

ENVIRONMENTAL GOVERNANCE IN ASIA :
Synthesis Report on Country Studies

アジア諸国の環境ガバナンス総合報告書

Environmental Governance Project
Institute for Global Environmental Strategies (IGES)

環境ガバナンスプロジェクト

地球環境戦略研究機関

Foreword

Prior to the formal establishment and inauguration of the Institute for Global Environmental Strategies (IGES) in April 1998, two international workshops were organized to examine and explore possible themes, areas, objectives and methods of IGES' research activities. Based on discussions at these workshops, environmental governance was identified as one of the main themes of strategic research to be undertaken by IGES, with a particular focus on Asian countries and the region as a whole.

Accordingly, it was decided to launch a research project on environmental governance (EG) as one of the five research projects to be implemented by IGES, initially for a period of three years (from April 1998 to March 2001), and a research plan was drawn up by the leader of the EG project, Professor Hisakazu (Kazu) Kato of Nagoya University, setting out the purpose, basic approach and methodology, together with an outline of the yearly work schedule and expected outcomes.

According to the research plan adopted and endorsed by its Board of Directors, the main purpose of the IGES/EG Project is to address and analyse major issues of environmental governance and to make concrete policy recommendations relevant to the Asian region. Several national and sub-regional environmental governance systems were to be selected and examined in a cross-sectoral and comparative manner.

Thus, a major component of the research project involved case studies of national environmental governance systems in selected countries of Asia, starting with China, India, Thailand and Japan during the first fiscal year (April 1998-March 1999). Areas to be examined with regard to national environmental governance systems included: how decisions are made; who makes them; how decisions are implemented; what kind of information is available and from what source; how processes are reviewed; how these are influenced by internal and external forces; how have the systems evolved; and if they can be adapted to respond to newly emerging problems and challenges.

Based on an analytical framework developed by Dr. Miranda Schreurs of the University of Maryland, U.S.A., country studies were conducted in collaboration with competent research institutes and researchers from the four countries concerned, utilizing a common methodology and format for analysis and comparison. The outcomes and

findings of the four country studies were discussed and disseminated at an international workshop organized by IGES in March 1999.

Later in the same year, country reports were prepared for five more countries of Asia; namely, Bangladesh, Indonesia, Malaysia, the Philippines, and the Republic of Korea (South Korea), similarly in cooperation with research institutes and researchers in those countries. The results of these additional country studies, along with presentations made on some cross-sectoral issues such as “trade and environment” and “environmental security,” were discussed at an international symposium organized jointly by IGES and Sophia University in March 2000, in which more than 300 people participated, representing a wide cross-section of public as well as private sector organizations and individuals interested in the subject matter.

A summary (and preliminary) report synthesizing the findings of nine country studies as well as conclusions of the two international workshops and accompanying symposia, was prepared in time for the meeting of environmental ministers of the governments of the Asia-Pacific region at the ECO-ASIA 2000 Congress and the UN/ESCAP Ministerial Conference on Environment and Development, both of which were held in Kitakyushu, Japan in August, 2000.

This volume has been compiled in order to provide a comprehensive yet succinct picture of all the major inputs and outputs of the EG Project during the past three years as far as they are related to case studies of national environmental governance systems in Asia. It is arranged in chronological order as described above:

Part I contains the original research plan for the EG Project and the analytical framework for comparative studies of environmental governance in Asia proposed by Dr. Miranda Schreurs and employed by the Project in conducting its country studies.

Included in Part II are the results of four country studies carried out during the first year of the Project, and comments and discussions which took place at the International Workshop on Environmental Governance in Four Asian Countries, held on March 18, 1999 in Hayama, Japan.

Part III consists of various papers presented at (and the main elements of the proceedings of) the International Symposium on Environmental Governance in Asia,

March 9, 2000, jointly organized by IGES and Sophia University and held in Tokyo, Japan.

Finally, in Part IV, a synthesis of major findings and recommendations generated by the country studies is presented. This is by no means a complete and final report of the Environmental Governance Project on case studies of national environmental governance systems in Asia. Any comments or suggestions for improvement are welcome.

In closing, I wish once again to express, on behalf of all members of the small EG project team at IGES, our sincere thanks to all the collaborators, contributors as well as participants in the workshops and symposia for their cooperation and contribution to the Project during the past three years.

February, 2001

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序言

地球環境戦略研究機関（IGES）が1998年4月に正式に設立され発足する前に、IGESの行う研究活動のテーマ、分野、目的、方法等について検討するため、国際ワークショップが2回にわたり開かれた。これらのワークショップにおける討議結果に基づいて、特にアジア諸国およびアジア地域全体に焦点を当てた「環境ガバナンス」の研究がIGESの実施すべき戦略的研究の主要テーマの一つに選ばれた。

これに従い、IGESが設立当初の3年間（1998年4月～2001年3月）に実施する5つの研究プロジェクトの一つとして、環境ガバナンスに関する研究プロジェクト（EGプロジェクト）を開始することが決定され、プロジェクトの目的、基本的アプローチ、方法論とともに各年の作業スケジュールや期待される成果等を記した研究計画が、プロジェクト・リーダーの加藤久和・名古屋大学教授によって作成された。

その後IGES理事会によって支持され採択された研究計画によると、IGES／EGプロジェクトの主要な目的は、アジア地域の環境ガバナンスに関連する主要な問題に取り組み、分析を行い、具体的な政策提案を行うことである。アジアのいくつかの国と準（サブ）地域レベルの環境ガバナンス・システムを選び出し、分野横断的かつ相互に比較可能な方法で検討することとされている。

このようにして、アジアの主要国の事例研究を行うことがこの研究プロジェクトの主たる構成要素になり、まず初年度（1998年4月～1999年3月）には中国、インド、タイ、日本の4カ国について国別の事例研究を行うこととなった。各国のガバナンス・システムについての検討課題には、次のものが含まれる： どのように意思決定が行われるのか、誰が決定するのか、決定がどのように実施されるのか、決定に当たってどのような情報がどこから提供されるのか、プロセスはどのように再検討されるのか、内部的及び外部的な要因がこれらにどのように影響しているのか、システムはどのように進化してきたのか、新たな課題に適応できるようなものであるか否か。

米国メリーランド大学のミランダ・シュロース博士の作成した分析枠組みに基づき、分析と比較のための共通の方法論と様式を用いて、国別研究がこれら4カ国の研究機関および研究者の協力の下に行われた。その成果と結論は、1999年3月、IGES主催の国際ワークショップにおいて討議され、一般にも広められた。

同じ年の後半には、他のアジア諸国、すなわち、バングラデシュ、インドネシア、マレーシア、フィリピン、韓国の5カ国について、前の4カ国と同様に当該国の研究機関や研究者の協力を得て、追加的な国別報告が作成された。これらの追加的国別研究の結果は、「貿易と環境」および「環境安全保障」といった分野横断的な課題に関する報告とともに、2000年3月にIGESと上智大学が共催して開かれた国際シンポジウムで議論された。同シンポジウムには、この問題に対する公共団体、民間企業をはじめ、広範な層の市民個人の関心を反映して、300名以上の多数が参加した。

さらに、これら9カ国の国別研究の成果と2回にわたる国際ワークショップあるいはシンポジウムでの結論を要約した（予備的な）報告書が、アジア太平洋地域諸国の環境大臣を集めて2000年8月に北九州市で開かれた「エコアジア2000」会議および国連アジア太平洋経済社会委員会（UN/ESCAP）主催の「環境と開発に関する大臣会議」（MCED, 2000）に合わせて作成された。

この巻は、アジア各国の環境ガバナンス・システムの事例研究に関連した過去3年間にわたるIGES/EGプロジェクトの主要な成果のすべてを総合的、かつ簡潔に紹介するためにとりまとめたものである。上述の時系列順に沿って編纂されている。すなわち、

第1部は、EGプロジェクトの当初「研究計画」、およびミランダ・シュロース博士が提案し、国別研究の実施に当たって同プロジェクトが採用した「アジアの環境ガバナンスに関する比較研究のための分析枠組み」を記載したものである。

第2部には、プロジェクトの初年度に行われた4カ国の国別研究の結果報告と、これを基に1999年3月18日に葉山で開かれた「アジア4カ国の環境ガバナンス」国際ワークショップにおけるコメントおよび討論の概要が含まれている。

第3部は、2000年3月9日に上智大学とIGESの共催により東京で開かれた「アジアの環境ガバナンス」国際シンポジウムに提出された各種の論文および会議録の主要部分で構成されている。

最後に第4部は、国別研究の結果得られた主要な結論と提言を総合的に分析し、とりまとめたものである。

これは決して、IGES/EGプロジェクトによるアジア諸国の環境ガバナンス・システムに関する事例研究の完全かつ最終の報告書ではなく、読者からのコメント　ま

たは内容改善のための提案を歓迎する次第である。

終わりに、IGES/EGプロジェクトの研究協力者、ワークショップ・シンポジウム等の参加者、その他いろいろな形で過去3年間にわたるアジアの環境ガバナンス研究に協力していただいた方々に対し、プロジェクト・チーム全員（と言っても、わずか数名であるが）を代表して、改めて感謝の意を表したい。

2001年2月

IGES/EGプロジェクト
プロジェクト・リーダー

加藤 久和

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Part I : Introducing the Environmental Governance Project

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The Research Plan

An Analytic Framework for a Comparative Study of
Environmental Governance in Asia

1.The Research Plan

1. Introduction

Environmental governance is about how societies deal with environmental problems. It is concerned with the interactions among formal and informal institutions and the actors within society. These interactions influence how environmental problems are identified and addressed.

