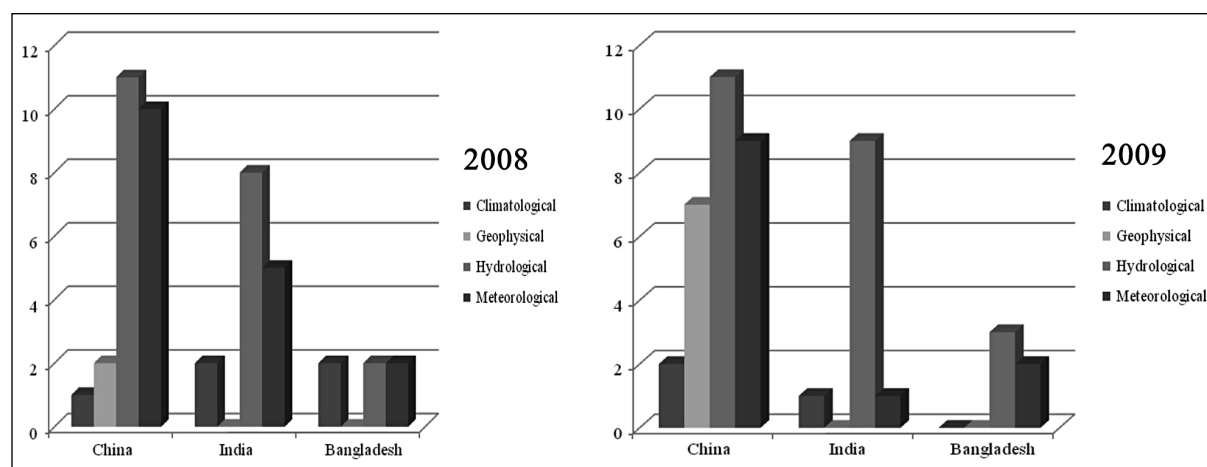
Rank	Country	Score
1	Iceland	93,5
17	Germany	73,2
20	Japan	72,5
61	USA	63,5
121	China	49,0
123	India	48,3
139	Bangladesh	44,0
163	Sierra Leone	32,1

The Environmental Performance Index is based on 25 performance indicators tracked across ten policy categories covering environmental health (water [effects on humans], air pollution [effects on humans] and the environmental burden of disease) and ecosystem vitality (forestry, fisheries, agriculture, climate change, air pollution [effects on the ecosystem], water [effects on the ecosystem] and biodiversity and habitat). 100 is the highest possible score. With an EPI score of 93,5 Iceland achieved the highest rank in the world in 2010, Sierra Leone the least rank.

Source: Yale University/ Columbia University: Countries Scores, <http://epi.yale.edu/Countries> (September 9, 2010).

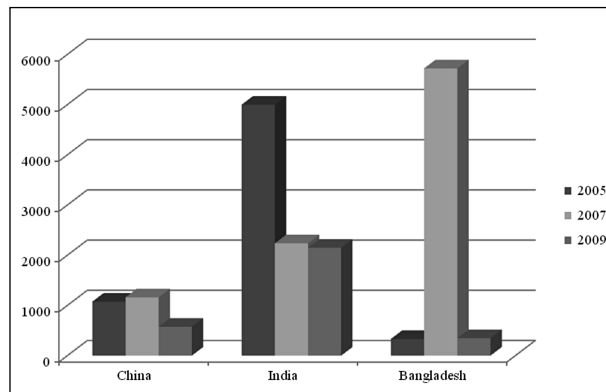
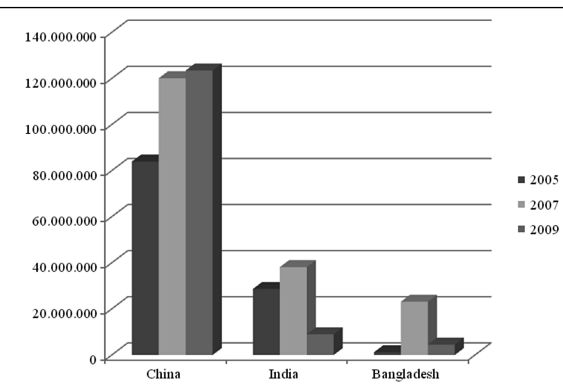
What is more, Bangladesh, China and India are already faced today by the heavy impacts of climate change. Thus they have to deal with extreme natural hazards that have a highly destructive potential, which will increase even more if climate change continuous. The three years 2005, 2007, and 2009 present a mixed picture regarding those killed or affected by natural hazards due to the abruptness of natural disasters. However, the fact remains that a remarkable and distressing number of people in these three countries have lost their lives or their basis of livelihood in the last years (see Tables 5, 6, 7).

