

Xue, Lan; Simonis, Udo E.; Dudek, Daniel J.

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Xue Lan, Udo E. Simonis, Daniel J. Dudek et al.

Environmental Governance in China *

Best.-Nr. P 2007-001

**Wissenschaftszentrum Berlin
für Sozialforschung (WZB)**

Dezember 2006

**Beim Präsidenten
Emeriti Projekte**

* Report of the Task Force on Environmental Governance to the China Council for International Cooperation on Environment and Development (CCICED), submitted in November, 2006 at Beijing

“We must be fully aware of the severity and complexity of our country's environmental situation and the importance and urgency of increasing environmental protection. Protecting the environment is to protect the homes we live in and the foundations for the development of the Chinese nation. We should not use up resources left by our forefathers without leaving any to our offspring. China should be on high alert to fight against worsening environmental pollution and ecological deterioration in some regions, and environmental protection should be given a higher priority in the drive for national modernization.”

Premier Wen Jia-bao,
Address to the 6th National Conference on
Environmental Protection, April 17, 2006

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Executive Summary

The China Council for International Cooperation on Environment and Development Task Force on Environmental Governance assembled a group of environmental policy experts and academics from China, Germany, the Netherlands, Japan, and the United States to examine means for developing more effective environmental governance strategies for China. The Task Force surveyed the status of environmental governance in China and across East Asia, the European Union, Japan, and the United States to form the basis for the recommendations in this report.

The Task Force was convened because China is facing unprecedented challenges in its efforts to protect the environment and natural resource base. The rapid deterioration of the nation's environmental quality and depletion of its natural resources are threatening the lives and health of the largest population in the world and the very potential for sustained growth of the economy. In response, the Chinese government has recently elevated the importance of environment protection in its national development strategy.

However, the Task Force believes that what is required is a more dramatic and comprehensive shift in approach to these problems. In essence, China must reform important elements in its approach to environmental governance. The challenges that China faces are no less vexing and important than the challenge of economic reform, the restructuring of the management of state owned enterprises (SOEs), and the challenge of effectively managing the state's (and the people's) financial assets that are so key to the economic aspirations of the nation. The environment and natural resources of China are no less critical assets of the nation, representing the patrimony of the people, and no less deserving of good governance.

As development proceeds and more citizens are lifted from poverty, their attention naturally focuses on enjoying their new wealth, enjoyment that requires a healthy environment. The government has set a goal of achieving the *Xiaokang Society* by the year 2020. The common representation of this goal is primarily in terms of material wealth. However, material wealth without the good health to enjoy it is an unsatisfying

outcome. Therefore, the Task Force recommends that a set of measures and institutional innovations be adopted similar in scope to those for the reform of SOEs which will insure that the environmental and natural resource wealth of the nation will be preserved and enhanced to support the welfare of the people.

In his April 2006 speech during the Sixth National Environmental Conference, Premier Wen Jia-bao emphasized the importance of three transitions, the transition (1) from a focus on economic growth to a focus on environment and economic development; (2) from environment as a lagging objective to equal importance with economic development; and (3) from the primary use of administrative methods of environmental management to a more comprehensive system combining many approaches.

Some positive moves have been made in this direction. The government has begun to consider evaluating the performance of local government leaders on environmental performance rather than just focusing solely on economic growth categories. To aid this evaluation, there have been experiments with measuring Green GDP, of a number of cities and provinces in China. These are extremely interesting steps. However, if China is to embark on these transitions, significant institutional changes are necessary.

The Task Force notes that to be successful the process of reform should be systematic and driven by the goal of improving environmental governance. As the experience of the economic reforms has shown, picking just one or two international experiences for adoption without consideration of a comprehensive plan of reform is not likely to achieve the goal. Specifically, the Task Force believes China would benefit greatly by strengthening its environmental governance in four major issue areas:

(1) Improving the government's capacity to enforce environmental laws and oversee the implementation of environmental programs, to enhance the government's capacity to control environmental pollution, and to improve the management of natural resources;

(2) Engaging the business sector to take a more proactive role in environmental management by providing incentives to those that perform well and punishing those

that do not, and by promoting best practices of industrial production and hazardous accident preparedness;

(3) Engaging civil society by providing greater transparency of information concerning environmental and natural resource conditions and of government decision-making activities, combined with access and participation by stakeholders, NGOs, and the general public, and;

(4) Establishing greater policy coherence and planning capacity for both domestic and international environmental and natural resource issues.

To put China firmly on the path of the three transitions, the following action items are recommended by the Task Force on Environmental Governance in each of the four major issue areas:

1. Government

The first major challenge identified by the Task Force (TF) is the insufficient administrative authority and capacity accorded to the State Environmental Protection Administration (SEPA) in policy planning, implementation, and coordination with related agencies. The second major challenge comes from a policy approach that tends to be reactive—responding to pollution problems once they occur, rather than proactive and preventive—working to limit the extent and range of pollution problems and natural resource destruction before they occur. The third major challenge is in relation to the development of multi-sector and public access and participation in policy-making, enforcement, monitoring, and evaluation. Accordingly, the Task Force on Environmental Governance makes the following recommendations.

1.1 Executive Branch

(1a) Elevate SEPA to full cabinet rank in the government.

(1b) Establish a leading group on national environmental issues chaired by the Premier, with membership comprised of the Ministers of all relevant agencies and the Secretariat provided by SEPA. In order to further improve policy integration, establish environmental consultative groups within the research arm of the public service units of all ministries, administrations, and bureaus.

(1c) Reforming the institutional status of SEPA will place new burdens upon it to enhance the effectiveness of its policy, planning, and evaluation process. Especially, SEPA will need to develop internal mechanisms for coordination across departments to build more comprehensive policy regimes and integrated databases whose elements may require cooperation from several traditionally independent management responsibilities. Internal vetting of policy proposals will insure that the strongest possible initiatives emerge from SEPA's internal process, and require that all policy proposals are evaluated for their environmental, economic, and social impacts. A mechanism for identifying new and emerging environmental threats also needs to be developed.

(1d) Improve multi-level governance by realigning local environmental management to create a direct line of authority to provincial EPBs. This can be done by giving provincial governments the power to appoint local environmental protection bureau directors and requiring provincial governments to provide the budget for local EPB operations. In addition, SEPA can enhance the performance of local management by providing financial support to those provinces in greatest need of resources, by charging the new regional SEPA offices with the responsibility to coordinate and guide local implementation efforts, and by establishing performance requirements for environmental outcomes reviewed for conformity by SEPA.

(1e) Enhance the scientific basis of environmental management by developing science and technology capacity within SEPA to assess and manage major environmental issues across major pollutants and industrial sectors by providing SEPA with the authority to establish independent advisory commissions in particularly salient and complex issue areas. These commissions should have a legal status with requirements for membership to be drawn from government, business, and civil society. The work of these commissions should be documented in a publicly released report. SEPA should also be provided with the resources to support research in cooperating universities and research institutions to improve scientific and societal understanding of emerging environmental problems and aid in the development of practical solutions.

(1f) Enhance the capacity of the environmental administrative system of China's central government by increasing the budget and size of SEPA in order for it to adequately meet its responsibilities of analysis, monitoring, regulation, technical

and professional training, and enforcement. Provide funding, through SEPA grants, for the costs of demonstrating new innovative environmental management programs in cooperation with participating local environmental bureaus.

1.2 Legislative Branch

(1g) Strengthen the legal foundations of environmental management. Insure that all environmental policy tools have an appropriate legal basis. Remove the inconsistencies between environmental laws and the laws governing natural resources and energy.

(1h) The National People's Congress capacity to oversee the implementation of the nation's environmental laws should be strengthened. The Committee on Environment and Natural Resources in particular should have a standing professional staff and budget to allow effective inquiries and analysis to be conducted so as to inform the process of revising current laws and enacting new ones. The Provincial People's Congresses and Municipal Assemblies also could have such committees.

1.3 Judicial Branch

(1i) Train judges and the procuracy in environmental problems and solutions to make them aware of the extensive damages to human health and the environment caused by various types of emissions. Equip them with knowledge of the tools and resources available to them in making decisions in complex environmental liability and compensation cases.

2. Business

The Task Force on Environmental Governance (TF) is of the opinion that the immense power of the market to address environmental problems should be harnessed to create a resource efficient and environmentally friendly society. Furthermore, in view of the knowledge and capital accumulated in the non-public sector, every effort should be made to mobilize these resources to facilitate the smooth implementation of environmental management. Performance-based environmental responsibilities either required by the government or self-imposed by companies seeking to thrive in

the globally competitive economy will create additional space for innovation towards ecological modernization of China. Economic incentives can energize business and harmonize economic and environmental goals.

(2a) Establish clear legally enforceable environmental responsibilities for enterprises and maximize compliance by insuring that the suite of government incentive programs targeted to business are environmentally coherent in the direction of creating an environmentally friendly society. Reinforce compliance by establishing penalties for non-compliance with environmental laws and regulations that recapture any financial benefit from non-compliance. Use the penalty structure to create a deterrent to pollution. Strengthen civil penalties for pollution damage and criminal penalties for the most severe violations. Additionally, provide incentives for companies to improve environmental management, move towards cleaner technology and products, and thus go beyond mere compliance.

(2b) Establish reporting requirements for data to assure comparability of data across facilities and over time. Provide funding for the establishment and maintenance of an internet-based reporting system, with source by source data publicly available to all stakeholders. Public access to and analysis of environmental and natural resource data will enhance data quality and source accountability.

(2c) Establish civil and criminal liability laws for damages caused by operators of facilities responsible for environmental pollution and accidents. Provide rigorous standard methodologies for the calculation of environmental damages.

(2d) Require companies to report the presence of chemicals and other hazardous substances and establish emergency response plans and mechanisms with the requirement for timely reporting of any accidents.

(2e) For the special case of the management of hazardous wastes and toxic substances, establish a Hazardous Substances Response Fund for clean up of emergency spills. This can be financed with a tax on companies using hazardous substances which, in turn, becomes an incentive to reduce their use.

(2f) Enhance corporate environmental responsibility by requiring the designation of a corporate officer as the individual legally responsible and accountable for environmental compliance. Encourage environmental audits and annual public environmental reporting commensurate with annual financial reports. SEPA should require the disclosure of environmental liabilities by Chinese companies prior to Initial Public Offerings.

(2g) Develop public-private partnerships and dialogues among government, business, and non-governmental organizations to leverage the individual resources, perspectives, and capacities of these stakeholders to find commonly agreed solutions.

3. Civil Society and Public Participation

The complexity and quantity of the environmental issues confronting all nations today has overwhelmed the capacity of even the strongest and best prepared of governments, working alone. Most developed countries have, as a result, opened their societies to greater environmental NGO participation. They have removed many of the legal, political, and financial obstacles that existed to the full realization of the capacity of non-governmental groups. The Chinese government is responding and has become increasingly open to civil society participation in environmental decision-making and implementation. The Task Force on Environmental Governance is of the opinion that strengthening this reform through the following measures is necessary to achieve effective environmental governance.

(3a) Enhance the legal status of citizens and NGOs, clarifying their rights in environmental controversies and providing them legal standing in the courts on behalf of injured parties and the environment.

(3b) Conduct outreach and education of the public about the chances and opportunities to participate in environmental decision-making.

(3c) Establish public advisory bodies convened around specific issues for the purpose of broadening government consultation with civil society.

(3d) Improve public access to environmental information concerning emissions and their consequences in order to empower meaningful public participation.

Widely publish advance notice of proposed regulations or permit proceedings for industrial and natural resource projects to facilitate public participation.

(3e) Mitigate any barriers limiting citizen and NGO participation by streamlining the procedures for NGO registration, appointing NGO representatives to advisory boards and commissions, and educating non-governmental groups about the government's perspectives and processes to enable participation.

(3f) Enhance NGO capacity by clarifying the regulations concerning the qualifications necessary to achieve tax advantaged status.

4. International Cooperation

The Task Force has concentrated its focus on the domestic elements of environmental governance. However, increasingly the serious environmental problems we face are beyond the scope of any one individual nation. Global environmental threats such as stratospheric ozone depletion, climate change, biodiversity loss, cycling of persistent organic pollutants, water shortage, and soils degradation require coordinated international action for their solution. The Task Force recognizes that effective international action is dependent upon sovereign willingness and capacity to act effectively and that individual sovereigns may be constrained in their commitments by this capacity. The recommendations on improving environmental governance - if adopted - will however enhance this capacity. China's rise in the global economy has made the nation vital to the international efforts to conserve the global ecology.

(4a) As part of the on-going regional free trade negotiations, China should propose to other nations in the region the establishment of an environmental commission to promote a comprehensive regional approach to the protection, improvement, and sustainable management of its natural resources. This commission should include mechanisms for environmental dispute resolution and participation by civil society from the participating nations.