Environmental governance structures in Asia are rapidly changing. At the domestic level, new environmental laws, programmes and institutions are being established. At the sub-regional and regional levels also, environmental networks and cooperation schemes are beginning to form. These rapidly changing governance structures are influencing greatly how environmental problems are addressed in the region. It is thus critical to examine the nature of environmental governance in the region.

2. Background

During the initial stages of development of national environmental policy, technically-oriented policies and measures played a major role in resolving the immediate problems of rampant industrial pollution. As a result, research activities carried out to date have tended to be based primarily on natural sciences and technical approaches. However, "technical fixes" will not suffice in solving today's global environmental issues. One of the reasons for this is that they ignore the diversity of interests and perspectives among actors in establishing and implementing policies for environmental protection.

The problems of the human environment are not just national problems. They were placed on the international agenda in 1972 at the United Nations Conference on Human Environment, the first among a host of global issues to be addressed by the world body. The Stockholm Conference gave impetus to the growth of international environmental law and international organizations specifically devoted to promoting environmental governance worldwide, but failed to bridge the gap between North and South over conflicting views and approaches to issues of environment and development.

Twenty years later, Agenda 21, a global plan of action directed toward the 21st century, was adopted at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro. Although the international community agreed at UNCED to strive for the

attainment of the ultimate goal of sustainable development, the state of the global environment is ever worsening today and is expected to continue to deteriorate, potentially leading to a catastrophic situation in the not-too-distant future. The emergence of global environmental issues since the 1980s exerts an added pressure on the already strained resources and structures for environmental governance in developed and developing countries, and thus makes it imperative for us to reconsider existing social orders, value systems and to restructure our economy, reducing the impact of human activities on the environment.

Environmental problem solving in the Asian region is made complex by differences in economic, political and cultural conditions. A challenge for the region is to develop governance mechanisms that can address both regional and global environmental problems. As a result of decades of rapid economic growth, environmental problems have grown in importance in Asia. Economic activities in this region are having enormous impacts on the state of the environment. Yet, there is little history of environmental cooperation in the Asian region.

3. Purpose

The main purpose of this research project is to address and analyze major issues of environmental governance and propose concrete policy recommendations relevant to the Asian region. The Environmental Governance (EG) project of IGES will utilize a systematic approach to documenting information and carrying out its activities, and maintain strong links with the other IGES research areas. Through its research, the EG project will be expected to assist countries in the region in capacity building and promote a participatory approach to environment and development.

4. Basic Approach and Activities

The EG project will maintain its own activities and be involved with other project areas activities to yield useful results that will be able to support informed policy making in sub-regions of Asia within a three year period.

Within this approach, the following questions may be raised:

- How do environmental governance structures impact on environmental outcomes?
- In the context of globalization and systems change, how can environmental governance make a difference to environmental outcomes in Asia?
- What environmental governance structures exist in Asia?

- How and why are these structures changing?
- Are these environmental governance structures adequate to deal with existing problems and those likely to emerge?
- If not, how can they be improved?
- What are the responses within the region to global environmental processes?
- What can Asian countries learn from each other?
- What policy recommendations can be made?

These issues need to be considered in light of practical environmental outcomes, and ways to promote environmental governance.

4.1 Processes and Actors

A “Processes and Actors” approach will be the initial thrust of the project. The project will examine in a systematic way what the relevant processes are and who the actors are that work to promote and support effective environmental governance in the Asian region, as well as how these have changed over time. This work will build on other global studies in the field and examine ways in which these may or may not apply to the region, with a view to supporting future practical outputs.

The purpose of studying actors and processes is because they work to channel/mitigate how other forces (science, international pressures and processes, etc.) influence policy and environmental outcomes. In doing so, the project will work to highlight the importance of globalization on the region and sub-regions in terms of policy making and implementation processes. It will also work to highlight the changing face of environmental governance in Asian countries and sub-regions.

In terms of definition, ‘actors’ comprise the stakeholders relevant to environmental governance, including policy makers, government officials, elected officials, civil society, industry, scientists, media, municipal authorities, justice systems, private entities, and international organizations. ‘Process’ refers to the decision-making machinery, institutions and instruments, both formal (e.g., laws and regulations) and informal (e.g., administrative guidance), and the outcome that is influenced by the relationship between these and the actors. ‘Process’ is also concerned with the issues related to agenda setting, implementation and compliance.

4.2 National and Sub-Regional Governance Systems

Selected national and sub-regional environmental governance systems will be examined in a cross-sectoral and comparative manner.

Questions to be examined with regard to national and sub-regional governance systems include: How are decisions made? Who makes them? How are decisions implemented? Based on what information, provided from where? How are processes reviewed? How are these influenced by internal and external forces? How have the systems evolved? Are they adaptable in responding to challenges?

Focus on Other Project Areas

With this research serving as a base, the EG project will then perform the important function of working with the other research project areas of IGES. The EG project will focus on and work with (1) climate change, (2) forest conservation and (3) urbanization and environment projects to provide specific issue-focused review and recommendations.

The country and sub-regional studies of the EG project will specifically consider the related issues in these three project areas so as to provide concrete recommendations/suggestions to relevant actors in the region to promote effective environmental governance and outcomes. Consideration will need to be given to economic instruments and financial mechanisms, and the impacts of these, as well as the impacts of privatization and globalization on environmental governance.

4.3 Working Paper Series

The EG project will produce a series of Working Papers. These will focus on national and sub-regional perspectives. The topics covered in each will be: (1) actors and processes; (2) implications for environmental outcome; (3) implication for sub-regional cooperation; and (4) policy recommendations.

Additional papers will be written in relation to and in cooperation with the other project areas as an area that effectively provides both governance inputs to those projects, as well as bridging the subject areas. The objective will be to support and generate effective overall results for IGES.

4.4 Links with Other Project Areas

Specific ways in which the EG project may work with other project areas of IGES are as follows:

(1) Climate Change

Project interaction will focus on governance issues, possibly in Northeast Asia and South Asia. Issues to be considered could include implications for possible regional agreements, international cooperation, and use of market-based mechanisms as a means of implementing international and national environmental laws and policies.

(2) Forest Conservation

Studies focusing on Southeast Asia will provide a more holistic view of forest management over and above conventional approaches, including the governance aspects of deforestation.

(3) Urbanization and Environment in Asia

The interaction between the EG project and the urbanization and environment project will focus on examining cities as microcosms of environmental problems and solutions. In doing so, it may also select one or two issues, such as water and air, and examine how the governance systems impact on these at the sub-regional level.

(4) International Cooperation on Environmental Education

The EG project will collaborate in the development of training materials for promoting the implementation/compliance of international/regional environmental accords. The objective will be to build institutional capacity within the country and target implementors and the public to understand laws, rights, science, etc., to become active participants in the governance process.

4.5 Geographical Areas

In undertaking this research, IGES will work with networks in selected countries to develop both national and sub-regional perspectives. The countries initially selected for study are: Japan, China, India, and Thailand. The project will then examine the same types of questions at the

sub-regional level. The sub-regions selected are Northeast Asia, Southeast Asia and South Asia.

4.6 Developing Future Scenarios

The EG project will develop a number of scenarios affecting the region. These scenarios will be based on a 'what if?' approach to examining issues such as the impacts of globalization and democratization on the region, as well as of unexpected crises such as natural disasters and collapse of financial markets. The purpose will be to assist the countries and sub-regions to better adapt to change and promote a positive environmental outcome in the region.

5. Work Schedule

Year One:

1. In the first 3 months, time will be utilized to establish necessary networks to assist in implementing the research.
2. In these first 3 months, the EG project will also undertake a survey paper of research initiatives and products within Asian and elsewhere. These will provide a basis for future work.
3. The EG project will utilize and develop networks to prepare four country papers applying a systematic research framework. In the first 9 months of operation, the first draft of the country papers would be expected.
4. In undertaking the country papers, a sub-regional study of the processes and actors may be initiated.
5. A workshop will be held to maintain the focus of the project as well as to better involve the policy makers who are most related to the areas in question.