**Table 5: Natural hazards\*: Reported events in 2008 and 2009**



\*Natural hazards include meteorological (storm, e.g. tropical cyclone, local storm, etc.), hydrological (flood, e.g. general flood, flash flood, etc.; mass movement (wet), e.g. rockfall, landslide, etc.), geophysical (earthquake; volcano; mass movement (dry), e.g. rockfall, landslide, etc.), climatological (extreme temperature, e.g. heat wave, cold wave, etc.; drought; wildfire, e.g. forest fire, land fire) impacts.

Source: Vos, Femke / Rodriguez, Jose / Below, Regina / Guha-Sapir, D. (2010): Annual Disaster, Statistical Review 2009, [http://cred.be/sites/default/files/ADSR\\_2009.pdf](http://cred.be/sites/default/files/ADSR_2009.pdf) (September 9, 2010).

**Table 6: Number of people killed by natural hazards\* (2005, 2007 and 2009)****Table 7: Number of people affected by natural hazards\* (2005, 2007 and 2009)**

Source: Centre for Research on the Epidemiology of Disasters (CRED): Disaster List, <http://www.emdat.be/disaster-list> (September 9, 2010)

## 2 Degree of risk perception and political will by state and private actors

China ratified the UN Framework for Climate Change Convention (UNFCCC) in 1993 and the Kyoto protocol in 2002. The government is giving high priority to the problems of environmental degradation, to climate change, and to the growth of greenhouse gases (GHG) in its foreign and domestic policy. UN-DEP praised China because of its high percentage level of green investment in the stimulus package which it put together to overcome the financial crises in 2009.<sup>16</sup> But the Chinese government also argues that a developing country like China cannot reduce its GHG emissions to the same extent as an industrialized country. What is more, China advances the view that due to the emissions of industrialized countries during the process of industrialization over the last two hundred years, the developed world has a far greater obligation to reduce GHG emissions than countries like China. But even if the main responsibility for reducing greenhouse gases (GHG) therefore lies with industrialized countries, the Chinese government clearly perceives the risks of climate change and is willing to act, as Chen Yugang points out in his contribution to this volume, in which he describes the many different programs launched by the Chinese party-state in the last few years.

The ability of the Chinese party-state to manage environmental disasters or financial crises is an important issue for preserving the stability of the country. Hence the enormous stimulus package of nearly 460 billion Euros launched in 2009 was a fast reaction by the Chinese government to potential problems that might be aroused by the financial crises.<sup>17</sup> It was successful in so far as a further increase of unemployment and widening income disparities could be avoided, as Yang Long has pointed out in his paper, and thus, these measures against the first serious economic slowdown in the last thirty years successfully prevented China from falling into social instability. Social improvements like investments in social security also played an important role in this regard, even if the major social challenges resulting from the economic dynamics of the reform era still remain unsolved. Thus, as one can conclude from Yang Long's paper, the party-state has proven its ability to steer the country's course regarding problems created by financial crisis and has initiated measures aimed at preserving the country's confidence in both the market and the current political system.

Like China, India is actively taking part as an important player in international environmental politics. India is pushing the concept of taking per capita GHG emissions as the central criterion of international burden-sharing, and disapproves of calculations involving the emissions of country as a whole. As Dinoo Mathew shows in her paper, India is willing to engage in global environmental politics and perceives climate change as an urgent topic since large parts of India suffer already today from the initial effects of climate change.

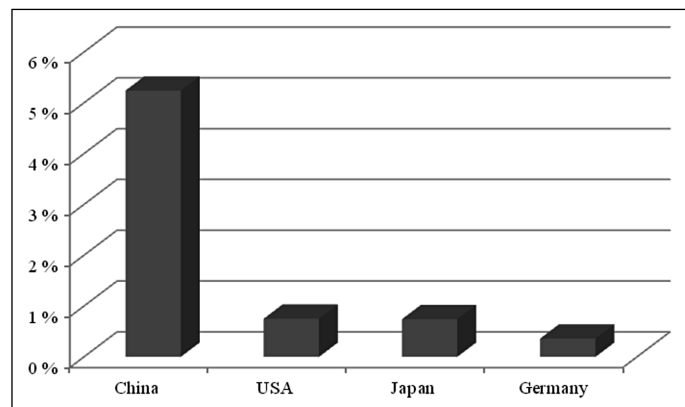
As Ash Roy also points out in this volume, India has been affected much less than China by the financial crises due to significantly less dependence on exports and a very stable bank sector, which was not involved in speculative financial products. Accordingly the Indian government announced a stimulus package of around 10 billion Euros in 2009; if tax cuts are taken into account, the package amounted to

around 55 billion Euros. In both cases, however, only a very small part of the two countries' packages were allotted for a green economy.<sup>18</sup>