(4b) China should prepare for playing a more active role in the implementation and further development of ratified international environmental conventions and multilateral environmental agreements, especially on climate, biodiversity, desertification, persistent organic pollutants, water and forests, in order to insure

that the mutually agreed goals of such agreements are met and fortified. Especially, the instrumental basis of such agreements needs to be enlarged in order to balance economic and environmental interests and to make win-win situations possible.

(4c) Enhance the effectiveness of China's environmental diplomacy and participation in global environmental governance by strengthening the environmental training of China's diplomatic corps.

Introduction to the Task Force

Membership of the Task Force on Environmental Governance

The core experts who contributed to the Task Force on Environmental Governance are:

Co-Chairs

<i>Xue Lan</i>	Dean and Professor, Tsinghua University, School of Public Policy and Management, Beijing, People's Republic of China
<i>Udo E. Simonis</i>	Professor of Environmental Policy, Dr. Dr. h.c., Science Center Berlin (WZB), Germany
<i>Daniel J. Dudek</i>	Dr., Chief Economist, Environmental Defense, New York, N.Y., United States of America

Chinese Task Force Members and Advisors

<i>Hu Tao</i>	Dr., Chief Economist, Policy Research Center for Environment and Economy of SEPA, Beijing, People's Republic of China
<i>Li Shantong</i>	Professor and Senior Research Fellow, Department of Strategy & Regional Economy, State Council Development and Research Center, Beijing, People's Republic of China
<i>Mao Shoulong</i>	Professor of Public Administration, People's University, Beijing, People's Republic of China
<i>Sun Youhai</i>	Director General, Department of Legislative Drafting, Environmental Resources Commission, National People's Congress, Beijing, People's Republic of China
<i>Qi Ye</i>	Professor, Tsinghua University, School of Public Policy and Management, Beijing, People's Republic of China
<i>Yang Zhanli</i>	Dr., Vice Mayor of Nantong City, Nantong, Jiangsu, People's Republic of China

International Task Force Members

<i>Ryokichi Hirono</i>	Professor em. Seikei University, Vice-Chairman of International Management Association of Japan, Japan
<i>Duncan Liefferink</i>	Dr. ir., Senior Researcher, Faculty of Management, Radboud University Nijmegen, The Netherlands

Daniel Mazmanian Chair in Governance, Bedrosian Center on Governance and the Public Enterprise, School of Policy, Planning and Development, University of Southern California, United States of America

Miranda Schreurs Associate Professor, Department of Government & Politics, University of Maryland, United States of America

Coordinators

Ursula Becker Program Manager, GTZ, Beijing, People's Republic of China

Zhang Jianyu Assistant Professor, Environmental Defense, Beijing, People's Republic of China

GTZ Support

Edgar Endrukaitis Program Director, GTZ, Beijing, People's Republic of China

Environmental Defense Support

Lin Hong Senior Researcher, Chinese Research Academy of Environmental Sciences, Beijing, People's Republic of China

Qin Hu Project Manager, Environmental Defense China Program, Beijing, People's Republic of China

Series of Occasional Papers

The series of occasional papers elaborated by the International Task Force members consists of the following papers:

<i>Occasional Paper No. 1</i>	Miranda A. Schreurs: "Perspectives on Environmental Governance"
<i>Occasional Paper No. 2</i>	Ryokichi Hirono: "Environmental Governance in Asia"
<i>Occasional Paper No. 3</i>	Duncan Liefferink: "New Modes of Environmental Governance - The Experience of the European Union"
<i>Occasional Paper No. 4</i>	Daniel A. Mazmanian: "Achieving Air Quality - The Los Angeles Experience"
<i>Occasional Paper No. 5</i>	Mischa Bechberger & Danyel Reiche: "Good Governance for Renewable Energies - The Example of Germany"
<i>Occasional Paper No. 6</i>	Ryokichi Hirono: "The Environmental Advisory System in Japan"
<i>Occasional Paper No. 7</i>	Dorit Lehrack: "Environmental NGOs in China – Partners in Environmental Governance"
<i>Occasional Paper No. 8</i>	Mary A.Gade & Cynthia A. Faur: "The United States Environmental System – An Evolution in Federal vs. Local Control"
<i>Occasional Paper No. 9</i>	Robert Percival & Miranda A. Schreurs: "Environmental Crisis Management – A Comparative Analysis"

Series of Case Studies

The series of case studies elaborated by the Chinese Task Force members consists of the following papers:

<i>Case Study No. 1</i>	Lu Xin-yuan, Daniel J. Dudek, Qin Hu, Zhang Jian-yu, Lin Hong, Yang Zi-jiang & Wang Yu-hong: "China's Environmental Enforcement Capacity"
<i>Case Study No. 2</i>	Yang Zhan-li & Ge Yong-de: "Local Environmental Governance – A Case Study on Nantong City"
<i>Case Study No. 3</i>	Li Wan-xin & Eric Zusman: "Institutional Capacity and Environmental Regulation in China"
<i>Case Study No. 4</i>	Hu Tao, Zhang Ling-yun, Zhang Jian-yu & Qin Hu: "Urban Environmental Governance in China"

<i>Case Study No. 5</i>	Hu Tao, Wu Yu-ping & Zhang Ling-yun: "Analysis of China's Solid Wastes Management"
<i>Case Study No. 6</i>	Yang Zhan-li: "How to Improve Environmental Governance in China"
<i>Case Study No. 7</i>	Daniel J. Dudek, Qin Hu & Zhang Jian-yu: "SO ₂ Control and Emissions Trading in China"
<i>Case Study No. 8</i>	Qi Ye, Su Yang & Chen Jing-hua: "China's Biodiversity Governance"
<i>Case Study No. 9</i>	Hu Tao, Zhang Ling-yun & Sun Bing-yan: "Analysis of the Root Causes of Sandstorms in China"
<i>Case Study No. 10</i>	Qi Ye & Ma Li: "Towards a Proactive Climate Policy"
<i>Case Study No. 11</i>	Hu Tao, Li Li-ping, Zhang Ling-yun & Tian Chun-xiu: "Analysis of the Yuanmingyuan Park Project"
<i>Case Study No. 12</i>	Mao Shou-long, Li Wen-zhao & Li Mei: "Analysis of the Songhuajiang Crisis"
<i>Case Study No. 13</i>	Jiang Yu-lin & Mark Major: "Environmental Governance for Sustainable Transportation in China"

Report

of the Task Force on Environmental Governance in China

1. Background

The China Council for International Cooperation on Environment and Development Task Force on Environmental Governance (henceforth, TF) assembled a group of environmental policy experts, academics, from China, Germany, the Netherlands, Japan, and the United States to examine means for developing more effective environmental governance strategies for China. Environmental governance refers to the formal and informal institutional mechanisms used by a society to address pollution problems, promote pollution control and prevention, conserve nature, and manage the use of natural resources.

Whereas the term “government” focuses attention on governmental bodies and actors, the word “governance” points to the processes used to control or coordinate social or economic activities, achieve societal goals and deal with policy problems. Environmental governance thus is usually understood to include not only the kinds of top-down mechanisms frequently used by governments to regulate behavior that affects the environment, but also other non-regulatory approaches, such as voluntary mechanisms or educational tools, that can be used to improve environmental conditions. Environmental governance, moreover, addresses the relationships that governments have with market actors, civil society, and the scientific community.

The TF surveyed the status of environmental governance in China through case studies on biodiversity protection, climate policy, sulfur dioxide emissions, the urban environment, solid waste management, sand storms and desertification, the role of non-governmental organizations, the Songhua River benzene accident, and enforcement of environmental laws and regulations. In addition, the TF examined environmental governance approaches across East Asia, the European Union, Japan, and the United States and in relation to specific experiences in urban air pollution, environmental disaster response and prevention, and renewable energies. These case studies became the basis for the recommendations of the TF for how China

could work to strengthen environmental governance so that it might achieve more effective environmental outcomes.

China is facing unprecedented challenges in its efforts to protect the environment and natural resource base (see Qi, Su & Chen: “China’s Biodiversity Governance”, Case Study). The rapid deterioration of the nation’s environmental quality and depletion of its natural resources are threatening the lives and health of the largest population in the world and the very potential for sustained growth of the economy. One out of every five cities in the country suffers from serious air pollution resulting in more than 400,000 premature deaths per year; about two thirds of all cities experience shortage of drinking water; one third of the land area is affected by acid rain; one third of land suffers from soil erosion and desertification; more than 90% of natural grasslands are degraded; overall biodiversity is threatened and environmental disputes and protests are rising (see on this the various Case Studies cited).

On September 7, 2006 SEPA released its first report on China’s “Green National Economy”, also called “green GDP”, calculated by subtracting the cost of natural resources used and environmental degradation from the GDP. According to this methodology, environmental pollution cost China 511.8 billion yuan (approx. 64 billion U.S. dollars) in economic losses in 2004, accounting for 3.05 % of the GDP. The report also exposed a huge shortfall in environmental protection investment. It said China would need 1.08 trillion yuan (approx. 135 billion U.S. dollars) to clean up all the industrial pollutants and household wastes produced. But the actual investment was only 190 billion yuan (or 24 billion U.S. dollars).

Based on a newly developed Environmental Performance Index (EPI) ranking of 133 nations on 16 indicators of environmental quality and policy performance, China ranked 94th, below all the developed and many of the developing nations of the world (see Center for Environmental Law at Yale University and CIESIN: Environmental Performance Index, 2006). Moreover, not only is China currently the second largest greenhouse gas emitter in the world after the United States, projections are that due to a number of geographical, social, and climatic conditions, China will be hit by climate change much harder than many other countries (see Qi & Ma: “Towards a Proactive

Climate Policy”, Case Study). These and other threats call for urgent action and effective environmental governance.

The Chinese government has recently elevated the importance of environment protection in its national development strategy. Environmental protection is critical for implementation of the scientific development concept, for achieving a *Xiaokang* society, as a test of how well the government is serving the people and building its capabilities, and for ensuring the construction of an environmentally harmonious society. Key ingredients of this goal are:

- protection of citizens' health
- enhancement of national environmental and resource patrimony

The 11th Five-Year Plan (2006-10) set clear goals related to environmental protection. These include promotion of energy efficiency, pollution control and resource conservation so as to be able to cut energy consumption per unit of GDP by 20% and major pollutants by 10%, relative to 2005 levels by the end of the 11th Five-Year Plan, and to increase forest coverage to 20% of the country from its 2005 level of 18.2%. Profoundly, the achievement of these targets will be taken as indicators to evaluate the performance of governments at various levels.

Increasingly China is no longer a country in transition to a market economy. Arguably it has arrived. With it comes the need to transform environmental institutions that have responded relatively slowly to the extraordinarily rapid changes in the economy at large. This mis-match in the speed of change and response is a significant source of many of China's environmental problems. Reforming environmental governance therefore is a top priority if China is to succeed in achieving its environmental goals. This reform includes the rationalization of government management, the strengthening of the legal foundations, a greater reliance on market-based policies, and the constructive engagement of business and of civil society. Furthermore, a systematic review of past experiences with existing policy mechanisms and responses to problems should be undertaken to learn what has worked, what has not and why.

Achieving the country's national development goals while enhancing environmental quality and improving protection of natural resources, will require effective environmental governance. Effective environmental governance is characterized by a pro-active, learning and self-correcting system where the government has the capacity to enforce environmental policy; where systematic use is made of scientific based reporting, monitoring and decision making; where adoption of best available practices by business and industry, including preventative, not simply reactive policy measures is promoted; where multi-sector and citizen access and participation in environmental protection is encouraged; where strategic and comprehensive efforts are made to harmonize the environmental and the economic policies of the entire nation, and where innovative leadership is supported.

Measured by these standards, the TF has found some serious challenges in environmental governance in China. These findings confirm and complement those of other researchers and recently published studies, including the Organization for Economic Cooperation and Development (OECD: "Governance in China", 2005) and the State Council's "White Paper on Environmental Protection in China, 1996-2005" (2006).

2. Challenges

2.1 Government Capacity

The first major challenge identified by the TF is the insufficient administrative authority and capacity accorded to the State Environmental Protection Administration (SEPA) in policy planning, implementation, and coordination with related agencies. The Environmental Protection Law of China provides that SEPA be the lead agency for environmental protection for the nation. Given China's vast size, large population, and tremendous environmental needs, this means that SEPA has been given immense responsibilities. Yet, in sharp contrast with the expectations placed on SEPA as the lead government agency in charge of assuring the health of the nation's environment, SEPA's capacity to improve environmental conditions is severely limited, due to insufficient staff and resources and communication among environmental agencies. In essence, its administrative capacity is exceedingly weak.