Year Two:

1. A series of follow-up working papers to the four country papers will be prepared, which will specifically target the three IGES issue areas - climate change, forest conservation, and urbanization and environment - with a view to coming up with specific recommendations.
2. Sub-regional studies will be undertaken, both generally and in relation to the three issue areas.
3. A workshop will be organized to maintain focus of the project and involve key persons, particularly policy makers.

Year Three:

1. The project will develop a scenarios approach for the countries and sub-regions.
2. Publications under the project will be finalized. The publication will be based on a synthesis of the research findings of IGES.
3. Recommendations for the region will be developed focusing on the issue areas.
4. An international conference of policy makers will be organized to disseminate the research results and plan for future activities.

6. Expected Outcomes

Expected outcomes of the EG project are as follows:

1. A survey paper of environmental governance research in Asia and elsewhere
2. Establishing and maintaining networks for project and result implementation
3. Country studies
4. Sub-regional studies
5. Workshops
6. An international conference of policy makers
7. Publications

2. An Analytic Framework for a Comparative Study of Environmental Governance in Asia*

1. Introduction

Environmental governance is about how societies deal with environmental problems. It is concerned with the interactions among formal and informal institutions and the actors within society that influence how environmental problems are identified and framed (or defined). It also relates to how environmental issues reach the political agenda, policies are formulated, and programmes implemented.

Since the 1992 United Nations Conference on Environment and Development (the Rio Conference) environmental governance structures in Asia have changed quite dramatically. At the domestic level, new environmental laws, programmes, and institutions have been established. In addition, environmental actors are changing their strategies as new kinds of environmental issues gain scientific and public attention. Actors that traditionally were not involved in trying to influence the direction of environmental legislation are becoming increasingly involved in the environmental policy formation process in Asia. At the sub-regional and regional levels also, environmental networks and cooperation schemes are beginning to form. Important changes in environmental governance mechanisms are underway in Asia at the national and regional levels. These evolving governance structures have the potential to influence greatly how environmental problems are addressed in the region. It is, therefore, critical to examine the changing nature of environmental governance in Asia and its implications for environmental outcomes.

The Environmental Governance in Asia project will focus attention on how environmental governance occurs within and among the countries of Asia. This project endeavors to systematically explore the domestic and international factors that are central to environmental governance in Asia today. Through a wide range of factors, the international system acts upon environmental governance mechanisms in Asia. Domestic political debates in turn, influence outcomes at the international level. Deforestation is a local, national, and international issue.

* This proposal was drafted by Prof. Miranda A. Schreurs, Department of Government and Politics, University of Maryland, based on discussions held with the Environmental Governance Project team. Members included: Prof. Akio Morishima, Chair of the Board of Directors, IGES; Prof. Kazu Kato, Nagoya University; Dr. Yohei Harashima, IGES; and Ms. Chiharu Morita, IGES.

The pollution of a river that flows into a regional sea has both local and international environmental consequences. Air pollution at the urban level is also linked to acid rain and global climate change. Thus, it is necessary to examine the linkages between domestic environmental governance mechanisms and those that exist internationally.

Several broad questions are raised: What are the main characteristics that define environmental governance within the countries of Asia? What are the similarities and differences in the environmental governance mechanisms of countries in Asia? How does the nature of environmental governance within specific countries in Asia influence their ability to participate effectively in regional and global problem-solving activities? What steps need to be taken to improve environmental governance at the local, national, and international levels? Do the emerging environmental governance mechanisms at the regional level within Asia have the potential to address effectively the environmental problems threatening the region? Will environmental governance at the regional level within Asia eventually converge on the European or North American models? Or, is an "Asian form" of environmental governance likely to take root?

This project is concerned with several kinds of environmental governance challenges that face the region. They include issues of water pollution, air pollution and climate change, and deforestation. Several policy relevant goals motivate this work. One is to enhance the environmental governance capacity of states in the region where environmental laws are still limited and environmental administrations may lack sufficient capacity to address domestic environmental concerns. Another is to raise awareness of environmental problems of a regional and global scale. Finally, there is a need to facilitate the development of mechanisms that promote environmental cooperation in the Asian region.

As a first step in analyzing environmental governance mechanisms and processes within the region, a comparative study of environmental policy formation and implementation is proposed. This comparative study of environmental governance will be based on similar research questions and research methodologies that are to be employed by researchers for each country case study: China, India, Japan, and Thailand. Environmental governance as it occurs in three environmental issue areas will be examined in these countries. These issue areas are: 1.) river and marine pollution; 2.) air pollution/climate change, and 3.) deforestation. The rationale for this case selection is explained below.

2. The Country Cases

The importance of China and India to the future of the environment in Asia and at the global level is self-evident. Together China and India account for close to two-fifths of the world's population. Per capita income in China and India is still low and per capita consumption of energy and natural resources remains well below that of the developed countries. Still, as a result of rapid economic development in these countries, consumption of energy and natural resources is increasing rapidly. The demand for modern conveniences, such as refrigerators, electric appliances, automobiles, and air conditioners, has been steadily rising. As a result of burgeoning populations and growing demand for energy, it has been estimated that by 2010, these two countries alone could account for over half of total world greenhouse gas emissions. Environmental governance challenges abound in these countries. Six of the world's largest cities are in India and China. The continued movement of populations from rural to urban areas, means that urban congestion is likely to grow worse in the future. In urban areas, traffic congestion, air pollution, and water pollution are severe problems. The use of coal in China for heating, cooking, and industrial purposes contributes greatly to air pollution levels, acid rain, and global climate change. In India, demand for wood for fuel has contributed to that country's deforestation and the demand for scooters and automobiles contributes to nitrogen oxide and carbon dioxide emissions. Climate change could increase the incidence of mosquito-borne diseases such as malaria and dengue fever in China and India. In these countries, air and water pollution threaten human health and degrade the quality of life. Also in rural areas, pollution problems are numerous. Agricultural pollution, soil degradation, and toxic wastes are major problems. China and India could face severe water shortages in the future as a result of growing industrial and agricultural demands for water. How these countries address issues of environmental governance are of tremendous importance.

Thailand shares many of the environmental problems that affect China and India. As one of the Asian tigers, Thailand experienced years of rapid economic development. As income levels rose, the demand for consumer goods climbed. Growing demand for energy and natural resources together with lax environmental laws, contributed to severe air, water, and soil pollution. Tropical deforestation is another major issue for the country. A case study of Thailand will contribute to the understanding of the challenges to effective environmental governance in the many rapidly industrializing states of Asia. It will also provide a chance to focus attention on how the Asian financial crisis is impacting environmental governance capacities.

Japan provides an important point of comparison with these other three Asian countries. Japan is the richest country in Asia. In many ways, it is easier to compare Japan with the countries of Europe and North America than with the countries of Asia in terms of environmental governance. This is because Japan tackled many of its own serious environmental problems more than two decades ago. While there are still many environmental governance challenges for Japan domestically, such as dealing with ground water pollution, urban air pollution, and nature conservation, the situation is quite different from what it is in the developing states of Asia. For Japan, the most important environmental governance challenges may well be how to play a leadership role in Asia in promoting regional mechanisms for environmental pollution control. Some steps are being taken in this direction, through the promotion of Asian monitoring networks, the establishment of environmental training centers, and the hosting of numerous regional conferences. The effectiveness of these new measures, however, has yet to be systematically addressed.

In order to assess the strengths and weaknesses of environmental governance mechanisms in these Asian countries and to make policy suggestions for strengthening environmental governance mechanisms in the region, systematic empirical research will be undertaken. The challenge for such comparative research is great given the differences in availability of data. Moreover, differences in the governmental systems and cultures of these four countries can make it hard to make direct comparisons. The definition of what an environmental non-governmental organization, for example, may not be the same in India as it is in China. Because central-local government relations vary considerably in each of these countries, it can also be hard to compare the factors that make the implementation of environmental policies at the local level more effective in some countries than others. Even the understanding of what is meant by effective environmental governance may vary across countries because of differences in national priorities and cultural traditions. Still, despite these kinds of methodological challenges, empirically based research of environmental governance is critical if sound policy advice is to be made.

3. The Environmental Issues

River and Marine Pollution

Water problems abound in Asia. These include scarcity of water in some regions of India and

China¹; drinking water contamination, particularly in China and India but also in Thailand; river, lake, and marine pollution in all four countries; and marine resource depletion. It is beyond the scope of this research project to focus on all of these issues. Instead, it is proposed that the focal point of this research be on issues of river and marine pollution. An important reason for this selection is that not only is the pollution of rivers and streams a domestic problem, but when it contributes to marine pollution, it can also be an international problem. It is important to understand how environmental governance mechanisms are evolving to address both the domestic and the international components of this problem.