Bangladesh ratified the UN Framework Convention on Climate Change (UNFCCC) in 1994 and is very much supporting the aims of the Kyoto Protocol. In view of the sheer size of China and India and the economic weight of both countries, Bangladesh is a relatively unimportant actor in the international arena. However, climate change, as Dil Rowshan article describes in this volume, and environmental degradation have a much higher impact in Bangladesh than in India and China inasmuch as the agriculture of Bangladesh is carried out in a huge delta system, meaning that the whole coastal region and the urban settlements are extremely affected by any change in sea level, the frequency of cyclones, and the time and extent of the monsoon season. Since Bangladesh faces many development problems, its population is mostly not well prepared to overcome natural disasters and thus very often suffers seriously from them. Precisely because the country is heavily affected by environmental issues, the political will to improvement is pronounced. However, Bangladesh faces major challenges due to weak central and local capacities for implementation and the inability to spend huge amounts of money with regard to a green economy. The 1990 cyclone in Bangladesh, which killed 200,000 people, prompted the construction of cyclone shelters and a new early warning system. With regard to the global financial crisis, Bangladesh was affected through a downturn in international trade. Consequently the government allocated a stimulus packages in the financial year 2010/2011 with an amount of 215 million Euros; the first package for 2009/2010 was about 530 million Euros. 61 % of these 530 million were used in the agricultural sector (subsidies, credits and other instruments).<sup>19</sup>

The UNEP has called on the G20 to engage in a Global Green New Deal by investing at least 1 % of their respective total GDPs in green economy. In this regard, however, only China has allotted a relevant amount. Interestingly this percentage was even higher than that targeted for green issues in industrialized countries like the USA, Germany and Japan in 2009 (see Table 8 below).

**Table 8: Green fund\* as percentage of total GDP (August 2009)**



\*Green fund includes clean technologies, renewable energy technologies (wind, solar, geothermal, etc.), green transportation (hybrid vehicles, high speed rail, etc.), green buildings (energy efficiency in old and new buildings), sustainable forests and agriculture (organic production).  
Source: Robins, Nick / Clover, Robert / Singh, Charanjit (2009): A Climate for Recovery, HSBC Global Research, London.

### 3 Modes of governance and regional and international cooperation

While China's economic system is already very close to a market system, its political system is still authoritarian and thus dominated by the CCP and a centralized administration; however, due to reforms and the policy of opening, individual freedoms and social activities have increased in the last two decades. Thus, in the field of environmental policy local initiatives are active in investigating ecological problems and doing a kind of advocacy work for environmental protection. Even though civil society organizations and companies are becoming active, however, it is still the party-state which is to be understood as the leading actor with regard to setting agendas, formulating and implementing policies, monitoring compliance, and providing information. Even if poverty reduction and a rise in living standards for the majority of the population are important factors for acceptance of the political system by

the populace, political legitimacy is no longer regarded as purely based on economic development; however, inasmuch as positive economic results contribute to a large extent to the stability of the system, the governments at the different state levels are interested in ensuring that economic development not be “endangered” by environmental protection measures, as Anja Senz has argued in her paper.

Political legitimacy in India, on the other hand, is usually defined very differently. In the eyes of the political mainstream, democracy does not emerge subsequently to a high degree of development but rather as a precondition for development, as Ash Roy has argued in his contribution to this volume. In preventing famines, national and international NGOs in India are intensively involved in campaigning and advocacy work, policy planning and implementation. They are partners and sometimes opponents of the state’s administration.

In Bangladesh, as in India, the NGO-sector is very influential, even more so than in India. But in Bangladesh bilateral and multilateral donors have much more functions in all aspects of economic development and to some extent for the political process than in India. Thus, in Bangladesh multilateral and national donors have an extremely strong influence on development policies, since a high percentage of the state budget is financed by donor aid. National and international NGOs, which cooperate closely with donors in some areas and sometimes oppose them in others, have an important influence on government policies. Consequently many different national and international actors are involved in the politics of Bangladesh. This is indicated by the fact that the Bangladesh Government in 2008 set up a National Steering Committee on Climate Change in which not only the Ministry of Environment and Forest and several other Ministries but also representatives from civil society and private business are members.<sup>20</sup>

With regard to regional and international cooperation, India joined China, Brazil and South Africa in December of 2009 in forming the “BASIC-Group”, which aimed to adjust the positions of the respective countries in negotiating post-Kyoto processes during the Copenhagen Summit. The Group opposed any legally binding emission caps for new market economies, as Dinoo Mathew has explained in this volume. Moreover, India and China signed a “Memorandum of Understanding” to establish regular exchanges about climate change issues on the ministerial and expert level. Hence, the countries are more and more willing to jointly engage in multilateral mechanisms in order to articulate their interests and push forward their ideas. Within the framework of the South Asian Association for Regional Cooperation (SAARC), India and Bangladesh are trying to streamline their activities in the post Kyoto-process and to address other issues of international environment policy. Even if climate change is a global issue, regional initiatives are very important; thus the SAARC plays a role in consultations about ways to mitigate climate change. But although climate change is a topic discussed in these cooperation activities, several unsolved and massive security policy issues in South Asia are major obstacles against greater joint efforts, as Dalem Barman has argued in his article. Decades-long water-sharing disputes between India and Bangladesh, as in the case of the Farakka, are still unresolved, as Dil Rowshan has noted in her paper in this volume.