The fact that SEPA lacks full cabinet status in the government makes it difficult for SEPA to participate in critical environmental decision-making involving policy planning, coordination with other ministries and agencies, the setting of national environmental priorities, and in resolving environmental disputes. SEPA has been mandated to develop and implement environmental policies, but it has not been given adequate policy tools, capacity or political strength to fulfill this expectation. SEPA cannot succeed in protecting the nation's environment without the collaboration of other government bodies, as many environmental responsibilities are shared across agencies and levels of government. Instead of cooperating to promote good environmental outcomes, different governmental bodies tend to compete with each other for limited resources and influence. Thus, SEPA often finds itself in conflict with the priorities of other institutions, but lacks adequate capacity to address this problem.

Environmental considerations, moreover, are not adequately incorporated into the expectations of performance of other government ministries and agencies. In order to fulfill Premier Wen Jia-bao's stated objective of elevating the status of environmental protection to a level equal in importance to economic growth, environmental goals will have to be given greater weight in the performance evaluations of the economic, transportation, financial and other ministries and agencies as well. This is what is basically meant by the term policy integration.

There are other problems of environmental governance in a multi-level system. Environmental administration at the local level is susceptible to interference by local leaders due to the relationships between the vertical and horizontal lines (*tiaokuai guanxi*) of government. Lower level Environmental Protection Bureaus (EPBs) formally report to higher level EPBs (and ultimately to SEPA), but the funding and supervisory functions are provided by the provincial or lower level administration. The lack of sufficient financial resources for environmental administrations at the local level (and occasionally at the national level) to perform their required tasks is creating perverse incentives with deleterious environmental impacts. Many EPBs have become dependent on the pollution levies they collect, which yield substantial revenues and are used to cover their operating costs. This means indirectly, that EPBs have an incentive to allow industries to pollute so that they can collect pollution fees.

In the United States, permit fees are levied per ton of allowable discharge, but the permit fees are quite low and the objective is to provide funds for the operation of the permit program rather than as a primary tool of environmental policy. In China, in contrast, the pollution levy system has served as the government's primary policy tool but with limited effectiveness.

Given that effective environmental protection requires familiarity with local conditions, good environmental governance requires that flexibility be built into the system that can accommodate geographic and economic differences. Local and provincial governments are key stakeholders in environmental management and need to be included in decision-making. The new government responsibility system for environmental performance is one means of promoting local governmental involvement in meeting environmental performance goals. Mechanisms to reward good performers, to encourage better performance among moderate performers, and to punish those who flout the system are necessary. It will also be necessary to make explicit what is expected of local governments in terms of minimum program elements and performance criteria. Incentive structures to promote sustainable development at the local level should be strengthened. Finally, the central government should have a means in place to step in cases where local performance is inadequate or efforts to incorporate environmental considerations in local outcomes are non-existent.

2.2 Reactive, Unintegrated, and Uncoordinated Policies

The second major challenge comes from a policy approach that tends to be reactive—responding to pollution problems once they occur, rather than proactive and preventive—working to limit the extent and range of pollution problems and natural resource destruction before they occur. Many avoidable environmental problems occur because of the failure of government and industry to adopt best practices in the first place. Policies such as the three simultaneous and the EIA are designed to address this problem, but they have systematic defects:

- lack of feedback and review
- lack of an effective non-compliance penalty

The penalty and liability structure if set as a pollution deterrent can cause firms to focus on the elimination of pollution rather than its treatment and disposal. Strict liability rules for the damages resulting from either pollution or accidental discharge will put firms on notice that ineffective environmental management will be dangerous to their financial health, if not survival. Under these rules, firms will avoid pollution and its financial consequences in the first place.

There is also a lack of capacity for dealing with problems when they arise. The pollution of the Songhua River by a large benzene spill in November, 2005 is a case in point (see Mao, Li & Li: "Analysis of the Songhuajiang Crisis", Case Study). The siting and permitting of potentially dangerous industrial facilities did not require the development of emergency response plans in the event of industrial accidents involving hazardous or toxic chemical spills. For other environmental problems involving transboundary pollution such as the persistent pollution of the Huaihe River, neither the capacity nor the tools to manage regionally are robust. Traveling across many jurisdictions, this type of pollution poses a severe challenge to the fundamental law on environmental management which establishes the primacy of local control. The annual spring sandstorms are another example of both a cross-sectoral and transboundary environmental problem (see Hu, Zhang & Sun: "Analysis of the Root Causes of Sandstorms in China", Case Study). To the extent that economic development planning can move toward realization of a "circular economy", this should have positive environmental benefits. Better integration of environmental and development policies and plans with the market is imperative for achieving the Chinese government's goal of sustainable development. The breakneck growth of coal-fired electric generating plants without a comprehensive evaluation of alternative means to expand electricity supply, or the financial necessity for such investments, or the full environmental consequences of these investments is a case in point.

However, even with the best of planning and preventive action, accidents will still occur and emergency situations may arise, as with the explosions at the 101 Petrochemical Plant in Jilin that spilled an estimated 100 tons of benzene and nitrobenzene into the Songhua River, one of the worst chemical accidents in China's history. If such environmental emergencies cannot be completely prevented, they at

least require prompt and effective responses (see Percival & Schreurs: “Environmental Crisis Management – A Comparative Analysis”, Occasional Paper). Emergency policies and plans, appropriate legal and technical infrastructure, and accident reporting and response mechanisms must be established to reduce environmental risks and harms to society. Numerous incidents that have occurred throughout the country—such as a cadmium spill in the Beijiang River in Guandong Province, chemical spills in the Hunjiang River and the Xiangjiang River, and an oil spill in Ganjiang River—reveal a nationwide lack of adequate emergency response systems and mechanisms. These accidents are also very costly. In 2005, environmental accidents cost an estimated 105 million yuan (approx. U.S.\$13.125 million) (<http://english.sina.com/china/1/2006/0419/73271.html>).

2.3 Capacity outside the Government

The third major challenge is in relation to the development of multi-sector and public access and participation in policy making and enforcement. In the past, the government has assumed primary responsibility for environmental protection in China in a top-down regulatory fashion. However, in March of 2005, in his report of the work of the government to the National People’s Congress, Premier Wen Jia-bao recognized that the government cannot be responsible for solving all problems that society faces. He urged other groups in society including non-governmental organizations (NGOs) to become actively involved. Harnessing the energies and capacities of civil society to be more actively engaged in developing solutions for environmental problems will enhance the prospects of actually building an environmentally harmonious society.

The experiences and lessons from, Europe, Japan and the United States suggest that environmental goals can not be achieved unless all sectors in the society—government, business, NGOs, and the general public—are involved. Environmental protection is a shared responsibility, and effective environmental governance requires that the perspectives, experiences, and abilities of different actors be incorporated in planning and implementation decisions and actions. Public participation by all stakeholders should be a guiding principle in the making of all future environmental policies and laws.

In recent years, the Chinese government has exhibited its determination to address the country's severe pollution problems. The central government has shown considerable leadership with its formulation of environmental laws and programs. Nevertheless, many problems still remain. Achieving sustainable development will require leadership at all levels of government and society and by all people in the country.

In view of these serious challenges, the TF believes China will benefit greatly from strengthening its environmental governance. Based on our own case studies and deliberations, and building on the findings of other academic and professional bodies which have also examined environmental governance issues in China, it is the TF's recommendation that significant and specific action be taken in the following four issue areas:

- I. Improve the Government's Capacity to Enforce Environmental Laws and Oversee the Implementation of Environmental Programs
- II. Adopt Best and Safe Practice in Business and Industry
- III. Enhance Stakeholder and Citizen Participation
- IV. Establish Multi-Sector Coherence and Foresight and Improve International Environmental Cooperation

Some details on these four issue areas and the respective action items shall be given in the following.

3. Task Force Recommendations

3.1 Improve Government's Capacity to Enforce Environmental Laws and Regulations

Many of the kinds of pollution and natural resource issues facing China today were experienced in Japan, the United States, and Europe in earlier decades and some of the same problems remain today. The significant improvement in the control of environmental pollution over the past half century and the current focus on environmentally friendly enterprise among OECD nations is the result of public awareness and expectations, scientific advancement, societal learning, and strong governmental leadership in moving societies in this direction. In Japan and the West, substantial capacity now exists in the internal management of environmental agencies. Many steps have been taken to assure systematic monitoring, oversight, enforcement, and continuous scientific data collection and analysis. As a result, substantial improvements have been made in energy and resource efficiency levels and pollution control. These changes have not been achieved easily or always in the most efficient manner, yet they have been accomplished without undermining the economic growth and the quality of life enjoyed by the affected populations. In fact, these changes were necessary to protect the health of citizens and to reverse dangerous levels of resource degradation. Indeed, these changes have in many cases done much to improve quality of life and even the economic performance of firms.

Improving environmental governance in the European Union, Japan, and the United States has required the adoption of stringent environmental protection legislation, substantial policy experimentation and learning, development of the administrative and managerial capacity within governments and businesses to carry out the provisions of environmental laws, the allocation of substantial public and private resources, and unrelenting pressure from the general public and involvement of the NGO community. In every instance of sustained environmental improvement it has required the expectation in the society that there will be strong enforcement of environmental policy and leadership from the nation's top government officials and central environmental agencies (see Gade & Faur: "The United States Environmental Policy System – An Evolution in Federal vs. Local Control", Occasional Paper).

China has made enormous strides in this regard since the establishment of the Lead Group of Environmental Protection under the State Council in 1974 and the National Environmental Protection Agency (NEPA) in 1984. The elevation of NEPA to the State

Environmental Protection Administration in 1998 was a particularly important development. And while SEPA only has a few hundred officials working directly for it, there are also thousands of village, county, municipal, and provincial level EPBs to assess, monitor, and protect the environment and natural resources of the nation. Nonetheless, as indicated by the TF's case studies and in the numerous academic and research reports by Chinese and international scholars, the pace of economic, industrial, and urban development in China and the resultant environmental degradation to water, air, land and human health, has outpaced the ability of SEPA and the EPBs to provide the level of environmental protection intended in the nation's laws and expected by the leaders and the people of China.

It is the opinion of the TF that this imbalance needs to be redressed as the single most important step in improving the environment, health, and quality of life in China, while the nation continues to develop economically. The situation calls for significantly enhancing the capacity and role of SEPA and its counterpart EPBs to ensure the successful realization of the ambitious environmental goals of the law and of the 11th Five Year plan; goals and laws cogently summarized and restated in the State Council's recently published "White Paper on Environmental Protection in China, 1996-2005".

To create the needed administrative and managerial capacity within the government commensurate with the multi-faceted challenges of environmental protection in China, the TF recommends the following actions be taken by the central government.

a. Elevating SEPA

SEPA lacks the stature and power of other government ministries. It does not have capacity commensurate with its responsibility to implement the law and protect the environment. A major step in remedying this situation is to elevate SEPA to cabinet rank.

The experience in nations as diverse as Japan, Germany, and the United States all substantiate the need to elevate a nation's environmental agency to the highest level of government in order to imbue it with the power, prestige, and visibility necessary to serve as a counter-weight to the competing forces in the government, and in society. In 1971, the Netherlands added environmental protection to the responsibilities of the Ministry of Public Health and Environment; in 1982, environmental protection was

moved to the Ministry of Housing, Spatial Planning and the Environment. In the wake of the Chernobyl nuclear accident and rising concerns about acid rain and stratospheric ozone depletion, in 1986, the German federal government combined the environmental responsibilities that had been held by three separate ministries (interior, agriculture, and health) into the Federal Ministry for Environment, Nature Conservation, and Nuclear Safety. When in 2001 the Japanese government restructured its government and cut the number of ministries in half, it created only one new ministry: the Environment Ministry. The United States has not created a Department of the Environment, but the Environmental Protection Agency's Administrator is accorded Cabinet rank and reports directly to the President. Providing SEPA with this level of standing within the government is important in light of the expectation that development and resource consumption in China must be harmonized with environmental protection and resource conservation in order to ensure a more sustainable society. Elevating SEPA will also provide it greater access and accountability to the nation's senior political leadership.

Action item (1): *Elevate SEPA to full cabinet rank in the government.*

b. Streamlining EPBs and Aligning them with SEPA

Coordinating and aligning the disparate interests at the local, regional, and national level of society around environmental policy objectives and the management of natural resources has been one of the more difficult challenges faced by every OECD nation that has developed the capacity to oversee management of its resources and addressed the serious problems of pollution that accompanied industrialization. The experiences of the nations of the EU, Japan, and the United States suggest that there is no single best solution to the challenge of reconciling and balancing local and regional needs and conditions with national goals. The federalized systems of environmental protection with the European Union, the United States, and Germany all operate on different models. The critical consideration for effective coordination among units in a federal system is that the sub-national administrative units that are responsible for the implementation of national law and policy have environmental protection as a very high priority.