Air Pollution: Acid Rain and Climate Change

This project will focus on two major air pollution issues: acid rain and climate change. Of course, as in the case of water pollution, there are many other air pollution challenges in Asia. Urban air pollution is a serious problem throughout the region. Air pollution from industrial activities is a major problem in China, India and Thailand. Increasing use of automobiles in China, India, and Thailand means that nitrogen oxide and carbon dioxide emissions from automobiles are soaring. Also in Japan, nitrogen oxide emissions from transportation remains an important challenge for policy makers. The focus on acid rain and climate change is justified because these issues are also related to more classic forms of air pollution. Acid rain, for example, is linked not only to industrial activities, but also the household burning of coal. Almost all classic air pollution problems have some relation to the climate change issue. Most importantly, because of the interest in examining environmental governance structures from both a domestic and regional angle, the focus on these two issues permits an examination of how these issues are dealt with at both levels.

Deforestation

Deforestation is a serious problem in Thailand, India, and China. Although deforestation is not a major problem within Japan, because Japan is such a large importer of tropical timbers and is

¹ Scarcity of water in China and India is increasingly being recognized as one of the most serious challenges for these countries in the coming decades. In some regions, water tables are dropping as water useage increases, particularly by the industrial sector. Severe water shortages, it has been argued, could threaten the stability of certain areas in India and China. See Elizabeth Economy, "China and East Asia" and Richard Hill, Swarupa Ganguli, and Dede Naylor, "Environmental Flash Points in South Asia" in Robert S. Chen, W. Christopher Lenhardt, and Kara F. Alkire, *Consequences of Environmental Change--Political, Social, and Economic* (University Center, MI: Consortium for International Earth Science Information Network (CIESIN), 1998).

also the host and largest contributor to the International Tropical Timber Organization, it is impossible to study environmental governance mechanisms related to deforestation issues without including Japan. Deforestation is of concern primarily because of its connection to issues of biodiversity and climate change.

4. Policy Process

Agenda setting and implementation are both components of the policy process. How agenda setting and implementation work in a country is heavily dependent upon the structure of the government and the formal and informal institutions that dictate how actors relate to each other. One obvious difference among the countries in this study is that each has a very different political system. Japan is a democratic, unitary state that has a one-party dominant party system. China is a communist, federal state. India is a parliamentary democracy and a federal state with clear party competition. Thailand is a monarchy that was long under military rule. In the 1990s, civilian parties have won small majorities in parliament. Democratic participation is increasing.

Formal governmental structures crudely define which actors are involved in agenda setting and implementation and how they interact with each other. Whether or not non-governmental organizations have input into the agenda setting process, for example, will depend on how these groups are viewed by the government. The role played by local governments in implementation will depend on constitutional powers given to central and local governments.

In addition to these formal governmental structures, there are also many informal institutions that influence actor behavior. In Japan, for example, administrative guidance is an informal institution that is central to agenda setting and implementation. In Thailand, the relationship between the military and civilian groups has influenced greatly the policy process.

In these very diverse political systems, it can be expected that the agenda setting and implementation processes will differ significantly. Different actors in each country will influence which issues get onto the agenda, how issues are interpreted, and which policy options are given most serious consideration. It is therefore important to understand who the actors are that are involved in agenda setting and implementation.

5. Agenda Setting

There are many important aspects of environmental governance. One that will be focused on in this study is that of agenda setting. John Kingdon suggests that agenda setting be thought of as the process by which certain issues gain more than just cursory public or political attention. An issue can be thought of as being on the agenda when it is getting substantial attention by the media, interest groups, industry, and/or public officials.² Important in this process is the ways in which issues are perceived and presented to others by various societal actors (the media, industrial actors, non-governmental organizations, etc.) and the policy alternatives that are presented by those actors.

Some issues that get onto the governmental agenda are never acted upon. Others eventually may make it into the legislative process. Once an issue is on the governmental agenda and legislative action appears likely, many different policy options may be considered. Where policy options come from, and why certain policy options are given more serious attention than others is a matter for empirical investigation.

It is also important to realize that an issue does not need to be on the legislative agenda for there to be important societal changes related to that issue. Once an issue is on the agenda of the media, for example, it may mobilize public opinion and cause people to take recycling more seriously. While recognizing the potential importance of other avenues of influencing societal change, this study focuses attention on agenda setting at the national government level. This does not exclude the role of other actors. It simply limits the study to an examination of how various actors attempt to influence governmental decisions.

6. International and Domestic Linkages

These days, environmental agenda setting often involves both international and domestic actors. International actors attempt with different levels of success to influence the agendas of states. The extent to which, and the ways in which, various international and domestic actors interact may influence how environmental issues are understood, the effectiveness of campaigns, and the kinds of policy options that are introduced. Thus, in addition to examining the roles played by domestic sub-state actors, it is important to understand how these actors are influenced by, and attempt to influence, international players.

² John Kingdon, *Agendas, Alternatives, and Public Policy* (Boston: Little, Brown, and Co., 1984), pp. 3-4.

7. Implementation

Once an issue is acted upon by a government, policy and programs must be implemented. Implementation refers to how governmental programs are put into place and policy decisions are carried out. Just because an issue gets onto the agenda and a legislative or other governmental decision is reached does not mean that policies will actually be enforced. A major challenge for every government is to find means to effectively implement policy. In some cases, governments may choose “carrots” such as tax incentives or subsidies to encourage compliance. In other cases, they may wield “sticks” and punish those who do not comply. It is important to understand what means governments employ to improve the likelihood of a policy being effectively implemented. Governments must communicate to societal and industrial actors, changes that must be made in their activities. They must also find ways to convince these actors to change their behavior.

This is not always straight forward. Implementation dilemmas may arise because of different interpretations of governmental decisions or different understandings of the seriousness of a problem. Two prefectures in China, for example, may “interpret” a national governmental decision differently. Or, they may place different emphasis on the priority of the problem relative to other problems they must deal with.

8. The Actors and their Interests

There are many potential actors in the agenda setting and implementation processes. The actors that are involved in agenda setting need not be involved in implementation. Scientists, for example, may play a far more important role in agenda setting than they do in implementation. A potential list of important actors in the agenda setting and implementation processes include: bureaucrats, politicians, scientists, the media, industries, local governments, and non-governmental actors. The actual influence of each of these actors should be assessed since not all of them will play a major role in either agenda setting or implementation.

A focus on actors is of interest because different actors tend to have different interests in society. They may also have different understandings of an issue. Thus, whereas for a scientist climate change may be seen as a threat that may cause sea rise, for a bureaucrat in a Transport Ministry climate change is an issue that is tied to transportation problems. Actors often bring competing understandings of a problem into the agenda setting and implementation processes. Thus, it is important to know not only who the important actors are, but what their interests are.

Both actors and their interests may change over time. New information may alter the way problems are viewed. New scientific information may cause a skeptical government official to change his or her mind. A new technological break through may alter an industry's opposition to policy change. As an issue becomes increasingly important, new actors may be drawn into the agenda setting process. They may bring new interpretations of a problem into the decision making process and form coalitions with other actors tipping the balance in favor of one policy option over another.

9. Paper Outline

In order to understand agenda setting and implementation in relation to marine pollution; air pollution (acid rain and climate change); and deforestation the following research protocol is suggested:

1.) Broad Introductory Overview

This section should provide a contextual overview for the reader. Questions that could be addressed in this introductory section include: What is the history of environmental protection in your country? When were environmental laws and environmental administrations first introduced? What has been the level of governmental, industrial, and societal interest in environmental protection? How have levels of interest increased and decreased over time? What are the primary domestic environmental issues that are of greatest priority in your country? Why are these issues of greatest importance? What are your country's attitude towards regional and global environmental risks (e.g. acid rain, stratospheric ozone depletion, global climate change, endangered species protection, deforestation)?

2.) Contextual Overview

A major challenge for many Asian countries is the question of how to address both economic development and environmental protection together? The challenges facing the developing states of Asia are quite different from those facing the more developed economies in Asia and the West. To place the challenges for effective environmental governance into context, it is helpful to understand the current economic and social situation of your country. What is the level of economic development of your country? What is the population size? What is per capita GNP? How evenly is income distributed within the population? What are consumption levels of major commodities (per capita energy consumption; per capita food consumption; per capita number of automobiles, telephones, refrigerators, etc.)?

3.) Current State of Environmental Governance Mechanisms: A broad overview of actors and processes

What is the basic structure of the political system of your country as it pertains to environmental governance? In other words, what are the main institutions and actors that are involved in environmental policy formation and its implementation? How does the central government interact with local governments? Where are most environmental policy decisions made? What are the strengths of the system? What are the weaknesses?