#### **4 Use of environmental policy instruments**

In comparison to other East Asian countries a large amount of money in the massive Chinese stimulus package was earmarked for green issues. What is more, China has enacted many environmental laws and regulations in the last decades in order to reduce GHG and to systemically increase the use of renewable energy. In the first issue of China’s National Climate Change Programme 2007, which was formulated by the powerful National Development and Reform Commission, an intensive reform of the energy sector was announced in addition to other measures.<sup>21</sup> President Hu Jintao said at the UN Climate Change Conference in September 2009 that China will “integrate actions on climate change into its economic and social development plan” on four levels:

“First, China will intensify efforts to conserve energy and improve energy efficiency, and endeavor to cut carbon dioxide emissions per unit of gross domestic product (GDP) by a notable margin by 2020 from the 2005 level [...] Second, we will vigorously develop renewable energy and nuclear energy. We will endeavor to increase the share of non-fossil fuels in primary energy consumption to around 15 % by



2020 [...] Third, China will energetically increase forest carbon sink and endeavor to increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion cubic meters by 2020 from the 2005 levels [...] Fourth, we will step up effort to develop green economy, low-carbon economy and circular economy, and enhance research, development and dissemination of climate-friendly technologies.”<sup>22</sup>

But while the central level is very active in setting environmental standards, China faces serious implementation problems at the local government levels. With regard to information provided in China about environmental issues, one may note that the media are reporting regularly about environmental issues and that the Internet is an increasingly important source of information as well, even if the flow of information is generally still controlled by the government. However, China lacks effective institutions for implementing and monitoring compliance with environmental policies.<sup>23</sup> This is also true for the management of natural disasters, since the country is still in a process of institution-building and needs to establish more effective and clear rules and procedures for catastrophe management.

The first Indian National Action Plan on Climate Change was passed by the government in 2008 and stated that a high economic growth rate would be the precondition for an intensive environment policy; however, it ignored the special situation of women and other social groups, as Dinoo Mathew has convincingly shown in her article in this volume.<sup>24</sup> But the plan named several relevant National Missions for solar energy, energy efficiency, sustainable habitat, clean and sufficient water, the Himalayan ecosystem, “Green India”, sustainable agriculture, and strategic knowledge for climate change, as Ash Roy has also explained in his paper. Energy efficiency is seen as a core aspect of urban planning in India. To overcome water scarcity caused by climate change, the plan envisions a 20 % improvement in water use efficiency along with a changed price policy. Biodiversity in the Himalayan region is another important topic of discussion, since glaciers are an important source of India’s water supply but are endangered by climate change. New climate-resilient crops and the expansion of weather insurance systems are foreseen by the plan as measures for coping with climate change in agriculture. Since civil society in India is very active, many good examples for social initiatives can be found as illustrations of how the fight against poverty can be combined with the battle against climate change.

The Bangladesh Climate Change Strategy and Action Plan 2008 is a comprehensive plan in which the government has set up new institutions and defined six pillars: 1) food security/social protection/health, 2) disaster management, 3) infrastructure, 4) research, 5) regulation of carbon emissions, and 6) capacity building (see the contributions by Dil Rowshan and I piv / Reinhardt in this volume). In the case of Bangladesh, however, implementation on the local level is very weak and tends to stand in the way of any consistent plan. The plan has however been strongly supported by the British government and the EU. The plan aims – among other things – to stabilize the social system for the poorest and most vulnerable part of the population, especially women and children, to build effective cyclone shelters and improve urban drainage, and to integrate a reduction of GHG emissions into development programs in the next decades. The plan announced that these steps “will be an integral part of national development policies, plans and programs.”<sup>25</sup> A big future task is to build an effective implementation administration and to integrate more environment issues in education. Some progress has been made in disaster management and early warning systems.