The sub-national units are usually provided with the flexibility to adjust for regional variations, and in some instances with the ability to develop regulations more stringent than those promulgated nationally. An example of the latter can be found in the TF

case study of clean air policy in Los Angeles, where a critical factor in the success in cleaning the air was due to the ability of the State of California to impose clean air standards that exceed those established by the Environmental Protection Agency of the United States (see Mazmanian: "Achieving Air Quality – The Los Angeles Experience," Occasional Paper). The European Union operates on the basis of subsidiarity, meaning that environmental protection should occur at the lowest governmental level appropriate to the issue. Local environmental problems, thus, are the responsibility of local authorities. In contrast, environmental matters that are of transnational scope or impact typically are the responsibility of the European Union. The European Union, through qualified majority voting, establishes EU-wide environmental regulations and directives that member states must then transcribe into domestic law. EU directives usually leave member states quite some freedom to adapt goals and requirements to their specific situation. As is the case with California in the United States, individual member states of the EU do have the authority to establish environmental regulations that are more stringent than those established by the EU commission in Brussels as long as it can be shown that this is being done for environmental reasons (and not simply to obtain competitive advantage).

Establishing the appropriate balance between national goals and local-regional goals and interests has required relinquishing of some regional autonomy in pursuit of national environmental goals, which has necessitated greater communication, the development of trust, and coordination among the national, regional and local levels of government. The improved inter-governmental relations has also helped in addressing cross-jurisdictional environmental problems at the sub-national level, such as managing at the watershed or air basin, or metropolitan level of a problem. In effect, in establishing a relatively few but connected levels of environmental agencies in Japan and the West, a balance has been struck that ensures a reasonably uniform implementation of national laws and regulations, provides for systematic performance evaluation based on national goals, while remaining fairly responsive to local needs and special circumstances. Moreover, the greater the integration and coordination among national and sub-national levels, the greater is the information sharing and policy learning possible throughout the entire system of environmental governance.

China, with its more than 2,500 different environmental units at the county, municipal, provincial, and state level, has encountered extraordinary problems in inter-unit coordination and cooperation. This stems in part from the varying local interests and critical economic development pressures bearing upon the tens of thousands of actors

involved. It is the result of the unusual degree to which responsibility for environmental protection and enforcement has been devolved to the lowest levels of government in China. This problem in organization has been exacerbated by the far higher priority given to economic growth over environmental and resource protection until quite recently. The consequence, repeatedly cited in the scientific literature (see Literature and TF Occasional Papers, and Case Studies) and experienced by those responsible for environmental protection at the higher levels in China is that the sheer number of administrative units, their relatively weak capacity, their accountability primarily to the local government and appointed officials, and economic over environmental priorities has seriously undermined the goal of harmonious environmental-economic development.

Finally, many if not most EPBs lack the resources to develop the scientific, technical, and managerial capacity needed to effectively carry out their mission, especially in the rapidly growing and complex urban settings of China (see Hu, Zhang, Zhang & Qin: "Urban Environmental Governance in China," Case Study). The exception to the general pattern is the coordination and leadership found in a small number of major metropolitan centers, such as in Dalian, Nantong, Shanghai and Xiamen (OECD, op.cit.,p. 20), or in the plans for new eco-communities, such as Dongtan on the island of Chongming, and generally at the provincial level where the resources, capacity, and leadership in harmonious development exists. In these cases, the talents and resources have continued to grow and expand to better match the scale of their environmental problems.

There is no fixed or simple organizational solution to matching environmental agencies to the size and scale of the problems they confront, but it is clear that China represents an extreme mis-match with its thousands of local EPBs struggling to address problems that are often of a transboundary or regional nature. It is the judgment of the TF that this must be rectified if China is to successfully address its pollution and resource protection needs and meet its ambitious goals in the 11th five-year plan. In considering various options, the TF believes that as a minimum, EPBs should be consolidated at the metropolitan level for all major urban centers throughout the nation. A second order of consolidation could occur at the provincial level. In addition, the funding for the provincial and metropolitan EPBs should be shared by the provinces, metro areas, and the central government. This is to ensure shared inter-governmental responsibility, coordination, and monitoring on the one hand, and fidelity to national environmental goals on the other. For these same

reasons, professional and managerial training for environmental management and the career development of those within these agencies should be a joint-responsibility, though primarily directed by SEPA.

The intent of this recommendation is to provide a corrective to the serious fragmentation of environmental policy units in China today, along the lines developed over decades of experimentation in the OECD nations as they moved into the more advanced stages of economic development and environmental harmonization.

Action item (2): *Align the vast array of local EPBs around a three-tiered system of national, provincial, and metropolitan (large urban) level environmental agencies, responsible to and reporting up through SEPA as the nation's environment ministry.*

c. Providing Multi-Sector Oversight Capacity within SEPA

The range and severity of China's environmental problems has lead to the expectation that SEPA should and will enhance its regulatory reach across numerous industrial sectors, a growing number of large and small firms, and out to China's many regions and communities. To accomplish this, however, will require the addition of scientific, technical, and managerial capacity. At the same time, and as a note of caution, the experience elsewhere has shown the perceived need for capacity can seem endless. While the resources and capacity of national environmental ministries varies across the OECD countries, by almost any measure the resources and capacity of SEPA are insufficient. This is the case whether measured by the number of personnel relative to population size, by per capita expenditure, per regulated unit of industry or industrial unit per expenditure, or in relation to funding for development ministries.

Moreover, it has been the experience of national environmental agencies elsewhere, that even those with considerable internal capacity, in a number of important areas require additional specialized knowledge; in these cases, they have found it necessary to convene independent assessment and advisory bodies to the agency. Examples include the regular establishment of study groups on specific environmental problems by governmental agencies in Japan; the creation of Enquete Commissions of the federal parliament in Germany, made up of politicians, scientists, industry representatives and NGOs that address specific environmental issues, and the regular contracting out of research questions to environmental think tanks and

universities in the United States. It is the recommendation of the Task Force that SEPA should be provided the authority and resources to convene such bodies.

Action item (3): *Develop science and technology capacity within SEPA to assess and manage major environmental issues across major pollutants and industrial sectors. Provide SEPA with the authority to establish independent advisory commissions in particularly salient and complex issue areas.*

d. Providing Resources commensurate with SEPA's Responsibilities

It has been the experience elsewhere that when making the above recommended types of changes—such as streamlining through consolidating smaller governmental agencies, improving coordination across levels of government, enhancing data gathering, improving agency management, and establishing clear performance expectations—can produce budgetary savings. However, the savings are not always reflected in the central government's budget allocation to the national environmental agency. The costs are usually captured by private sector actors seeking guidance, technical assistance, and permits from the agency, and the local governments that no longer are expected to totally fund and operate their own environmental agency.

The scope and scale of the environmental problems facing China are enormous. Yet, the personnel and resources provided to SEPA are relatively small compared with the country's geographical size, population, and environmental problems. SEPA has only on the order of 2,200 employees (219 administrative staff in its Beijing headquarters and about 2000 staff working in various national offices and centers affiliated with SEPA). Even if SEPA moves forward with its plans to establish six regional offices and hire another 180 employees, the manpower of the administration is comparatively rather weak.

As points of comparison, the U.S. EPA employs 18,000 people in its Washington, D.C. headquarters, 10 regional offices (located in Boston, New York, Philadelphia, Atlanta, Chicago, Dallas, Kansas City, Denver, San Francisco, and Seattle), and more than a dozen laboratories (including the National Risk Management Research Laboratory of the Air Pollution Prevention and Control Division in Research Triangle Park, North Carolina and the National Enforcement Investigations Center Laboratory in Denver, Colorado). The German Federal Environment Ministry (BMU) has 830 employees in its principle offices in Bonn and Berlin and another 1,880 in its three affiliated federal

agencies: the Federal Environment Agency (Umweltbundesamt), the Federal Agency for Nature Conservation (Bundesamt für Naturschutz), and the Federal Office for Radiation Protection (Bundesamt für Strahlenschutz). In addition, the 16 German Länder have their own environmental administrations as the German Basic Law gives the Länder primary responsibility related to policy implementation. The Japanese Environment Ministry employs over 1,100 staff in its Kasumigaseki headquarters and several hundred more in its affiliated research centers and institutes (such as the National Institute for Environmental Studies, which employs approximately 270 scientists). The Dutch Ministry of Housing, Spatial Planning and Environment is staffed with more than 1,000 environmental policy personnel for a country of only 16.5 million people.

Action item (4): *Enhance the capacity of the environmental administrative system of China's central government by increasing the budget and size of SEPA in order for it to adequately meet its responsibilities of analysis, monitoring, regulation, technical and professional training, and enforcement. Provide, through SEPA grants, for a significant portion of the costs of operating metropolitan and provincial level EPBs. Establish a grant program to fund innovative environmental management experiments by local governments.*

Action item (5): *Rationalize the internal management and organization of SEPA to enhance the development of integrated and comprehensive environmental policy tools. Establish an office responsible for policy integration reporting directly to the Minister and whose approval must be secured prior to any policy promulgation.*

3.2 Adopt Best and Safe Practice in Business and Industry

a. Fostering Best Practice of Environmental Performance in Industry

In Japan and the West there have been major movements towards more environmentally-friendly production processes. Examples include the European Union's packaging waste and recycling directives, which create strong incentives for manufacturers to reduce packaging and product waste by requiring them to take back waste packaging and consumer products (including electronics and automobiles); movements in Europe to promote ecological modernization; and Japanese efforts to promote a cyclical-based economic structure.

In recent years, China's leaders have expressed clear interest in promoting sustainable development (a circular economy) and renewable energy, as spelled out most recently in China's 11th Five Year plan and the passage of the renewable energy law. The challenge for China now is to find appropriate environmental governance mechanisms to help ensure the successful implementation of these goals.

To the extent that governments promote environment-friendly economic structures that reduce demands on resources and produce fewer emissions, waste problems can drastically be reduced (see Hu, Wu & Zhang: "Analysis of China's Solid Waste Management", Case Study). In 2005, China became the world's second largest economy when measured in terms of purchasing power parity. Although the "ecological footprint" of the average Chinese is less than one-sixth that of the average individual living in the United States, China's growth rates have been averaging close to 9% a year for much of the last decade. Assuming continued strong economic growth in the coming decade, China's already severe pollution problems will reach crisis levels if strong measures are not taken to reduce harmful emissions and waste and promote renewable and clean energies.

To address this difficult reality, the government should harness the immense power of the market to address environmental problems and promote an eco-friendly economy. Furthermore, in view of the knowledge and capital accumulated in the non-public sector, every effort should be made to mobilize this to facilitate the smooth implementation of environmental policy.

Action item (6): *Provide incentives for companies to move towards cleaner production systems (e.g. for companies that undergo ISO 14,001 certification), promote front-runner green products, technologies and businesses, or those that take back products from consumers for recycling.*

b. Adopting Preventative Measures

China has been plagued by serious pollution problems and environmental crises. While it is important for societies to have measures in place to deal with accidents when they do occur, it is equally important that they set up systems for the prevention of such accidents. In the long-run, governments benefit if they require industries to pursue preventative measures that can help to avoid major accidents. In doing so, governments protect their citizens and their natural resources, limit costly legal and

societal battles, and win societal trust. Also, as China moves into the production of more and more products, the use of hazardous substances is increasing. This produces both threats to human health and the environment. It also creates the potential for major accidents, as occurred with the November 2005 Songhua River benzene spill (see Mao, Li & Li: "Analysis of the Songhua River Crisis", Case Study). The key to prevention is strict liability for damages, strong enforcement with financially significant penalties, and rigorous facility permitting and siting procedures.

One of the common lessons from environmental crises experienced in Japan, the United States and Europe is that information disclosure to the public is an important tool to facilitate emergency preparedness and community involvement in reducing risk. Information disclosure is the building block of effective science-based environmental decision making. One of the most effective and inexpensive tools for reducing the chance of environmental problems and disasters is to require companies to report the release to the environment of hazardous substances.

One of the best known examples is the United States' Toxic Release Inventory (TRI), a compilation of annual reports of the releases of toxic chemicals from facilities made available to the public. This information can be used by any individual to learn about the chemicals in his/her neighborhood (www.scorecard.org). This information has been used by communities to press companies to reduce their emissions. Many companies have voluntarily reduced their use of chemicals due to this disclosure requirement. Also, the U.S. Community Planning and Right to Know Act of 1986 requires companies to notify authorities of the presence of extremely hazardous substances in excess of certain quantities (see Percival & Schreurs: "Environmental Crisis Management – A Comparative Analysis", Occasional Paper).