4.) Case Studies

The case studies will focus on agenda setting and implementation processes as aspects of environmental governance in relationship to marine pollution; air pollution (acid rain and climate change); and deforestation. The following questions should be considered separately for both the agenda setting and implementation processes:

Description of the Environmental Context for Each Case

- a.) What is the degree of marine pollution near your country? Which rivers are the major sources of pollution? What are the known causes of the pollution? What are the known consequences of this pollution? What policies have been introduced to deal with this pollution?
- b.) What is the current situation of acid rain and climate change related pollution in your country? What are the major sources of emissions? What are the major consequences of those emissions? What policy measures, if any, have been introduced to deal with these issues?
- c.) What is the extent of forest cover? How serious of a problem is deforestation? What are the causes and consequences of this deforestation?

Agenda Setting

- 1.) Who were the primary actors involved in getting each of the three environmental issues onto the agenda? How has the involvement of these actors in the agenda setting process changed over time? What are the interests of actors shaping their perceptions of each of these environmental issues? Which policy options have received dominant attention and why? What are the strengths and weaknesses of the agenda setting process for each environmental issue?

Implementation

- 2.) Who are the primary actors involved in implementing government policies? How

has the involvement of these actors in implementation changed over time? What are the interests of actors shaping how they perform in implementation? How effective has been the implementation of policy to address the environmental areas discussed above?

Policy Recommendations

What policy recommendations could be made to improve the agenda setting and implementation processes in your country in relation to each of the three cases? What is the potential for regional problem solving that involves your country? What are the obstacles to effective regional problem solving?

第1部： IGES 環境ガバナンス・プロジェクト

目次

研究計画

アジアの環境ガバナンス比較研究のための分析枠組み

1. 研究計画

1. はじめに

環境ガバナンスとは、社会がどのように環境問題に対処するかに関わることである。これは、社会の中の公式、非公式な組織機構と個々の行為者（アクター）の間の相互作用にも関連している。これらの相互作用は、環境問題がどのように認識され、どのように取り組まれるのかに影響を及ぼしている。

アジアの環境ガバナンスの構造は、急速に変化している。国内レベルでは、新しい環境法、プログラム、組織機構が確立されつつある。地域および準（サブ）地域レベルでも、環境ネットワークや協カスキームが形成され始めている。このように急速に変化しつつあるガバナンスの構造は、この地域が環境問題にどのように取り組むかに大きく影響している。そこで、この地域の環境ガバナンスの特質を検討することが極めて重要である。

2. 背景

各国の環境政策の発展の初期においては、激しい産業公害を緊急に解決するために、技術志向の政策や措置が主要な役割を果たしてきた。そのため、従来行われてきた研究活動も、主として自然科学や技術的なアプローチを基礎とするものに傾きがちであった。しかしながら、今日の地球環境問題を解決するには、「技術的な対応策」だけでは十分でない。その理由の一つとして、これらの対策においては環境保護のための政策の形成や実施に当たって、各アクターの利害や考え方の相違が考慮されないからである。

人間環境の問題は、ただ単に一国の問題ではない。これは、数ある地球規模の問題群の中でも国連が最初に取り組んだ課題として、1972年の国連人間環境会議において国際的な議論の俎上に載せられた。ストックホルム会議は、世界的な環境ガバナンスの推進に向けて、環境問題を専門に扱う国際環境法及び国際機関の発展に弾みをつけるものとなったが、環境と開発の問題に対する理解とアプローチについての南北間のギャップを埋めることはできなかった。

それから20年後には、21世紀に向けた地球規模の行動計画であるアジェンダ21が、リオ・デ・ジャネイロで開催された国連環境開発会議において採択された。国連環境開発会議では、国際社会が究極の目標である持続可能な発展の実現に努めることで合意したが、地球環境の状況は今日までさらに悪化し、今後も悪化し続けると予想されており、将来には遠からず破局的な状態に陥る可能性もある。1980年代以降の地球環境問題の出現は、既に逼迫している先進国及び発展途上国の環境ガバナンスのための資源と構造に新たな圧力を加えており、人間活動による環境負荷を低減させるよう、既存の社会秩序や価値体系を見直し、経済を再構築することが我々にとっての急務となっている。

アジア地域における経済的、政治的、文化的な条件の違いは、この地域の環境問題の解決を複雑にしている。この地域では、地域的及び地球規模の環境問題の双方に対処することができるようなガバナンス・メカニズムを築き上げることが挑戦的課題となっている。急速な経済成長の結果、アジアでも環境問題は重要性を増している。この地域の経済活動が環境に及ぼす影響も甚大となっている。にもかかわらず、アジア地域における環境協力の歴史は殆どないのである。

3. 目的

この研究プロジェクトの主要な目的は、アジア地域の環境ガバナンスに関連する主要な問題に取り組み、分析を行い、具体的な政策提案を示すことである。IGES の環境ガバナンス (EG) プロジェクトは、情報を記録化し研究活動を実施する上で体系的な方法を活用し、IGES の他の研究領域との強い結び付きを保っていく。EG プロジェクトでは、研究を通してこの地域の各国における能力構築を支援し、環境と開発への参加型アプローチを推進していくことが期待される。

4. 基本的アプローチと活動

EG プロジェクトは、3年間でアジア地域の賢明な政策決定を支援できるような有益な成果を上げるために、それ自身の活動を展開するとともに、他のプロジェクト領域の活動にも参加していく。

このようなアプローチをとるなかで、次のような問題設定がなされる。

- ・環境ガバナンスの構造はどのように環境に影響を及ぼしているか。
- ・グローバリゼーションと構造的変化という文脈のなかで、アジアの環境ガバナンスはこの地域の環境に変化を及ぼすことができるか。
- ・アジアにはどのような環境ガバナンスの構造があるのか。
- ・これらの構造はどのように、また、どういった理由で変化しているのか。
- ・これらの環境ガバナンスの構造は、現在、そして今後出現するであろう環境問題に対処するのに十分なものであるか。
- ・もしそうでなければ、どのように改善すべきか。
- ・地球環境問題をめぐる各種のプロセスに対して、この地域ではどのように対応しているのか。
- ・アジア諸国は相互に何を学び取ることができるか。
- ・どのような政策提案ができるのか。

これらの諸問題は、実際の環境の状況と環境ガバナンスの推進という視点から検討される必要がある。

4.1 プロセスとアクター

「プロセスとアクター」アプローチが、当初このプロジェクトの主力を成す。このプロジェクトでは、体系的な方法で、どのようなプロセスやどのようなアクターがアジア地域の効果的な環境ガバナンスを推進し支援するものであるか、そして時の経過とともにこれらがどのように変化しているか、を検討する。この研究は、今後の実践的な研究成果を裏付けることができるよう、この分野における他の世界的な研究の上に立って行い、そういった研究がアジア地域にも適用され得るか否かを検討する。

アクターとプロセスを研究する目的は、これらが他の要因（科学、国際的な圧力やプロセスなど）が政策と環境に及ぼす影響を特定の方向に導き、あるいは緩和するからである。そうすることによって、このプロジェクトでは、政策決定と実施のプロセスのなかで、この地域や準地域におけるグローバリゼーションの重要性に焦点を当てることができるであろう。

定義の問題に関して、「アクター」は、政策決定者、政府の公務員、議員、市民社会、産業界、科学者、メディア、地方当局、司法制度、民間団体、国際機関などを含む、環境ガバナンスに関連したステイクホルダーズを構成する。プロセスとは、公式的なもの（例えば、法律や規則など）、非公式のもの双方を含む意思決定の仕組み、制度、手法（例えば、行政指導など）及びこれらとアクターとの間の関係に影響される何らかの環境上の変化（結果）を指す。また、「プロセス」は、政策課題の設定、実施、遵守の問題にも関連するものである。

4.2 国内及び準地域のガバナンス・システム

いくつかの国内及び準地域的なガバナンス・システムを選び出し、横断的な方法で比較検討を行う。

国内及び準地域のガバナンス・システムについての問題点には、次のものが含まれる。どのように意思決定が行われるのか、誰が決定するのか、決定がどのように実施されるのか、決定に当たってどのような情報がどこから提供されるのか、プロセスはどのように再検討されるのか、内部的及び外部的な要因がこれらにどのように影響しているのか、システムはどのように進化してきたのか、新たな課題に適應できるようなものであるか否か。

他のプロジェクト領域に焦点を当てる

こうした研究を基礎として、EG プロジェクトでは IGES の他の研究プロジェクト領域と協働することが大切である。EG プロジェクトは、具体的な問題に焦点を当てて検討と提案を行うために、(1)気候変動、(2)森林保全、(3)都市化と環境のプロジェクトに重点を置き、

それらと協働する。

EG プロジェクトは、各国別及び各準地域別の研究において、効果的な環境ガバナンスとその成果を推進するために、特にこの3つのプロジェクト領域に関連した具体的な問題を考察し、この地域の関連するアクターに提言・提案を行っていく。経済的手法や資金メカニズムとそれらの影響、そして民営化とグローバリゼーションによる環境ガバナンスへの影響についても考察する。