## 5 Perspectives

To summarize, the results of and prospects for Green Governance structures and policies in the three countries discussed here are very ambivalent. The biggest risk however is that different risks may be mutually reinforcing. Future economic shocks, environmental degradation, the effects of climate change, and natural and technical disasters can reinforce each other. Such a risk-accumulation would not only cause social disintegration but also call into question or even threaten the political legitimacy of the authoritarian government in China; it might also constitute a major challenge to the systems in India and Bangladesh. Political and socio-economic tensions in the diverse, multiethnic and multi-faith culture of India also contain a high potential for violence, political radicalization and security problems. What is more, even emerging countries that have seen continuous economic development on a high level in

the last decade, like India and China, are seriously threatened by a financial crisis, since economic slowdowns negatively affect their attempts at poverty reduction.<sup>26</sup> These crises also affect Bangladesh seriously via the trade.<sup>27</sup>

To what extent these risks can be avoided depends on the next steps each country will take and the readiness of international donors and organizations to assist these governments. The results and prospects of Green Governance structures and policies in these three countries are ambivalent as yet, but positive steps can be seen. In all three countries, environmental degradation and climate change is of growing importance for government policies. While the implementation of sometimes ambitious environmental laws is often weak, there is at least a growing political awareness that it is necessary to combine economic development and environmental protection. What is more, good examples can be found in all three countries of environmentally friendly technologies adjusted for the respective local conditions. One example: biogas techniques, which can be used on a community basis and in a decentralized manner without extensive scientific knowledge. Again, the manufacturing sector can be a relevant factor if certain environmentally friendly products are fabricated and employment is positively influenced, as the example of Chinese solar technology shows. While the positive development of China and India has given them resources for managing risks, Bangladesh will remain heavily dependent on foreign assistance in the medium-to-long term and correspondingly dependent on donor policies.

The Bangladesh Prime Minister Sheikh Hasina recently formulated a key message and a common goal, saying that we shall "... be able to realize a green global economy where sustainable livelihoods of all peoples of the world would remain ensured."<sup>28</sup> Thus, global risks can only be tackled by joint responsibility and global action.

## References

1. UN Conference on Environment and Development (1992): Rio Declaration on Environment and Development, <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163> (September 22, 2010).
2. World Bank (2009): World Development Report 2010: Development and Climate Change, Washington, p. xiii, [www.worldbank.org/wdr2010](http://www.worldbank.org/wdr2010) (September 9, 2010).
3. Ibid. p. xx.
4. For further information: Barbier, Edward (April 2010): How is the Global Green New Deal going?, in *nature*, Volume 464, No. 8, pp. 832–833, <http://www.nature.com/nature/journal/v464/n7290/pdf/464832a.pdf> (August 23, 2010), in Barbier, Edward B. (May 2009): A Global Green New Deal Rethinking the Economic Recovery; Steiner, Achim / Sukhdev, Pavan (2010): Why the World Needs a Green New Deal, in 'QFinance'-Online, <http://www.qfinance.com/macroeconomic-issues-viewpoints/why-the-world-needs-a-green-new-deal?page=1> (September 8, 2010).
5. UNEP (September 2010): Global Green New Deal, an Update from the G20 Pittsburgh Summit, p. 1, [http://www.unep.org/pdf/G20\\_policy\\_brief\\_Final.pdf](http://www.unep.org/pdf/G20_policy_brief_Final.pdf) (August 25, 2010).
6. Secretary-General Ban Ki-moon (December 11, 2008): Opening Statement to the High Level Segment of the United Nations Climate Change Conference, Poznan, Poland, [http://unfccc.int/files/meetings/cop\\_14/statements/application/pdf/cop\\_14\\_statement\\_ban\\_ki-moon.pdf](http://unfccc.int/files/meetings/cop_14/statements/application/pdf/cop_14_statement_ban_ki-moon.pdf) (August 29, 2010); see also Secretary-General Ban Ki-moon (January 29, 2009): Ban urges leaders at Davos to forge 'Green New Deal' to fight world recession, World Economic Forum in Davos, Switzerland, UN News Centre, <http://www.un.org/apps/news/story.asp?NewsID=29712&Cr=Ban&Cr1=Climate+change#> (August 28, 2010).