Following the U.S. example, the Japanese Diet introduced the Chemical Substance Releases Reporting and Management Promotion Law in July 1999, established a reporting system for the release and transfer of chemical substances (known as the PRTR system). Businesses are required to report on their release to the environment of 354 specific chemical substances (Class 1 Designated Chemical Substances) and their transfer as a form of waste. This information is made public on the website of the Ministry of the Environment.

Similarly, the European Union's Seveso II Directive applies to thousands of industrial facilities where dangerous substances are present in quantities that exceed the thresholds set in the directive. All facilities that fall under the scope of the directive must send notification to the competent authority regarding the chemicals on their site and must establish a Major-Accident Prevention Policy. Those with large quantities of designated chemicals must also establish a Safety Report, a Safety Management System, and an Emergency Plan. In addition, the directive mandates that EU member states control the siting of new facilities, modify existing establishments, and control the development of transport links, public places, and residential areas near the facilities. These Land Use Planning Policies aim to ensure that there is appropriate distance between hazardous operations and residential areas.

Action item (7): *Establish reporting requirements for data to assure comparability of data across facilities and over time.*

Action item (8): *Provide funding for the establishment and maintenance of an internet-based reporting system, open to all interested parties.*

c. Setting Fines and Fees Sufficient to Discourage Polluters

Chinese environmental laws have routinely specified maximum penalties that can be levied for non-compliance. In general, these penalty caps are so low that they provide no deterrence to non-compliance. In other words, it generally pays to pollute rather than control emissions. For example, under China's Law of Atmospheric Protection and Control, the maximum penalty is set at 200,000 rmb (see Lu, Dudek, Qin, Zhang, Lin, Yang & Wang: "China's Environmental Enforcement Capacity", Case Study). The penalty is not adjusted for the size of enterprise, nor the severity of the pollution excursion. For large scale industrial enterprises, both capital and operating costs for modern pollution control is significantly greater than 200,000 rmb. In fact, a common problem is that enterprises may have purchased and installed control equipment but chosen not to operate it so as to save money. The penalty caps must be set to be at least as great as the financial gain from non-compliance if there is any hope of getting business to comply with environmental laws and regulations. Arguably, China does have the potential to levy administrative penalties such as shutting down enterprises which impose a heavier financial burden on the individual violator than the penalty caps imply. However, shutting down polluting enterprises is a rarely used enforcement tool since such an extreme action puts the environmental authority in direct conflict

with local economic interests. Since enterprises are rational polluters they will take into account the very low probability of being shut down when evaluating the financial consequences of non-compliance and not take this enforcement option seriously.

Action item (9): *At a minimum, alter the current penalty caps to a daily limit for the duration of the violation rather than the current absolute limit. Greater precision in providing deterrence can be gained by estimating the financial gains from non-compliance through the use of models and setting the penalty on a case-by-case basis.*

Experience has shown that reporting can not simply be voluntary; nor can it be assumed that companies will comply with reporting requirements unless there are strong incentives for them to do so. International experience suggests that to ensure accurate and regular reporting of emissions and hazardous substance uses it is important to hold companies and individuals that are responsible for significant discharges and accidents liable for costs of response and recovery. Liability provisions have provided powerful incentives for reducing risky behaviors and reducing the likelihood of future disasters.

Action item (10): *Establish stringent civil and criminal liability provisions for facilities that fail to comply with reporting requirements for hazardous substances and other environmental reporting requirements.*

Action item (11): *Establish civil and criminal liability provisions for operators of facilities responsible for environmental accidents.*

Action item (12): *Train judges and the procuracy in the basic information needed to establish culpability in environmental damage and compensation cases. Provide standard default methodologies for the calculation of the financial magnitude of such damages and compensation.*

d. Promoting Environmental Disaster Preparedness

International experience has shown the importance of establishing National Contingency Plans for responding to oil spills and toxic releases. It also highlights the importance of establishing a National Response Center with the mandate of receiving reports of toxic releases. The U.S. Congress adopted the Comprehensive Environ-

mental Response, Compensation and Liability Act (CERCLA) - or what is commonly referred to as Superfund legislation. CERCLA required reporting to the National Response Center releases of hazardous substances above certain threshold levels ("reportable quantities").

Action item (13): *Require the establishment of provincial and county level emergency planning committees and provincial level emergency response commissions.*

Action item (14): *Establish a Hazardous Substances Response Fund for clean up of emergency spills. This can be financed with a tax on companies using hazardous substances, which, in turn becomes an incentive to reduce their use.*

e. Creating Independent Hazardous Substances Safety Boards

Independent regulatory and investigation boards are an important element of emergency response. In an effort to prevent accidents and to investigate those that do occur, Japan, Europe, and the United States have all found it necessary to establish independent investigation committees. Regarding chemical safety, the US Congress authorized in 1990 a Chemical Safety and Hazard Investigation Board that became operational in 1998. This independent, non-regulatory agency is charged with investigating the causes of chemical accidents. It investigates specific chemical accidents and general chemical accident hazards. Its purpose is to protect the workers, the public, and the environment. In addition, the board issues reports and can make recommendations to Congress for regulatory changes that would improve safety.

While it may seem self-evident that accidents need to be reported to competent authorities, it is not uncommon for perpetrators of accidents to try to cover them up. There are countless episodes of industries and governments that have tried to hide accidents from the public, or to try to create the image that a problem is not as serious as some might argue. History shows, unfortunately, that efforts to cover-up accidents often results in an intensification of damages and public and even international condemnation.

Action item (15): *Require companies to report the presence of hazardous chemicals and establish emergency response plans and mechanisms with the requirement for timely reporting of any accident.*

f. Promoting Corporate Social and Environmental Responsibility

Environmental governance in corporations is no less critical to the effective reform of environmental management in China than for the society as a whole. The experience in most of the world is that companies directly control the vast bulk of environmental investments and expenditures and make most decisions directly affecting environmental quality. For example, in the US the private sector is estimated to account for more than 90% of all environmental expenditures. The Corporate Social Responsibility Movement (CSR) has taken root in China, but it has not significantly focused yet on the environmental dimension of corporate responsibility. This deficiency is important because a lack of effective internal corporate environmental governance contributes to a continuing lack of company priority for environmental performance.

Action item (16): *Encourage companies to install corporate social and environmental reporting systems, and stimulate consumers to ask for strict social and environmental standards of the products they buy.*

3.3 Enhance Stakeholder and Citizen Participation

The complexity and quantity of the environmental issues confronting all nations today has overwhelmed the capacity of even the strongest and best prepared of governments, working alone. Adequate response to these challenges requires that governments encourage and embrace open and transparent decision-making and implementation processes. Moreover, international experience confirms that multiple stakeholder and public involvement in environmental policy making and implementation processes can result in stronger regulations, strengthen understanding of policy goals, and increase the likelihood of successful environmental policy implementation. And the information base needed to engage the public and the wide variety of affected stakeholders in these processes is more often than not provided by non-governmental researchers and disseminated by press and electronic media that are neither governmentally controlled nor censored.

The Chinese public is clearly becoming more aware of the causes and deeper costs of pollution, today demanding a greater voice, and taking direct action in thousands of cases of pollution and environmental degradation across the nation. As reported recently in the China Daily, “An overwhelming 97 percent of Chinese consumers care about the environment; and almost as many would boycott products made by

companies which are insensitive to pollution” (March 17, 2006). While this survey was drawn from the educated middle class, in four major urban cities in China, the widespread environmental protests experienced in recent years suggests that concern for the environment is widespread throughout the population. Furthermore, some recent research (Land Economics, May 2006) analyzing the hypothesis of the so-called Environmental Kuznets Curve indicates that rising incomes may not be the real underlying cause of reduced emissions, but that they may be due to rising environmental awareness.

a. Clarifying the legal Status of Citizens and NGOs

The Chinese government is responding and has become increasingly open to civil society participation in environmental decision making and implementation (Lehrack: “Environmental NGOs in China – Partners in Environmental Governance”, Occasional Paper). Since 1993 environmental non-governmental organizations have been operating in China. The China Council reports that over 1,000 non-governmental environmental organizations have been recognized by the state. And there are many thousands more operating informally (see Mol & Carter, 2006, 160). Still, while the Chinese government now recognizes the importance of these civil society groups, the TF believes that more can and should be done to support their active involvement in the environmental policy process. The new Administrative Procedures Law in China importantly contains provisions for public consultation in rule making. However, many in the public and NGO community are unaware of this opportunity. It will require a concerted effort by government to engage civil society in this process.

First of all, there remain numerous legal and administrative barriers in China that limit the ability of groups to obtain non-profit status and to participate meaningfully in the creation of regulations, the identification of problems, and the monitoring of environmental problems and regulatory progress. Given the inherent resource limitations that confront NGOs in China, a more favorable taxation environment for benefactors and NGOs themselves should be established. NGOs should also be eligible to compete for public support grants and capacity building programs for environmental protection.

b. Conducting Environmental Education and Advice

The positive results of opening the society further to environmental NGOs has been experienced in Japan where, despite a long history of environmental activism by citizens, there were many obstacles preventing the full realization of the abilities of

non-governmental groups. In the past 15 years, the Japanese government has done much to improve the status of the environmental non-governmental community by simplifying procedures for obtaining non-profit status, creating incentives for individuals and corporations to contribute to NGOs by creating provisions for tax deductible contributions, and by establishing governmental financial support mechanisms for NGO activities. U.S. examples, moreover, suggest that providing NGOs with the “right of standing” in the courts to represent the interests of victims of pollution and natural resources can be one of the most effective means of furthering environmental protection goals. However, NGOs can play numerous positive roles in the system of environmental management. NGOs can pioneer new policy innovations through the creation of demonstration projects funded by private resources. NGOs have established public-private partnerships to leverage available resources to enhance environmental protection and resource quality. NGOs are effective in educating the public about environmental problems and needed public responses to solve them. NGOs can bring added expertise to the policy process augmenting the government’s scarce resources.

c. Improving Public Access to Environmental Information

There are many measures that China could pursue to strengthen the role and contributions of the public to environmental governance. These include streamlining the process of obtaining non-profit status and taking measures to enhance NGOs’ financial status. This could include creating tax incentives for individuals and corporations to donate to NGOs and providing them with preferential postal rates. Measures should also be taken to mitigate the psychological barriers limiting citizen and NGO participation. This can be done through governmental assurances that NGOs will be given a voice even when their perspectives differ from that of industries or government planners. Also importantly, the legal standing of citizens and NGOs in environmental disputes should be clarified and adjudication through the courts be encouraged.

d. Enhancing NGO Capacity

A major challenge of any government is enforcement of regulations once they are established. In the cases of many European countries, including Germany and the Netherlands, Japan, and the United States, environmental groups have become important watchdogs of governmental and business behavior. Groups like BUND, Environmental Defense, Friends of the Earth, Greenpeace International, NABU, the Natural Resource Defense Council, the Sierra Club, and World Wildlife

Fund/Worldwide Fund for Nature (WWF) have been important educators of the public about the importance of environmental protection. They have also reacted in cases where the government failed to enforce a regulation or a company violated the law. They have brought many suits on behalf of victims and damaged natural areas to the courts for trial.

The combination of environmental group activism and a powerful and independent judiciary have done much to give meaning to national legislation. It also helps to serve as a deterrent to companies that might otherwise violate the law.

Action item (17): *Simplify and make easier the process of obtaining non-profit status and take measures to enhance NGOs' financial status.*

Action item (18): *Provide tax incentives for individuals and corporations to donate to environmental NGOs.*

Action item (19): *Mitigate the psychological barriers limiting citizen and NGO participation with governmental assurances that NGOs will be given a voice even when their perspectives differ from that of industries or government planners.*

Action item (20): *Enhance the legal status of citizens and NGOs clarifying their rights in environmental controversies, providing them legal standing in the courts on behalf of injured social groups and the environment.*

Action item (21): *Support public-private partnerships that develop environment-friendly enterprises, products, and processes.*

3.4 Establish Multi-Sector Coherence and Foresight and Improve International Environmental Cooperation

a. Establishing Policy Coherence and Foresight Capacity

After several decades building the capacity to better manage specific problems of air, water, soil, and toxic pollution and better manage the natural environment in general, the experience in virtually all OECD nations has been that strong regulation and enforcement, even when combined with clear legally mandated goals and objectives, may prove insufficient to counter or adequately modulate the imperatives of economic

growth in a society. This problem is compounded by the propensity of the differing ministries of government to pursue their mission unconscious or unaware of the particularly long-term impacts of their actions on the environment.