4.3 ワーキングペーパー・シリーズ

EG プロジェクトでは、一連の「ワーキングペーパー」を発行する。これらは、国内及び準地域からの視点に焦点を当てる。ここでカバーするトピックには、(1)アクターとプロセス、(2)環境に対する含意、(3)準地域的な協力への含意、(4)政策提言が含まれる。

さらに、ガバナンス研究からのインプットを他のプロジェクトに効果的に提供し、他の研究領域の橋渡しをするものとして、他のプロジェクト領域と関連・協力してペーパーを書く。この目的は、効果的に IGES 全体としての成果を挙げるよう、支援することにある。

4.4 他のプロジェクト領域との関係

EG プロジェクトが IGES の他のプロジェクト領域と共に活動する方法は、次のとおりである。

(1) 気候変動

両プロジェクトの相互関係の下で、(可能性としては、北東アジアと南アジアの) ガバナンスの問題に焦点に当てる。考慮すべき問題として、地域的な合意の可能性、国際協力、そして国際及び国内の環境法や政策を実施するために市場を基礎にしたメカニズムを利用する方法がある。

(2) 森林保全

東南アジアに焦点を当てた研究では、森林破壊におけるガバナンスの側面を含めて、従来のアプローチを超えた森林管理のより包括的な視点を提供するものとなる。

(3) アジアの都市化と環境

EG プロジェクトと都市環境プロジェクトの相互関係においては、環境問題とその解決策が凝縮した小宇宙としての都市に焦点を当てる。その際には、水とか大気といった一つないし二つの問題を選んで、準地域レベルのガバナンス・システムがどのようにこれらの問題に影響を及ぼしているのかを検討することもできよう。

(4) 環境教育の国際協力

EG プロジェクトは、国際的・地域的な環境条約の実施と遵守を促進するためのトレーニング資材の作成について協力する。その目的は、各国の組織的な対処能力を構築し、トレーニングの実施者や一般大衆が法律、人権、科学などを理解して、より一層積極的にガバナンスのプロセスに参加できるようにすることにある。

4.5 地理的な範囲

この研究を実施するに当たって、IGES は国内及び準地域からの視点を深めるように、いくつかの国々とのネットワークを築いていく。当初の研究の対象として、日本、中国、インド、タイを選ぶ。その後このプロジェクトでは、同種の問題について準地域的なレベルでも検討を加える。準地域としては、北東アジア、東南アジア、南アジアが対象となる。

4.6 将来シナリオの作成

EG プロジェクトでは、この地域に関するいくつかのシナリオを作成する。これらのシナリオは、「もしこうなったら」というアプローチを基礎にして、グローバリゼーションと民主化がこの地域に及ぼす影響、そして自然災害や金融市場の崩壊といった不測の危機が発生した場合の問題を検討する。その目的は、各国および各準地域がこうした変化に適応し、積極的に環境を改善していくことができるように支援することである。

5. スケジュール

1年目：

1. 最初の3か月は、研究実施の支援のために必要なネットワークの構築に充てる。
2. この3か月の間に、EG プロジェクトはアジア及びその他の地域で行われている研究活動とその成果のサーベイを行う。これらは、今後の活動の基礎となる。
3. EG プロジェクトでは、体系的な研究枠組みを適用して、4つの国別研究報告を作成するためのネットワークを構築し、活用する。その後の9か月で、国別研究報告の初稿がまとめられる。
4. 国別研究の作成過程と並行して、アクターとプロセスについての準地域レベルの研究にも着手する。
5. このプロジェクトにおける重点を確認し、この問題に最も深く関わっている政策決定者を巻き込んでいくために、ワークショップを開催する。

2年目：

1. 4か国の環境ガバナンス研究に追加して国別研究を行い、ワーキング・ペーパーを作成

する。ここでは、特に IGES の 3 つの研究課題分野—気候変動、森林保全、都市化と環境—を対象とし、具体的な提言につなげていくことを目的とする。

2. 一般的に、及び 3 つの研究課題分野との関連において、準地域の研究を行う。
3. このプロジェクトの重点を確認し、政策決定者などのキー・パーソンを巻き込んでいくために、ワークショップを開催する。

3年目：

1. 各国及び各準地域におけるシナリオ・アプローチを展開する。
2. このプロジェクトの出版物の最終とりまとめを行う。この出版物は、IGES における研究成果を統合したものとなる。
3. これらの問題領域に焦点を当てたアジア地域への政策提言をとりまとめる。
4. 研究成果を普及させるとともにその後の活動を計画するため、政策決定者のための国際会議を開催する。

6. 期待される成果

EG プロジェクトに期待される成果は、次のとおりである。

1. アジア及びその他の地域における環境ガバナンス研究の状況に関する調査報告
2. EG プロジェクトとその結果の実施のためのネットワークの確立と維持管理
3. 国別研究報告
4. 準地域別の研究報告
5. ワークショップの開催（及びその会議録）
6. 政策決定者のための国際会議の開催（及びその会議録）
7. 出版物

2. アジアの環境ガバナンスに関する比較研究の分析枠組み*

1. はじめに

環境ガバナンスとは、社会が環境問題にどのように取り組むかということに関するものである。公式と非公式の制度の相互作用と社会のアクター（行為主体）に関連したものである。これらは、環境問題がどのように特定、規定（あるいは定義付け）されるかに影響を及ぼしている。また、環境問題がどのように政治課題として取り上げられ、政策が形成され、プログラムが実施に移されるのかにも関連している。

1992年の国連環境開発会議（リオ会議）以来、アジアの環境ガバナンスの構造はとも劇的に変化してきた。国内レベルでは、新しい環境法、プログラム、制度が確立されている。加えて、環境分野のアクターは、科学的そして一般大衆の関心を得た新しい種類の環境問題について戦略を変化させている。従来は環境法の制定に影響力を持つことがなかったアクターが、アジアの環境政策の形成過程にますます関与するようになってきている。（準）地域及び地域のレベルでも、環境ネットワークや協カスキームが形成されつつある。アジアでは、国内及び地域の各レベルで、環境ガバナンスのメカニズムが大きく変化している。これらのガバナンスの構造を評価することは、アジア地域でどのように環境問題に取り組むかにとって影響を及ぼすであろう。

アジアの環境ガバナンス・プロジェクトでは、アジア諸国でどのように環境ガバナンスが起こっているのかに焦点をあてる。このプロジェクトは、体系的に、今日のアジアの環境ガバナンスにとって重要な国内的及び国際的な要素を探求する。広範囲な要素を通して、国際的なシステムがアジアの環境ガバナンスに作用している。一方で、国内での政治議論が、国際レベルの成果に影響を及ぼしている。森林破壊は、地方、国内、国際的な問題である。地域の海洋へ流れ込む河川の汚染は、地方と国際的な環境問題である。都市部の大気汚染は、酸性雨や地球規模の気候変動にも関連している。このように、国内の環境ガバナンスのメカニズムと国際レベルのそれとの関連を検討することが必要となっている。

いくつかの問題点が浮かび上がってくる：アジア諸国の環境ガバナンスを特徴づけているものは何か。アジア諸国における環境ガバナンスのメカニズムの共通点と相違点は何か。

* この分析枠組みは、環境ガバナンスプロジェクトのメンバーとの議論をもとにして、ミランダ・シュローズ博士（メーランド大学政治学部）によって起草されたものである。環境ガバナンスプロジェクトのメンバーは、森島昭夫教授（IGES理事長）、加藤久和教授（名古屋大学）、原嶋洋平博士（IGES）、そして森田千春氏（IGES）である。

アジアの特定の国々における環境ガバナンスの性質は、地域及び地球規模での問題解決への効果的な参加に影響を及ぼしているのか。地方、国内、そして国際レベルで環境ガバナンスを改善するためにはどのようなステップが必要であろうか。アジアの地域レベルで出現しつつある環境ガバナンスのメカニズムはこの地域に襲いかかっている環境問題に効果的に対応できるものか。アジアの地域レベルの環境ガバナンスは結果としてヨーロッパや北米のモデルに収斂していくのか。あるいは、環境ガバナンスの「アジア・モデル」というものがあるのか。

このプロジェクトは、この地域が直面している様々な種類の環境ガバナンスの取組みに関心を持っている。これには、水汚染、大気汚染、気候変動、そして森林破壊といった問題も含まれている。ある人は、環境法がまだ限定されており、環境行政が国内の環境問題に対応するために十分な対処能力がないこの地域では、国家の環境ガバナンスの対処能力を強調している。また別の人は、地域及び地球規模での環境問題についての意識の向上を考えている。そして、アジア地域での環境協力を推進するようなメカニズムの発展を促進する必要がある。