7. President-elect Barack Obama on His American Recovery and Reinvestment Plan, in U.S. News (January 8, 2009), <http://politics.usnews.com/news/stimulus/articles/2009/01/08/president-elect-barack-obama-on-his-american-recovery-and-reinvestment-plan.html?PageNr=4> (September 4, 2010)
8. The White House, Office of the Press Secretary (November 24, 2009): Remarks by President Obama and Prime Minister Singh of India in Joint Press Conference, East Room, <http://www.whitehouse.gov/the-press-office/remarks-president-obama-and-prime-minister-singh-india-joint-press-conference> (September 9, 2010).
9. Hu, Jintao (September 22, 2009): President Hu Jintao Delivers a Speech at the Opening Session of the UN Summit on Climate Change, <http://www.china-un.org/eng/hyyfy/t605738.htm> (September 9, 2010).
10. Hasina, Sheikh (September 22, 2009): UN Summit on Climate Change Statement by Her Excellency Hon'ble Prime Minister Government of the People's Republic of Bangladesh, <http://www.un.org/webcast/pdfs/climatechangesummit/bangladesh.pdf> (September 14, 2010).
11. Myung-bak, Lee (January 14, 2009): Korea to Launch 'Green New Deal', in E-Wire PRESS RELEASE, Vancouver, British Columbia, [http://www.ewire.com/display.cfm/Wire\\_ID/5133](http://www.ewire.com/display.cfm/Wire_ID/5133) (September 9, 2010).
12. For the concept of governance see Kooiman, Jan (ed., 1993): *Modern Governance, New Government-Society Interactions*, London, Newbury Park, New Delhi: SAGE.
13. UNDP (2009): Human Development Report 2009 – HDI rankings, <http://hdr.undp.org/en/statistics/> (September 9, 2010).
14. The former MP of the Indian Parliament Jairam Ramesh created the term: Ramesh, Jairam (2005): *Making Sense of Chindia: Reflections on China and India*.
15. Yale, University/ Columbia University (2010): Environmental Performance Index 2010, Countries Scores, <http://epi.yale.edu/Countries> (September 9, 2010).
16. Barbier, Edward, B. (2009): *Rethinking the Economic Recovery: A Global Green New Deal*, report prepared for the Economics and Trade Branch, Division of Technology, Industry and Economics, United Nations Environment Programme 2009, <http://www.unep.org/greeneconomy/portals/30/docs/GGND-Report-April2009.pdf> (September 8, 2010).
17. For further information: Robins, Nick / Clover, Robert / Singh, Charanjit (2009): *A Climate for Recovery*, HSBC Global Research, p. 2, London.
18. Ibid.; Einhorn, Bruce (January 25, 2010): *India & China: Who Needs a \$586 Billion Stimulus, Anyway?*, in Bloomberg Businessweek, [http://www.businessweek.com/globalbiz/blog/eyeonasia/archives/2010/01/india\\_china\\_who\\_needs\\_586\\_billion\\_stimulus\\_anyway\\_correct.html](http://www.businessweek.com/globalbiz/blog/eyeonasia/archives/2010/01/india_china_who_needs_586_billion_stimulus_anyway_correct.html) (September 14, 2010).
19. Tk 3,424cr stimulus plan rolled out, Front Page Global Recession, in Daily Star (April 20, 2009), <http://www.thedailystar.net/newDesign/news-details.php?nid=84764> (September 9, 2010).
20. Government of the People's Republic of Bangladesh, Ministry of Environment and Forests (September 2008): *Bangladesh Climate Change Strategy and Action Plan 2008*, p. 28, <http://www.moef.gov.bd/moef.pdf> (September 9, 2010).
21. People's Republic of China, National Development and Reform Commission (June 2007): *China's National Climate Change Programme*, <http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File188.pdf> (September 9, 2010).
22. Hu, Jintao (September 22, 2009): President Hu Jintao Delivers a Speech at the Opening Session of the UN Summit on Climate Change, <http://www.china-un.org/eng/hyyfy/t605738.htm> (September 9, 2010).

23. Heberer, Thomas / Senz, Anja (2010, in print): Environmental Governance: Institutional Deficits and Local Flexibility, in *Journal of Current Chinese Affairs*.
24. Government of India (2008): National Action Plan on Climate Change, <http://pmindia.nic.in/Pg01-52.pdf> (September 9, 2010).
25. Government of People's Republic of Bangladesh (September 2008): Bangladesh Climate Change Strategy and Action Plan 2008, p. 8, <http://www.moef.gov.bd/moef.pdf> (September 9, 2010).
26. Bajoria, Jayshree (November 20, 2008): Financial Crisis May Worsen Poverty in China, India, [http://www.cfr.org/publication/17812/financial\\_crisis\\_may\\_worsen\\_poverty\\_in\\_china\\_india.html#p4](http://www.cfr.org/publication/17812/financial_crisis_may_worsen_poverty_in_china_india.html#p4) (April 22, 2009).
27. Rahman, Mustafizur [et al.] (January 2010): Global Financial Crisis Discussion Series, Paper 12: Bangladesh Phase 2, Overseas Development Institute, <http://www.odi.org.uk/resources/download/4719.pdf> (September 9, 2010).
28. Hasina, Sheikh (September 2009): UN Summit on Climate Change Statement by Her Excellency Hon'ble Prime Minister Government of the People's Republic of Bangladesh, <http://www.un.org/webcast/pdfs/climatechangesummit/bangladesh.pdf> (September 9, 2010).

## Authors

### **Dalem Chandra Barman, Ph.D.**

Professor Barman is Founding Chairman of and Professor at the Department of Peace and Conflict Studies at the University of Dhaka in Bangladesh. He designed the first Master of Peace and Conflict Program in South Asia. International Relations and South Asia are his working focuses.