There is no easy solution to the inherent conflict between economy and ecology, though several approaches have been and are being pursued. One of the most common approaches is to establish an advisory council to the state environmental minister, composed of environmental scientists, professionals, and stakeholders from affected sectors of industry and labor, NGOs, and the public to provide advice on policy directions and implementation strategies. In the U.S., this is represented by numerous advisory bodies to the state minister (Director of EPA) and at a higher governmental level, by the President's Council of Environmental Quality. In Germany, the Council of Environmental Advisors (Sachverständigenrat für Umweltfragen - SRU) and the Advisory Council on Global Change (Wissenschaftlicher Beirat Globale Umweltveränderungen - WBGU) were set up in 1971 and 1992, respectively, to provide independent expert advice from multiple disciplinary perspectives on the state and trends of the national and global environment, and policy recommendations to the German government. In addition, in 2001, a National Council on Sustainable Development (Rat für Nachhaltige Entwicklung - RNE) was established, consisting of a broad range of practitioners, representing various stakeholders. Japan too has developed a very elaborate and consultative process, with a series of Environmental Advisory Councils composed of critical stakeholders and tiering from the national down through the prefectural and municipal level of government. More recently, the Global Environmental Council of Japan was established, chaired by the Prime Minister, to advise the government not just on the traditional issues of environmental pollution and resource protection, but the challenges of global change (see Hirono: "The Environmental Advisory System in Japan," Occasional Paper).

In recognition of the need to better coordinate across ministries, all ministries should be required to have their own internal environmental department to provide consultation and advice for environmental issues and problems affecting each ministry's mandate. In addition, various ministries within government have been encouraged to share their plans and data, meet with one another to reconcile differences, and leverage their scientific assessments and knowledge in developing national goals and objectives. The "planning cycle" process instituted by several OECD countries has taken this approach the furthest, including "explicit objectives and target-setting, evaluation of progress in achieving them, providing feedback to

policy makers and adjusting priorities on the basis of lessons learned” (OECD, op. cit., 2006, Ch. 17, p. 16). Of these, the Netherlands provides the most comprehensive multi-sector national environmental policy planning process (NEPP 1 and 2). A crucial feature of the Dutch environmental policy planning is its organization along environmental themes (climate change, acidification, waste, etc.) and target groups (industry, agriculture, transport, consumers, etc.) rather than environmental media (water, air, soil, etc.) or individual pollutants. This enables an integrated, cross-media approach to sets of related problems and the development of coherent, cross-sector policies for groups of polluters. Ambitious long-term environmental goals and strategies are established in close co-operation between target groups and all ministries involved, which reduce uncertainty about future policies and enhance commitment to those policies (see Knill & Liefferink, 2006).

Another approach is to require the review of all major developments for consistency with the goals of the various ministries affected – development, infrastructure, urban planning, environmental, agricultural, etc – prior to granting approval to proceed. This is the intent of the environmental impact reports required universally in OECD nations - and to a growing extent in China. The process of requiring developers and the communities in which they are located to consider the effects of major developments on the environment and natural resources has proven useful, especially in helping to avoid the most harmful unwanted impacts. However, these reports are typically only advisory and, in many instances, have become perfunctory. In others, they have been used by anti-development factions to impede development for their self-interest rather than to protect the environment. It is especially important to conduct post hoc reviews of the effectiveness of reviews. For example, the Environmental Impact Assessment conducted for firms prior to permitting often requires mitigating actions. To what extent have these compensating actions been implemented?

A recent approach being taken by several nations is to avoid to the greatest extent possible the production of pollution and harmful environmental effects in the first instance, through anticipating and mitigating these in advance. This is being accomplished through using less energy per capita and per production unit, adoption of cleaner energy sources (see Bechberger & Reiche: “Good Governance for Renewable Energies - The Example of Germany”, Occasional Paper), eliminating if not greatly minimizing toxic and hazardous materials in product manufacture and agriculture, designing products for disassembly, requiring end-of-life take-back by manufactures, fostering ecological modernization modes of technology development

and production, practicing eco-friendly and water-saving agriculture, fostering green and “smart” urban planning, and adopting principles of harmonization and a circular economy. All are examples of policies that anticipate and avoid harm, albeit mostly on a pilot or limited base.

All of these approaches require an uncharacteristic degree of openness and transparency within and among government agencies. In recognition of this fact, national governments have had to compel their ministries and leaders to be more forthcoming. This was one impetus behind the “freedom of information” laws and the toxic reporting inventory (TRI) system adopted in the US. Another was to provide citizens with environmental information as the key to effective public participation. In addition, these disclosure provisions required companies to make public estimates of emissions that they previously had not measured or reported. It also was one of the major motives behind the Directive on Freedom of Access to Environmental Information of the EU (see Liefferink: “New Modes of Environmental Governance – The Experience of the European Union”, Occasional Paper).

None of these approaches has prevented all the harmful environmental effects of resource extraction and economic growth. However, institutional and policy experimentation has proceeded further toward this goal in Japan and the West, and this has resulted in a relatively better balance between economic growth and environmental protection.

Where such progress has been made, moreover, it has occurred in large part when the top leadership of the nation has insisted that those responsible at the ministerial level and likewise at sub-national levels work together, in what have been new, forward planning inter-sectoral institutions within government. In some instances, this is taking place in open institutional forums, inviting comment and participation by the public, private, and non-governmental actors in society. It has worked most effectively where the nation’s political leaders have developed methods of information gathering, verification, and assessment that provide more representative feedback than any single ministry or source of assessment can be expected to provide.

In view of the necessary steps remaining for China to achieve the level of balance being achieved elsewhere, and in consideration of its absolute size, commitment to an unprecedented pattern of economic development, and relatively modest capacity to address domestic and international environmental issues, the TF recommends

developing the institutional capacity for foresight and coordination at the ministerial and governmental levels. The body should be required to hear and make recommendations on inter-ministerial disputes over environmental responsibilities and practices. Participants should include the National Development and Reform Commission (NDRC), Ministry of Finance (MOF), Ministry of Construction, Ministry of Agriculture (MOA), Ministry of Land and Resources, Ministry of Water Resources, China Meteorology Administration, State Forestry Administration, Ministry of Health, and, of course, the State Environmental Protection Administration (SEPA).

While SEPA is responsible for developing and implementing environmental policies for the nation, it so far lacks the political standing and institutional forms for bringing together the relevant ministries, industrial sectors, and the public to carry out its mission (see Li & Zusman: “Institutional Capacity and Environmental Regulation in China”, Case Study).

In addition to the above recommendation to elevate SEPA to cabinet level, the TF recommends that a cabinet level coordinating body be established to share and reconcile competing and conflicting national priorities, reporting its findings on a regular basis to the government, available to the public. This could be similar to the former Environmental Protection Commission of the State Council (cf. OECD, 2006, p.18). However, the most promising model for serving the interests of the government as a whole, and reconciling different interests and perspectives in society, and doing so at the very highest level, is provided in the example of the Japanese Global Environmental Council, with the Prime Minister as Chair, and all stakeholders and citizens having access to the deliberative and policy recommending process of the council.

Action item (22): *Establish a cabinet-level inter-ministerial body to share scientific analysis, performance data, and each ministry’s respective annual and multi-year strategic plans for achieving the environmental goals of the nation.*

Action item (23): *Establish a high level multi-sector, multi-stakeholder, national council of experts, chaired by the Prime Minister, to assess compatibility and reconcile differences in goals and strategies of the various ministries and interests of society as they affect the environment, and to advise the President, the Premier, and the State Council on environmental policy.*

b. Improving International Environmental Cooperation

There is little question that China has become a major East Asian economic and political superpower and that it is rapidly moving towards global superpower status. The increasing interconnectivity between China, its neighbors, and the global community in commerce is quickly being matched by its connectivity and responsibility to reduce transboundary and global environmental problems, to ensure the protection of the environment and of natural resources beyond its borders.

The East Asian region still has few cooperative institutional forums for addressing transboundary pollution problems or international environmental crises although some steps have been taken in this direction with the formation of the Tripartite Environment Ministers meetings and various river basin commissions. As the largest polluter in the region, China should take the lead in proposing the establishment of an East Asian inter-governmental environmental commission to address transboundary pollution problems, emergencies, and the links between trade and the environment.

While China has become involved in an increasingly large number of regional commissions, these are typically established as reactive, rather than preventative bodies. An East Asian Environmental Commission could be tasked with harmonizing data gathering and reporting procedures, dissemination of monitoring data, joint research into the causes and consequences of transboundary pollution matters, promotion of environmental and nuclear safety (including nuclear waste disposal), and addressing cases where regional trade and environmental concerns are in conflict. This could be done through existing mechanisms such as the Tripartite Environment Ministers meeting or the ASEAN plus three groups, or through the creation of a new inter-governmental body. Most importantly, a more assertive and forward looking approach is needed.

One possible model is the North American Commission on Environmental Cooperation, which was set up to protect, conserve, and improve the environment through increased regional cooperation and public participation. Another model would be the European Environment Agency (EEA) in Copenhagen, which, however, is primarily a monitoring and data gathering center.

Action item (24): *China should propose to other nations in the region the establishment of an East Asian Environmental Commission to promote a comprehensive regional approach to the protection, improvement, and sustainable management of its environment and natural resources.*

Action item (25): *China should prepare for playing a more active role in the implementation and further development of the United Nations environmental conventions and multi-lateral environmental agreements (MEAs), especially on climate, biodiversity, desertification, water, forests, and persistent organic pollutants in order to insure mutually agreed goals are met and fortified.*

Action item (26): *Special efforts should be made to enhance the effectiveness of China's environmental diplomacy and participation in global environmental governance by strengthening the environmental training of China's diplomatic corps.*

4. Conclusions

China is at a cross road. Environmental expectations are rising among its citizens along with impatience at the persistence and magnitude of environmental insults and damages. World attention is focused on China as a result of its rapid economic growth and emergence on the global scene, as exemplified by the hosting of the Olympics in Beijing in 2008. Yet, increasingly the image of China is as the world's factory with rampant pollution blanketing the landscape, urban areas clogged with cars, skies filled with the emissions from innumerable smokestacks, and rivers too polluted to sustain either life or productive use. While this is a caricature, it contains too many elements of contemporary reality to ignore.

China has many good environmental laws on the books. Its environmental professionals are dedicated and serious about their charge. There has been considerable forward progress in managing environmental problems. However, the fundamental problem facing China is the mis-match of the speed of change driven by global market forces in the business sector and the relatively slow pace of institutional change to cope with the unwanted and damaging by-products of rapid economic growth. The work of this Task Force has focused on the key elements of environmental governance that can be improved in order to enhance China's prospects for dealing with these growing environmental challenges.

Of special importance is the need for a coherent master plan for institutional reform in environmental governance. The Task Force has attempted to identify key elements of such a plan by focusing on changes in institutional arrangements and processes that - if adopted - could significantly enhance the effectiveness of China's environmental governance. The members of the Task Force firmly believe that the goal of a *Xiaokang society* can only be attained if China's population enjoys a high level of environmental quality.

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APPENDIX A

Occasional Papers - Summaries and Recommendations

Miranda A. SCHREURS

PERSPECTIVES ON ENVIRONMENTAL GOVERNANCE

Executive Summary

Environmental governance refers to the approaches used by a society to address pollution and promote conservation. Whereas the word “government,” focuses attention on governmental bodies and actors, the term “governance” addresses the processes used by governments to collaborate with private actors and non-profit organisations to control or coordinate social and economic activities, achieve societal goals and deal with policy issues.

Approaches to environmental governance are changing - in Europe, Japan, and the United States. National governments began to become involved in environmental protection in the 1960s and 1970s. During this early period, environmental policy was characterized by command and control environmental regulations. Regulations were typically technocratic in nature and focused on specific pollutants. While these regulations have played a critical role in improving environmental conditions, there is now growing awareness of the limitations of reliance, especially the exclusive reliance, on the command and control approach.

As a result, new modes of environmental governance, characterized by multi-stakeholder participation and more transparent decision making are being adopted. Also, the focus of programs is shifting from dealing with pollution after it emerges to preventative and precautionary planning. There is greater interest in approaches that have as their goal the protection of human health and ecological systems rather than simply the reduction or elimination of a specific pollutant.

China is at a critical juncture. The country's pollution and natural resource degradation problems are severe. If China is to continue to sustain high economic growth rates

and improve the quality of life of its citizens, environmental conditions will have to improve. In order to meet these needs, China must strengthen its environmental governance.

Author's Recommendations

China's leaders have recognized the need to establish national environmental quality standards, health standards, technology standards, and nature protection programs and goals. Yet, effective implementation of environmental standards is often hampered by insufficient societal awareness, incomplete monitoring systems, uneven enforcement of regulations, and insufficient incorporation of environmental goals into economic planning, among other problems. As is the case with countries around the world, China needs to find ways to strengthen its environmental governance.

Meeting environmental goals requires strengthening the capacity of national environmental administration. In many developed countries this was done by elevating the national environmental protection administration to full cabinet rank. Given the size and scale of China's environmental challenges, strengthening the capacities and political authority of SEPA should be seriously considered.