この地域の環境ガバナンスのメカニズムとその過程を分析する最初のステップとして、環境政策の形成と実施についての比較研究を提案する。環境ガバナンスの比較研究は、各国のケース・スタディ（中国、インド、タイ、日本）に参加する研究者が採る研究課題と研究方法を基礎に行われる。これら3か国で、3つの環境問題について生れてきた環境ガバナンスを検討する。これらの問題とは、1) 河川と海洋の汚染、2) 大気汚染／気候変動、3) 森林破壊である。こうしたケースが選ばれた理由は、以下のとおりである。

2. カントリー・ケース

アジアそして地球規模の環境問題の将来にとって、中国とインドが重要であることは言うまでもない。中国とインドで、世界人口の5分の2を占めている。中国とインドの国民一人当たりの所得は低く、国民一人当たりのエネルギーや資源も先進国よりもかなり低い水準にある。これらの国々の急速な経済発展の結果、エネルギーや天然資源の消費は急速に増加している。冷蔵庫、電気製品、自動車、空調などの近代的な設備の需要は徐々に上がってきている。人口の増加とエネルギー重要の増大の結果として、2010年までに、これら2か国は世界の温室効果ガスの排出量の半分以上を占めると予測されている。これらの国々の環境ガバナンスは大いなる挑戦に遭遇している。農村から都市への人口移動は、将来的には都市部での混雑を悪化することを示している。都市部では、交通渋滞、大気汚染、水汚染が深刻な問題となっている。暖房、料理、産業のための中国での石炭利用は大気汚染、酸性雨、そして地球規模の気候変動にかなり寄与している。インドでは、燃料のための木材の需要は、森林破壊に寄与しており、スクーターや自動車の需要は一酸化窒素

と二酸化炭素の排出の原因となっている。気候変動は、中国やインドで、マラリアや Dengue 熱などの蚊による病気の発生を増加させる。これらの国々で、大気や水の汚染は人間の健康を脅かし、生活の質を悪化している。また、農村部でも、汚染問題は深刻である。農業による汚染、土壌劣化、有害廃棄物が主要な問題となっている。中国やインドでは、工業と農業で水需要が増大するので、将来的には水不足が深刻となるであろう。これらの国々がどのように環境ガバナンスの問題に直面するのかが極めて重要な問題である。

タイは、中国やインドとともに多くの環境問題を共有している。アジア・タイガーの一角として、タイは、急速に経済発展してきた。所得レベルが上昇するとともに、消費財の需要が増大した。エネルギーや天然資源の需要が増加したにもかかわらず、環境法がしっかりしていないので、深刻な大気、水、土壌の汚染を惹起した。この国では、熱帯林の破壊が重要な問題となっている。タイのケース・スタディはアジアの多くの工業化の過程にある国々における効果的な環境ガバナンスのあり方を理解することに役立つであろう。アジアの金融危機が環境ガバナンスの対処能力にどのような影響を及ぼすのかを考える良い機会も与えてくれる。

日本は、他のアジア諸国と比べるとともに重要な立場にある。日本はアジアで最も豊かな国である。環境ガバナンスという観点で、日本はアジア諸国と比べられることよりも、欧米諸国と比較されることのほうが多い。これは、20年以上も前に、日本が大変に深刻な環境問題に取り組んできたからである。日本国内では、地下水汚染、都市の大気汚染、自然保護など、まだ多くの環境ガバナンスの問題点があるが、その状況はアジアの発展途上国のものとはかなり異なっている。日本にとって最も大切な環境ガバナンスの問題点は、環境汚染防止のための地域的なメカニズムを推進する上でアジアでどのようなリーダーシップを発揮するかであろう。アジアのモニタリングネットワークの推進、環境トレーニングセンターの設置、多くの地域規模の会議の開催を通して、こうした方向にむけて少しずつステップが進んでいる。

これらの国々における環境ガバナンスのメカニズムの長所と短所を評価して、この地域での環境ガバナンスのメカニズムを強化するための政策提言を行うために、体系的そして実証的な研究を行う。こうした比較研究ではデータの利用可能性という困難に突き当たる。さらに、4か国の政府制度や文化の違いが直接的な比較を難しいものとする。環境NGOの範囲でさえ、中国とインドでも違っているであろう。各国で、中央政府と地方政府の関係がかなり違っているので、幾つかの国の地方レベルでの環境政策の実施をより効果的にする要素を比較することも難しいであろう。国家的な優先順位や文化的伝統が異なるので、効果的な環境ガバナンスの意味するところも国によって違ってくるであろう。こうした方法論の上での問題点はあるが、政策提言を行うためには実証的な環境ガバナンスの研究が必須となっている。

3. 環境問題

河川と海洋の汚染

アジアでは水汚染の問題が多い。これには、インドや中国の幾つかの地域での水不足も含んでいる¹：特に中国とインド、そしてタイの飲料水の汚染；4か国での河川、湖沼、海洋の汚染；海洋資源の枯渇。これは、この研究プロジェクトが焦点をあてる問題を超越るものである。その代わりに、この研究では河川と海洋の汚染をフォーカルポイントとすることを提案している。これらを選んだ理由は、河川の汚染が国内問題というだけでなく、海洋汚染にもつながるものであるため、国際的な問題ともなりうるからである。こうした問題に対して国内そして国際的に取り組むために、環境ガバナンスのメカニズムがどのように進展してきたかを理解することは重要である。

大気汚染：酸性雨と気候変動

このプロジェクトでは2つの主要な大気汚染問題に焦点をあてる：酸性雨と気候変動である。もちろん、水汚染の場合のように、アジアには他に多くの大気汚染問題がある。この地域では、都市の大気汚染は深刻な問題となっている。産業活動による大気汚染は中国、インド、タイで大きな問題となっている。中国、インド、タイにおける自動車利用の増大は、自動車からの一酸化窒素と二酸化炭素の排出が増えている。日本でも、運輸による一酸化窒素の排出は政策担当者にとっての重要な課題のままである。酸性雨と気候変動の問題は従来型の大気汚染とも関連しているため、これらの問題に焦点をあてるべきであろう。例えば、酸性雨は、産業活動に関連しているばかりか、家庭の石炭燃焼にも関連している。従来型の大気汚染問題のほとんどは、気候変動問題にも関連している。最も重要なことは、国内と地域の視点からの環境ガバナンスの構造についての検討に関心があることから、これらの問題へ焦点をあてることは国内と地域の両レベルでどのような取り組みがなされているかの検討を可能としてくれる。

森林破壊

森林破壊はタイ、インド、中国で深刻な問題となっている。日本では森林破壊は深刻な

¹今後、中国とインドでは、水不足が最も深刻な問題になると認識されている。幾つかの地域では、工業用水を中心に水利用が増加している。現在議論されている深刻な水不足はインドや中国の一部の地区での安定性を脅かすものとなる。Elizabeth Economy, “China and East Asia”とRichard Hill, Swarupa Ganguli, and Dede Naylor, “Environmental Flash Points in South Asia” in Robert S.Chen, W.Christopher Lenhardt, and Kara F.Alkire, *Consequence of Environmental Change—Political, Social, and Economic* (University Center, MI: Consortium for International Earth Science Information Network (CIESIN), 1998)を参照。

問題ではないが、日本は熱帯木材の主要な輸入国で国際熱帯木材機関のホスト国であるので、森林破壊問題についての環境ガバナンスに関する環境ガバナンスのメカニズムを研究するにあたっては日本を抜きにしては考えられない。森林破壊は生物多様性や気候変動の問題にも関連があり、森林破壊は重要な関心事である。

4. 政策過程

政策の課題設定と実施は政策過程の構成要素である。ある国で政策課題がどのように設定され、実施に移されるかは、各アクターが相互にどのように関係するかを規定するその国の政府の構造と公式及び非公式の制度にかかってくる。各国がかなり異なった政治制度を持っていることは、この研究にとって国ごとの最も明らかな相違点となるであろう。日本は、一党支配であるが、民主的で単一主権の国である。中国は、社会主義で、一元的な国家である。インドは、政党が競合しており、議会民主主義で、連邦制を採っている。タイは君主制であるが、長らく軍事政権下にあった。1990年代になって、文民政党が議会で大多数を占めるようになり、民主化が進んでいる。

公式の政府構造が、全体として各アクターが政策課題の設定と実施にどのように関与し、相互に関連しあっているかを規定している。例えば、政策課題の設定にインプットするNGOは、政府がこれらの組織をどのように見ているかに影響を受けざるを得ない。その実施では、地方政府が果たす役割は、憲法上、中央政府と地方政府に付与されている権能に従う。

公式な政府構造に加えて、各アクターの対応に影響を及ぼすような多くの非公式な制度がある。例えば、日本では、政策課題の設定と実施において大きな役割を果たす非公式な制度として行政指導というものがある。タイでは、軍部と文民グループの間関係が政策過程に大きな影響を及ぼしている。