### **Chen Yugang, Ph.D.**

Professor Chen is Associate Professor at Fudan University, Shanghai/China, where he works for the Department of International Politics of the Center for European Studies. He is also Director of the Shanghai Association of International Relations. His research focuses are the Politics of the European Union and Chinese Foreign Relations.

### **Tobias Debiel, Ph.D.**

Professor Debiel has a Chair for International Relations and Development Politics at the University of Duisburg-Essen's Institute of Political Science, where he is also Director of the Institute for Development and Peace (INEF). His research topics are Global Governance, State Failure, Development Policy, and Human Security.

### **Thomas Heberer, Ph.D.**

Professor Heberer has a Chair at the Institute of Political Science of the University Duisburg-Essen, where he focuses on East Asian issues. He is also Deputy Director of the Institute of East Asian Studies at that university and Co-Director of the Confucius Institute Metropolis Ruhr. His research focuses in particular on Social and Political Change in China, Environmental Governance in China, Deviant Behaviour, and Ethnic Minorities.

### **Özlem İpiv, M.A.**

Özlem İpiv is a Master Graduate in International Relations and Development Politics. During her studies Özlem İpiv received a scholarship from the Friedrich-Ebert-Stiftung. Her research focuses among other things on Development Cooperation, Environmentally Induced Migration, Islam, and Integration.

### **Yang Long, Ph.D.**

Professor Long holds a Ph.D. from Jilin University and currently works at Nankai University in Tianjin/China, where he is a professor at the famous Zhou Enlai School of Government. His research interests are Chinese Development Politics, Governmental Politics, and Western Political Theory.

### **Dinoo Anna Mathew, M.A.**

Dinoo Mathew has a Master's Degree in Gender and Peace Building, as well as in Social Work with community development as specialization. Presently she is working as Project Coordinator of the Asia and Pacific Programme of the United Nations Mandated University for Peace (UPEACE) in Costa Rica. Her academic research focuses include Gender, Democracy, and Peace Building.

### **Dieter Reinhardt, Diploma'd Political Scientist**

Dieter Reinhardt is an Associate Fellow at the University of Duisburg-Essen's Institute for Political Science as well as an Associate Fellow at that university's Institute for Development and Peace (INEF). His research focuses are the Reforms of the United Nations, International Humanitarian Assistance, and Failing States.

**Dil Rowshan, Ph.D.**

Dil Rowshan was Assistant Professor at the School of Environmental Science and Management (SESM) at the Independent University in Bangladesh (up to 2009). Her current research focus is Flood Risk Management in Bangladesh.

**Ash Narain Roy, Ph.D.**

Ash Roy holds a Ph.D. in International Studies from Jawaharlal Nehru University, Delhi. He spent four years at the Centro de Estudios Internacionales, EI Colegio de Mexico in Mexico City as a Visiting Scholar in the early 1980s. He also worked with the Hindustan Times as Assistant Editor from 1990 to 2001. Currently he is Co-Director of the Institute of Social Sciences in New Delhi. His research focuses are Globalization, Indian Politics, Latin America, and the Arab World.

**Anja Senz, Ph.D.**

Anja Senz is Managing Director of the Confucius Institute Metropolis Ruhr and a Research Associate at the University of Duisburg-Essen's Institute of East Asian Studies, where she is also a Lecturer at the Institute for Political Science. Among her research topics are Chinese Politics, Environmental Governance, Institutional Change, and China in International Relations.

**Karen Shire, Ph.D.**

As Professor of Comparative Sociology and Japanese Society, Karen Shire works at both the Institute of East Asian Studies and the Institute of Sociology of the University of Duisburg-Essen. She is also Speaker of the Research Training Group for Risk at that university's Institute of East Asian Studies. Among her research interests are Current Developments in Labor Markets.

DUISBURGER ARBEITSPAPIERE OSTASIENWISSENSCHAFTEN  
*DUISBURG WORKING PAPERS ON EAST ASIAN STUDIES*

Seit Juli 1995 publiziert das Institut für Ostasienwissenschaften eine eigene Reihe von Arbeitspapieren. Sie werden in begrenzter Zahl kostenlos abgegeben und sind zudem über Internet abrufbar.