In the past, environmental regulations were too often designed to simply reduce or control a specific pollutant rather than to consider how best to protect ecological and health systems with more holistic, preventative, equitable, and cost-effective strategies. China could do much to limit future pollution by requiring greater attention to environmental matters in planning decisions. Relatedly, the Chinese government could save money and energy and win the good will of the people by adopting more environmental considerations into urban planning and industrial development. One of the best ways to achieve sustainable development is through the promotion of such concepts as green planning, smart growth, recycling or circular economies. A full range of environmental policy tools, ranging from regulations to environmental information disclosure to market-based mechanisms should be considered.

Addressing environmental degradation requires cooperation among actors at all levels: local, regional, national, international and global; as well as among different stakeholders: governmental, corporate, non-governmental, and societal. Involving the public in environmental goal setting, solution design, monitoring and enforcement has

proven effective in assisting governments in establishing and implementing sound and achievable goals. This can be done by facilitating the formation and operations of non-governmental organizations (NGOs), environmental programs with universities, and scientific communities.

Environmental decision making, monitoring, and enforcement procedures should be transparent. Information about pollutant emissions, environmental quality, and environmental performance of organizations, industries, and regions should systematically be provided and regularly be reported.

Ryokichi HIRONO

ENVIRONMENTAL GOVERNANCE IN ASIA

Executive Summary

Since the mid-1990s, the issue of environmental governance in the developing countries of Asia has attracted the attention of researchers as well as policy-makers. Environmental governance here is interpreted as a framework of values, norms, rules, policies and institutions, both formal and informal, that determine the individual and collective behaviour of different stakeholders in society and the interactions among them for environmental protection and conservation in a given place, whether local, national, corporate, regional or global.

The author sets the agenda in this paper as follows:

First, to look into the current environmental governance situation in Asia and provide some explanations for the continuing environmental degradation in this region. By doing so, it is hoped that decisions for better corporate, local, national, regional and global environmental governance would emerge in all countries.

Second, to examine the critical factors responsible for the change in environmental policies from 'command and control' to a new set of regulatory and market-based measures now increasingly observed in Asian countries. Government efforts to reduce air and water pollution and to deal with pollution arising from increasing urbanization and the change of lifestyles, have failed miserably in the developing countries of Asia. Many stakeholders within and outside the Asian countries -

including intergovernmental and non-governmental organizations - have come to claim the lack of good governance as a major cause of continuing environmental degradation.

Third, to provide strategies and policies for realizing good environmental governance in Asian countries and at the regional level, by closely examining what developed countries, particularly Japan, have done in this regard.

Author's Recommendations

Improving environmental governance in the developing Asian countries should focus on the following points:

- Expand and improve the network of institutions that review and disseminate information on the quality of the environment through various channels, including mass media and the Internet.
- Undertake reviews of laws and regulations related to environmental management in both the public and private sector, with a view to removing inconsistencies among them, and further integrate environmental considerations into economic, social and other sectoral policies.
- Promote decentralization of responsibility for environmental quality to local governments in environmental policy-making and implementation.
- Expand membership and participation of environmental NGOs and affected local communities in the process of environmental governance.
- Explore the possibilities for applying the concepts of Strategic Environmental Assessment (SEA) and Strategic Environmental Management (SEM). Give special consideration to bringing small and medium enterprises (SMEs) into compliance with environmental laws and regulations.

Duncan LIEFFERINK

NEW MODES OF ENVIRONMENTAL GOVERNANCE – THE EXPERIENCE OF THE EUROPEAN UNION

Executive Summary

New modes of environmental governance were introduced in the European Union (EU) from the 1980s onwards for two main reasons:

In order to improve decision-making: It was hoped that more open, flexible modes of governance would lead to easier and more rapid decision making;

In order to improve implementation by the EU Member States: It was hoped that more open, flexible modes of governance would allow for better accommodation of geographical, socio-economic, legal and political differences within the EU.

The paper elaborates on those two points in the form of two cases studies:

The first case study deals with attempts in the 1990s to curb motor vehicle emissions through a negotiated agreement between the EU Commission and the car and oil industry, the so-called Auto-Oil I Programme. The experiment failed, mainly because the Member States were not prepared to give the necessary negotiation mandate to the Commission. The case illustrates that substantive stakeholder involvement tends to shift decision-making powers from the legislature to the executive. Without a strong political willingness, such shift is not likely to be accepted by the legislature.

The second case study deals with the implementation of the EU Directive on Free Access to Environmental Information in three major Member States: the UK, France and Germany. It shows that new modes of environmental governance are not as such more easy to implement than traditional 'command-and-control' measures. Both types of policies may be fundamentally incompatible with existing institutional and administrative traditions. Such incompatibilities, moreover, turn out to be highly specific for each country.

Author's Recommendations

The main policy recommendations can be summarised as follows:

- Develop concrete targets, direct regulation and clear incentives, which are both crucial and necessary for the effectiveness of new, more open and flexible modes of environmental governance.
- When introducing new, more open and flexible modes of environmental governance (including new policy instruments), build on existing institutions and regulatory traditions in order to be successful.

Daniel A. MAZMANIAN

ACHIEVING AIR QUALITY – THE LOS ANGELES EXPERIENCE

Executive Summary

Los Angeles is a leading example of the importance of a metropolitan-based approach to emissions reduction being pursued in the United States today. Key political, economic, cultural, and technological factors have combined to bring about significant reduction in air pollution in the Los Angeles region.

Playing an important role over the past 35 years have been the significant improvements in stationary and mobile air emissions control technology and business practices; the development of demanding clean air policy at the national, state, and regional level; and the creation of a strong regional administrative agency with the task of monitoring and implementing clean air policy. Little progress in cleaning the region's air, however, would have occurred absent the unrelenting pressure by civil society to do so.

The Los Angeles region remains under substantial pressure from national, state, and local policy, and from the public, to achieve even further air emission reduction, especially with respect to today's prominent pollution 'hot-spots'. The region's population continues to grow and the economy to thrive and expand, with all this

implies for the generation of greater levels of emissions. Thus, despite the impressive accomplishments in reversing the trends in air emissions and in meeting clean air goals in the region, the struggle for better air quality is far from over.

Author's Recommendations

The Los Angeles experience suggests three crucial factors in accounting for the appreciable success of environmental governance.

Leadership: Dedicated political and administrative leadership is essential for formulating policy, supporting implementation, and rallying public support; leadership that reflects the values and channels the environmental expectations of the people and the community.

Technology: Success depends heavily on having a technology strategy that fosters the use of both “off-the-shelf” and “yet-to-be-demonstrated” technologies to bring about air emission reductions.

Multi-Sector Coordination: A successful environmental strategy requires attacking air pollution through aligning action in several major arenas: regional development, urban design, energy, and transportation.

Mischa BECHBERGER & Danyel REICHE

GOOD GOVERNANCE FOR RENEWABLE ENERGIES – THE EXAMPLE OF GERMANY

Executive Summary

Germany's pioneering role in the field of renewable energies can best be stated by its world leading position in installed wind power and photovoltaics. Also its first European rank in the production of biofuels and installed solar thermal collector space is remarkable.

These successes are not due to an exceptionally good natural resource base; mainly they are the result of an innovative national support policy. Pressure from the

European and international commitments also have contributed to the German success story in renewable energies.

The paper analyses the main factors of the German case in the development of renewable energies, including the design elements of the national promotion instruments and support programs, the policy impacts from the European and the international level, technical as well as cognitive conditions. In addition, a description is given of further driving forces for a successful renewable energy development in other European countries.

The paper ends with a discussion on which of the described success factors of the German case of renewable energy development might be transferable to China - and which not.

Authors' Recommendations

With its ambitious goals for the year 2020 of a 30 % renewable energies share in electricity consumption and a 15 % share in primary energy consumption, China has committed itself to a more sustainable energy policy.

In February 2005, China adopted a renewable energies promotion act which resembles the successful German "Feed-in law" (*Erneuerbare Energien-Gesetz* - EEG). While this policy seemed to set the right incentives for a fulfilment of the goals set, the financing mechanism was based on a tendering scheme, which in other countries (like UK or Ireland) hasn't shown good results. Therefore, China should better move towards a remuneration scheme with fixed, stable and long term tariffs for renewable energy power, like in the German EEG.

For photovoltaics, with their still relatively high electricity generation costs, an additional programme with investment subsidies, like e.g. the German "100,000 Roofs PV Programme", might be a useful complement to a stable tariff system.

Furthermore, China should continue to quickly build up its renewable energy industry, as the global market for renewables keeps on growing fast. Moreover, with a commitment to an active international climate policy, with binding reduction targets for CO₂ emissions in the second period of the "Kyoto Protocol" (after 2012), China could create a big national market for projects under the "Clean Development Mechanism" (CDM).

Finally, the institutions established to foster renewable energy development in China should be strengthened at the ministry level to give the promotion of renewables a stronger representation within the government.

Ryokichi HIRONO

THE ENVIRONMENTAL ADVISORY SYSTEM IN JAPAN

Executive Summary

In this paper the environmental advisory system installed at local and national levels in Japan is singled out as one of the important institutional mechanisms of effective environmental governance.

The author sets the agenda as follows:

First, to provide as background to the environmental advisory system many decades of painful experience of environmental degradation that Japan had undergone and environmental legislation that Japan had undertaken.

Second, to identify major factors responsible for the change from the Advisory Council on Anti-Pollution Measures (ACAP) to the Central Environmental Advisory Council (CEAC), and the Cabinet-level Global Environmental Council (GEC), chaired by the Prime Minister - concomitant with the upgrading of the Environmental Protection Agency (EPA) to the Ministry of Environment (MOE).

Unlike ACAP, concerned mainly with anti-pollution policy and compensation to the environmentally disadvantaged, such as Minamata methyl-mercury pollution, Itai-Itai limb and joint paralysis, Yokkaichi respiratory disease, and Niigata Minamata, CEAC and GEC have been increasingly involved in a large spectrum of environmental conservation, pollution prevention and disaster management, respectively, at the local, national, and at the global level.

And third, to suggest ways and means of how to make advisory systems an integral part of environmental governance in Asian countries in the future.

Author's Recommendations

Japan's environmental advisory system has evolved over time and assisted local and central governments in directing environmental policy agendas in a timely fashion.

Based on the findings and recommendations of the advisory system, continuous mass media reporting has facilitated the public to have greater environmental awareness, understand better the adverse implications of environmental degradation to human health and ecosystems as well as to future generations.

The advisory system has helped industry to better understand the need for and the importance of developing environmental technology and corporate environmental management.

The advisory system has also been a critical agenda setter for experts engaged in environmental research and laboratory work.

Finally, the environmental advisory system has provided the academic community with ample data and methodology on which to base their on-going and future studies.

Dorit LEHRACK

ENVIRONMENTAL NGOS IN CHINA – PARTNERS IN ENVIRONMENTAL GOVERNANCE

Executive Summary

This paper is a snapshot of the potential of Chinese environmental NGOs to effectively address environmental problems, alone and in partnership with others. As environmental NGOs have only been on stage for the last ten years or so and as they undergo dynamic changes, a thoroughly conducted scientific analysis about the strengths, weaknesses, opportunities and risks seems not possible yet. However, some empiric findings can be given, and some trends and tendencies be predicted.

The paper starts with a look at the history of NGOs in China, with a specific focus on

environmental NGOs, followed by problems and chances caused by the present legal status of the groups. It describes the main working areas of Chinese environmental NGOs, as illustrated by some representative examples.

The main trend is that Chinese NGOs, irrespective of their origin (grass root, semi-state organizations or Government-organized non-profit environmental organizations) will gain more respect and influence in both environmental awareness raising and as a competent partner in policy formulation and law enforcement. To do so, however, the State institutions concerned will have to let them participate in environmental planning and developing processes at an early stage and assist them in their capacity building.

Author's Recommendations

To establish environmental NGOs as equal partners in promoting environmental governance in China, it is recommended that,

- the role and function of NGOs be specified in the process of improving environmental governance;
- meetings be organized, inviting experienced local and national NGOs and representatives of international NGOs in order to discuss the topic and details of modern environmental governance and to build trust and relationship;
- funding be provided for NGO training with the objective of establishing a network of skilled experts on environmental governance across the country;
- a website be developed with good practice examples, that can be replicated elsewhere in China;
- NGOs be commissioned to conduct training for journalists on the topic of environmental governance;
- an annual award be given for best practical cooperation of local environmental bureaus and local/international NGOs.