*Since July, 1995, the Institute of East Asian Studies publishes its own series of working papers which are available free of charge and can be called up on the Internet.*

Bestelladresse / *procurement address*:

Institut für Ostasienwissenschaften  
Universität Duisburg-Essen  
Campus Duisburg, Forsthausweg  
47057 Duisburg

E-Mail: [in-east@uni-due.de](mailto:in-east@uni-due.de)

Internet download: <http://www.in-east.de/> → Publications → Green Series

- No. 59 / 2004 Christian Göbel, Anja-D. Senz (eds.):  
Come by the Wind. Li Fan's Story in Bunyun Election
- No. 60 / 2004 Thomas Heberer, Anja-D. Senz (eds.):  
Feldforschung in Asien. Erlebnisse und Ergebnisse aus der Sicht politikwissenschaftlicher Ostasienforschung
- No. 61 / 2004 Thomas Heberer, Nora Sausmikat:  
Bilden sich in China Strukturen einer Zivilgesellschaft heraus?
- No. 62 / 2004 Jun Imai:  
The Rise of Temporary Employment in Japan: Legalisation and Expansion of a Non-Regular Employment Form
- No. 63 / 2005 Thorsten Nilges:  
Zunehmende Verschuldung durch Mikrokredite: Auswertung eines Experiments in Südindien
- No. 64 / 2005 Thomas Heberer, Christian Göbel (Hg.):  
Task Force: Zivilgesellschaftliche Entwicklungen in China
- No. 65 / 2006 Werner Pascha und Cornelia Storz (Hg.):  
Workshop Organisation und Ordnung der japanischen Wirtschaft V – Themenschwerpunkt: Deutschlandjahr in Japan – Eine Zwischenbilanz
- No. 66 / 2006 Momoyo Hüstebeck:  
Park Geun-hye: Als Präsidententochter zur ersten Staatspräsidentin Südkoreas?
- No. 67 / 2006 Momoyo Hüstebeck:  
Tanaka Makiko: Scharfzüngige Populistin oder populäre Reformerin?
- No. 68 / 2006 Thomas Heberer:  
Institutional Change and Legitimacy via Urban Elections? People's Awareness of Elections and Participation in Urban Neighbourhoods (Shequ)

- No. 69 / 2006 Christian Göbel:  
The Peasant's Rescue from the Cadre? An Institutional Analysis of China's Rural Tax and Fee Reform
- No. 70 / 2006 Werner Pascha, Cornelia Storz (Hg.):  
Workshop Institutionen in der Entwicklung Ostasiens I – Offenheit und Geschlossenheit asiatischer Wirtschaftssysteme
- No. 71 / 2006 Norifumi Kawai:  
Spatial Determinants of Japanese Manufacturing Firms in the Czech Republic
- No. 72 / 2007 Werner Pascha, Cornelia Storz, Markus Taube (eds.):  
Workshop Series on the Role of Institutions in East Asian Development – Institutional Foundations of Innovation and Competitiveness in East Asia
- No. 73 / 2007 Norifumi Kawai, Manja Jonas:  
Ownership Strategies in Post-Financial Crisis South-East Asia: The Case of Japanese Firms
- No. 74 / 2008 Markus Taube:  
Ökonomische Entwicklung in der VR China – Nachholendes Wachstum
- No. 75 / 2008 Thomas Heberer:  
Task Force: Entwicklungspolitik in China: Herausforderungen, Lösungsstrategien und deutsch-chinesische Entwicklungszusammenarbeit
- No. 76 / 2008 YU Keping:  
China's Governance Reform from 1978 to 2008
- No. 77 / 2008 Werner Pascha, Uwe Holtschneider (Hg.):  
Task Force: Corporate Social Responsibility in Japan und Österreich
- No. 78 / 2008 Werner Pascha, Cornelia Storz:  
How are Markets Created? The Case of Japan's Silver Market
- No. 79 / 2009 Thomas Heberer, Anja-D. Senz (eds.):  
Task Force: Entwicklungspolitik und -strategien in Ostasien am Beispiel der chinesischen Umweltpolitik
- No. 80 / 2009 Chan-Mi Strüber:  
Germany's Role in the Foreign Direct Investment Configuration of Korean Multinational Enterprises in Europe
- No. 81 / 2009 Flemming Christiansen, Heather Xiaoquan Zhang:  
The Political Economy of Rural Development in China: Reflections on Current Rural Policy
- No. 82 / 2010 Thomas Heberer, Anja-D. Senz (Hg.):  
Chinas Rolle in den internationalen Beziehungen – globale Herausforderungen und die chinesische Außenpolitik
- No. 83 / 2010 Sven Horak:  
Aspects of Inner-Korean Relations Examined from a German Viewpoint
- No. 84 / 2010 Marcus Conl , Markus Taube:  
Anatomy of Cluster Development in China: The case of health biotech clusters
- No. 85 / 2010 Heather Xiaoquan Zhang:  
Migration, Risk and Livelihoods: A Chinese Case
- No. 86 / 2010 Anja Senz, Dieter Reinhardt (eds.):  
Green Governance – One Solution for Two Problems? Climate Change and Economic Shocks: Risk Perceptions and Coping Strategies in China, India and Bangladesh