Mary A. GADE & Cynthia A. FAUR

**THE UNITED STATES ENVIRONMENTAL POLICY SYSTEM –
AN EVOLUTION IN FEDERAL VS. LOCAL CONTROL**

Executive Summary

Prior to 1970, environmental regulation in the United States of America was primarily a local concern. While there were federal environmental regulations and laws, enforcement authority for those regulations and laws was spread through different departments of federal government.

This changed some 35 years ago, when the United States Environmental Protection Agency ("EPA") was born. Its mission was to protect human health and the environment. During these past years, the United States system of environmental protection has undergone dramatic changes and has achieved significant environmental improvements.

The purpose of this paper is to discuss the structure and functioning of US environmental governance from the creation of the EPA forward, and to evaluate the strengths and weaknesses of the system as it has evolved since then.

Authors' Recommendations

The following are some recommendations about what to include and what to avoid in environmental governance for the 21st century.

Elements to Avoid:

- Regulatory schemes that treat large and small pollution sources alike.
- Complete reliance on technology-forcing requirements.
- Failing to adequately fund federal and regional environmental agencies.
- Stifling workplace innovation and international marketplace incentives to prevent or reduce pollution.

Elements to Include:

- A strong federal-regional partnership with clear roles and responsibilities for environmental regulation and protection.

- Credible federal and regional enforcement programs to ensure a minimum level of environmental protection throughout the country.
- Technology-forcing requirements to set minimum initial expectations, especially for large industries.
- Market-based pollutants trading and environmental recognition programs, backed up by enforceable record-keeping and reporting requirements.
- Information technology to simplify and automate record-keeping and reporting requirements.

A country that learns from the experiences of the United States (and other nations) will gain many advantages in establishing or reorganizing its environmental governance system. Of course, such a system needs to address the unique cultural norms, political realities and environmental needs of the nation.

Robert PERCIVAL & Miranda A. SCHREURS

ENVIRONMENTAL CRISIS MANAGEMENT – A COMPARATIVE ANALYSIS

Executive Summary

The paper reviews several examples of environmental crises in the United States, Europe and Japan and the changes in regulatory policy that they spawned. Based on that review, the authors conclude that environmental crisis management should consider the following major points:

- *Emergency preparedness requires that national and local authorities be aware of potential environmental hazards through careful monitoring of hazardous chemicals used by industry; their fate and transport, and their likely environmental impacts. Those who engage in activities that pose environmental risks should be required to demonstrate that they have developed comprehensive and effective emergency response plans.*
- *Those responsible for releases of hazardous substances should be held liable for the full cost of remediating damage to the environment and human health. The establishment of effective liability schemes increases incentives for investments in measures to prevent environmental crises.*

- *When environmental crises do arise, it is essential that information concerning their nature and scope be disclosed promptly to emergency response authorities and the general public. Prompt reporting enhances the ability of response authorities to contain damage while maintaining public trust.*
- *To prevent future environmental crises it is essential to learn from past experiences. Independent investigative bodies should explore the causes of environmental accidents and recommend measures to prevent their future occurrence.*
- *Governments and industry have a responsibility to take measures to protect citizens from potential harm, to guarantee low-risk physical structures, to react in such a way as to minimize damages when accidents do occur, and to provide due compensation where damage to health and the environment does occur.*

Authors' Recommendations

In the United States, Japan and Europe, environmental crises have been catalysts for legislative and institutional change – and the basis for many lessons learned:

- The high costs of delaying responses to hazardous substance release and failing to inform publics of environmental crises;
- the need for rapid and appropriate responses to accidents and the establishment of independent investigation boards;
- the importance of information disclosure, liability clauses, and establishing compensation mechanisms;
- the need to pursue preventative and not just reactive policy measures;
- the need to establish a norm of protection and prevention for governments and industry.

APPENDIX B

Case Studies – Abstracts

LU Xin-yuan, Daniel J. Dudek, QIN Hu, ZHANG Jian-yu, LIN Hong,
YANG Zi-jiang & WANG Yu-hong

CHINA'S ENVIRONMENTAL ENFORCEMENT CAPACITY

Abstract

The administrative enforcement of environmental laws plays an increasingly important role in environmental management in China. Many efforts have been made, one of which is the establishment of five regional enforcement centers throughout the country, in addition to the existing 4-level nation-wide environmental enforcement system. For this case study, a survey of 85 local enforcement institutions at three levels (provincial, city, and county) and 162 enterprises was conducted on: staffing, financial resources, equipment and technical support, instruments, enforcement outcomes, resistance, public involvement and economic incentives. From this survey it is concluded that progress has been made in overall environmental enforcement in China, that more attention has been given to local enforcement, and that improvement has been made in local environmental enforcement capacity. However, much more needs to be done on the issues of legal status, institutional arrangement, governance system, available resources, and the overall importance given to environmental enforcement.

YANG Zhan-li & GE Yong-de

**LOCAL ENVIRONMENTAL GOVERNANCE –
A CASE STUDY ON NANTONG CITY**

Abstract

Environmental governance is critically important to ensure the protection of the natural environment. Focusing on the city of Nantong, this paper identifies a series of local environmental governance problems, including the incompatibility of laws and regulations, unfavorable conditions for enforcement, low penalty cost associated with high compliance cost, and inadequate capacity building. Recommendations are made for the following aspects: further improvement in environmental laws and regulations; establishment of environmental responsibility in all departments of the local government; the increase of penalty cost to strengthen environmental compliance; and the improvement of local environmental capacity in general.

LI Wan-xin & Eric ZUSMAN

INSTITUTIONAL CAPACITY AND ENVIRONMENTAL REGULATION IN CHINA

Abstract

A growing body of research attributes China's environmental problems to weak regulatory enforcement. Few studies, however, have explored the relationship between institutional capacity and regulatory enforcement. In this paper, the authors draw upon the literature on state capacity and institutional analysis to fill this void. The results reveal that local environmental protection bureaus with greater human capital—though not necessarily greater financial resources—enforce regulations more rigorously. However, these efforts do not necessarily lead to cleaner air or water. Regions with industries that have a greater capacity to abate pollution tend to pollute

more, offsetting the potentially beneficial effects of stronger regulatory enforcement. The authors conclude that it may take more than just innovative regulations to translate regulatory promise into real environmental progress.

HU Tao, ZHANG Ling-yun, ZHANG Jian-yu & QIN Hu

URBAN ENVIRONMENTAL GOVERNANCE IN CHINA

Abstract

This paper provides an analysis on sustainable urbanization from the perspective of environmental governance. The authors identify the deficiencies existing in urban environmental governance, including insufficiency of environmental problem identification, confusion on duties among different levels and sectors, lack of scientific prove and coordination in urban policy making, and low efficiency in policy implementation and supervision. Suggestions are made on clarifying responsibilities, on improving the urban environmental policy making mechanism, and on strengthening supervision capacity for the promotion of sustainable urbanization.

HU Tao, WU Yu-ping & ZHANG Ling-yun

ANALYSIS OF CHINA'S SOLID WASTES MANAGEMENT

Abstract

With the rapid economic growth in China, the generation of solid wastes has expanded dramatically, threatening the economy, society, and the environment. This paper presents a problem analysis on four kinds of solid wastes: municipal solid wastes, industrial solid wastes, hazardous wastes, and imported solid wastes. The

authors identify three major problems confronting waste management in China. Firstly, unclear responsibility is the most urgent problem to be solved both in the management of municipal solid wastes and industrial wastes. Secondly, the lack of a well established legal system and efficient supervision mechanism is the biggest difficulty in the management of hazardous wastes. Thirdly, forbidding electronic waste trade is the focus in the management of imported solid wastes. Based on the problems identified, recommendations are made on how to improve the institutional basis of solid wastes management in China.

YANG Zhan-li

HOW TO IMPROVE ENVIRONMENTAL GOVERNANCE IN CHINA

Abstract

This paper puts forward a framework of environmental governance in China on the basis of theoretical analysis and discussion. Environmental governance consists of five fundamental elements, i. e., policy making, enforcement, management, emergency response, and environment technology. Each of these five elements is designated with specific criteria and ways to improve them from a legal, structural, administrative and governance perspective.

Daniel J. Dudek, QIN Hu & ZHANG Jian-yu

SO₂ CONTROL AND EMISSIONS TRADING IN CHINA

Abstract

With more than 20 years' efforts, China has formulated a variety of policies to control SO₂ emissions, involving regulations, standards, technologies, economic tools as well as administrative measures. Based on the depiction of the evolution of SO₂ control policies, especially focusing on the pilot policy of emissions trading in China, the authors identify the problems facing environmental protection and diagnose the causes from the policy process as well as from an environmental governance perspective. The problems discussed include poor implementation, inadequate coordination, and inconsistency between policies. Some problems lie in the institutional arrangements between central and local governments, inter-ministerial coordination, and inter-departmental coordination within SEPA. For the sake of maximum feasibility, recommendations are made mostly from SEPA's internal capacity building on the issues of policy making, coordinating, and monitoring, as well as on inspection and enforcement.

QI Ye, SU Yang & CHEN Jing-hua

CHINA'S BIODIVERSITY GOVERNANCE

Abstract

In this paper the major policies, laws, and institutions are described on policy-making and management for biodiversity conservation. Biodiversity conservation is regarded as a targeted regulation of human activities in order to maintain and restore the richness of life; the goal thus is to achieve a harmonious relationship between man and nature. The paper identifies the changes facing biodiversity conservation in China,

points out the ever-increasing population pressure and economic activities as main sources of threat. The authors focus on such governance issues as multi-level jurisdiction, inter-agency coordination, property rights, and financing. They conclude that an unclear division of responsibility and duties, as well as an unreasonable allocation of resources among multiple agencies mandated for biodiversity conservation are the major problems in the institutional setting, that lead nature reserves to exploit rather than conserve their resource, and that a lack of management capacity hinders the conservation function of these nature reserves. Policy recommendations are made to address the major governance problems.

HU Tao, ZHANG Ling-yun & SUN Bing-yan

ANALYSIS OF THE ROOT CAUSES OF SANDSTORMS IN CHINA

Abstract

Based on a field survey in XilinGol Prefecture and Hunshandake sand land in Inner Mongolia, this paper presents an analysis on the governance causes of the sandstorm problem in China. The results indicate that governance issues are actually at the roots of the generation and inefficient control of sandstorms. Especially, “self-sufficiency”-targeted agricultural policies and common property of grasslands lead to the inducement of grassland degradation. Improper responsibility assignments, improper ecological restoration investment, absence of grassland restoration management and inefficiency of supervision are major restrictions for an efficient control of sandstorms in China. To solve these problems, the authors suggest: First, we should coordinate targets of current agricultural policy and environmental policy in order to reduce resources demand and prevent sandstorms from its sources. Second, we should enhance governance capacity in sandstorm control, focusing on clarifying the duties and strengthening the human resources for environmental protection in rural areas.

QI Ye & MA Li

TOWARDS A PROACTIVE CLIMATE POLICY

Abstract

Climate change is treated in China as an issue related closely to the national strategy for sustainable development as well as an issue in international collaboration on environmental protection. The duality of the issue makes climate policy often wavering between domestic and international emphases. In the past one and half decades, the central government responded to international pressure by participating in the negotiations on international treaties, especially the UN Framework Convention on Climate Change and the Kyoto Protocol. Taking a more proactive attitude towards mitigation of and adaptation to climate change, are the major approaches now. This paper describes the current governance structure for climate change management in China and makes concrete recommendations for its improvement. The major recommendation of the authors is to elevate the current National Group for Coordination of Climate Change Strategies and to empower it with authority for climate policy making and for monitoring the regional and sectoral impacts of climate change.

HU Tao, LI Li-ping, ZHANG Ling-yun & TIAN Chun-xiu

ANALYSIS OF THE YUANMINGYUAN PARK PROJECT

Abstract

This paper presents an analysis of the Yuanmingyuan Park Leak-proof Project from the perspective of environmental governance. The study finds that an ambiguous assignment of implementation responsibilities, the lacking of policy coordination, inadequate policy implementation, and inefficient supervision have all contributed to the inevitability of the incidence described in this paper.

MAO Shou-long, LI Wen-zhao & LI Mei

ANALYSIS OF THE SONGHUAJIANG CRISIS

Abstract

In the process of industrialization, the relation between economic growth and environmental protection has become a key problem for China. In this respect, the Songhua river accident gives a serious warning: no environmental governance, no development. In this study of the accident, three major aspects of environmental governance are addressed: information disclosure and public participation, central-local and local-local relationships, and emergency responses. The first part of the study is a description of the situation of the Songhua river, including the process of the crisis. The second part looks at the actors and their behavior, including firms, citizens, interest groups, local governments, and the central government. The third part focuses on the relevant laws, regulations, and documents. The fourth part presents two research approaches: public choice theory and institutional analysis. In the fifth part, these approaches are used to identify the major causes of the Songhua river accident. Finally, some policy recommendations are presented.