このように多様な政治制度において、政策課題の設定と実施の過程はかなり異なってくる。各国のそれぞれのアクターは、どのような問題が政策課題となるのか、これらがどのように理解されるのか、どのような政策が選択されるのかといった問題に影響を及ぼしている。そのため、どのようなアクターが政策課題の設定と実施に関与するかを理解することが重要となっている。

5. 政策課題の設定

環境ガバナンスには多くの重要な側面がある。この研究における焦点は、その課題設定である。ジョン・キングダム氏は、課題の設定とは、公共や政治の注目以上のものが、あ

る問題に集まる過程のことを言うと言っている。メディア、利害団体、産業界、公務員などが強い注目を払ったときに政策課題となるのである²。この過程で重要なことは、社会の様々なアクター（メディア、産業界のアクター、NGOなど）が諸問題を認識して、互いに提案しあうという対応であり、これらのアクターによって新しい政策が提示される。

政府の政策課題として取り上げられた諸問題が注目を受けるというものでもない。結果として、他の問題が立法過程に乗せられることがある。一旦、問題が政府の課題そして立法の過程で議論させられるようになると、多くの政策の選択肢が検討される。どのように政策の選択肢が考えられ、ある選択肢がどうして関心を集めるのかは、実証的な調査を必要とする点である。

この問題に関連する重要な社会変化として、必ずしも立法過程の問題とされる必要がないことも重要な点である。一旦、例えば、メディアが問題と取り上げると、一般の関心を集め、これらを人々が繰り返し取り上げるようになる。社会変化へ影響を及ぼすような別の形態の可能性を考えると、この研究では各国政府レベルでの政策課題の設定に注目したい。しかし、他のアクターを排除するつもりではない。多様なアクターが、政府の決定に影響を及ぼしていることを検討しようとする、この研究がかなり制約されてしまうからである。

6. 国際レベルと国内レベルの関連性

今日、環境分野の政策課題の設定には、国際社会のアクターと国内のアクターの双方が関与している。国際的なアクターは、レベルは異なるが、各国の政策課題の設定に影響を及ぼそうとしている。多様な国際社会のアクターと国内のアクターは、環境問題の理解の仕方、運動の効果、導入される政策の種類について相互に依存している。国内の（準）国家的なアクターによる役割を検討することに加えて、これらのアクターが国際社会のアクターからどのような影響を受け、あるいはこれらにどのような影響を与えようとしているのかを理解することも重要である。

7. 実施

一旦、政府が問題を取り上げると、政策やプログラムが実施されなければならない。実施とは、どのように政府のプログラムが始められ、政策決定が実際に行われるようになることを言う。問題が政策課題として取り上げられ、法制度その他の決定が行われたことは、必ずしも、政策が実際に執行されることを意味していない。各国政府にとって難しい問題

² John Kingdon, *Agendas, Alternatives, and Public Policy* (Boston: Little, Brown, and Co., 1984), pp.3-4.

は、効果的に政策を実施する方法を見いだすことである。幾つかの場合では、政府は、政策の遵守を奨励しようとして税金によるインセンティブや補助金などの「ニンジン」を与えようとする。他の場合には、遵守しない者を制裁する「ムチ」を使う。各国政府が、政策を効果的に実施するためにどのような方法を採用しているかを理解する必要がある。政府は、社会と産業界のアクターと意見交換し、その行動を変えていくようにしていかなければならない。政府が、これらのアクターが姿勢を変えるように納得するような方法を見つけないければならない。

これは簡単なことではない。実施のディレンマは政府の決定の解釈の違いや問題の深刻さの理解の違いが原因となっている。例えば、中国では、それぞれの省が中央政府の決定を違った形で解釈している。あるいは、取り組むべき諸問題のなかでの優先順位の置き方も違っている。

8. アクター（行為主体）とプロセス（過程）

政策課題の設定と実施の過程では多くのアクターが存在する。政策課題の設定や実施に関与しているアクターのすべてが、政策の実施に参加することを求められているわけではない。例えば、研究者は、政策の実施ではなく、政策課題の設定において重要な役割を果たしているであろう。政策課題の設定と実施の過程における重要なアクターには、官僚、政治家、研究者、メディア、産業界、地方政府、NGOが挙げられる。これらのアクターのすべてが必ずしも政策課題の設定や実施の双方で重要な役割を果たしているとは限らないので、各アクターの持つ実際の影響力を評価することが必要である。

それぞれのアクターは社会で異なった利害を持っているので、アクターへ焦点をあてることは興味深い。気候変動の科学的な影響によって海面が上昇するのであるが、運輸部門の官僚にとっては、気候変動は運輸問題を制約する問題として捉えられる。政策課題の設定と実施の過程において、各アクターによって理解の仕方が相対立することがある。このように、誰が重要なアクターであるのかを知るだけでなく、それらの利害は何かを知る必要がある。

各アクターとその利害は時とともに変化していく。新しい情報が問題の理解の仕方を変えている。新しい科学的な情報によって、政府担当者はその考え方を变えることに懐疑的となるであろう。新しい技術は、産業界の政策変更への反対姿勢を改めさせることがある。問題が重要になればなるほど、多くのアクターが新たに政策課題の設定に関与してくるし、ある政策を支持することを通して他のアクターと連携をはかる。

9. カントリー・ペーパーの概要

海洋汚染、大気汚染（酸性雨と気候変動）、森林破壊に関する政策課題の設定と実施を理解するために、次に掲げるような項目を研究対象として提案する。

1) 環境問題の概観

このセクションでは、読者のために全体の概観を示す。このセクションで取り上げる問題として：各国での環境保護の歴史とは。最初に環境法や環境行政が導入されたのは何時か。環境保護における政府、産業界、社会の関心はどのようなレベルか。時の経過とともにそのような関心はどのように変わったか。各国で最初に優先順位が置かれた国内で環境問題と何か。地域的あるいは地球規模の環境リスク（酸性雨、地球規模の気候変動、希少な種の保全、森林破壊など）に対する各国の対応は。

2) 各国経済の概観

多くのアジア諸国での主要な問題は、どのように経済発展と環境保護とに同時に取り組むかである。アジアの発展途上国が直面している問題は、アジアの先進国や西洋諸国とはかなり違っている。効果的な環境ガバナンスへの取り組みを始めるには、各国の経済と社会の状況を理解することが有益である。各国の経済発展はどの程度のレベルにあるのか。人口の規模は。G N Pの規模は。国内で所得がどのように分配されているのか。主要な商品（国民一人あたりのエネルギー消費量、食糧の消費量、自動車、電話、冷蔵庫の保有数など）の消費はどの程度のレベルにあるのか。

3) 環境ガバナンスのメカニズムの現状： アクター（行為主体）とプロセス（過程）の概観

環境ガバナンスを支える各国の政治制度の基本的な構造とは何か。換言すれば、環境政策の形成と実施に関与する主要な制度とアクターは何か。どのように中央政府が地方政府とが相互関連しているのか。どこで、多くの環境政策の意思決定が行われているのか。何がシステムの長所か。何がその弱点か。

4) ケース・スタディ

ケース・スタディは、海洋汚染、大気汚染（酸性雨と気候変動）、森林破壊に関連する環境ガバナンスについての政策課題の設定と実施の過程に焦点をあてる。次のような問題点が、政策課題の設定と実施の過程の双方で別々に考慮される必要がある。

各環境問題についての記述事項

a) 各国周辺での海洋汚染の状況は。どの河川が主要な汚染源となっているのか。汚染の主要な原因は何か。汚染による主要な被害は何か。汚染に対処するためにどのような政策が導入されているのか。

b) 各国における酸性雨と気候変動に関連する汚染の状況は。主要な排出源は何か。排出による主要な被害は何か。もしあれば、これらの問題に対処するためにどのような政策が導入されているのか。

c) 森林被覆はどの程度か。森林破壊がどの程度深刻になっているのか。森林破壊の原因と被害とは何か。

政策課題の設定

1) 3つの環境問題が政策課題として取り上げられる際に関与する主要なアクターは誰か。時の経過とともに、これらのアクターによる政策課題の設定への関与は変化してきたか。環境問題についての考え方を形づくる各アクターの利害は何か。どの政策の選択肢が主要な関心を集め、その理由は何か。各環境問題についての政策課題の設定における長所と短所は何か。

実施

2) 政府の政策を実施する際に関与する主要なアクターは誰か。時の経過とともに、これらのアクターによる実施への関与は変化してきたか。これを実施についての各アクターの利害は何か。上記で議論された環境問題に取り組むための政策の実施はどの程度効果的なものであるのか。

政策の提言

これらの3つのケースに関連して、各国での政策課題の設定と実施を改善するために必要な政策提言とは何か。各国が参加して解決すべき地域的な問題とは何か。地域的な問題解決の実効性を妨げているものは何か。

Part II: Environmental Governance in Four Asian Countries

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Environmental Governance in China

Xin Zhou

1. Broad Introductory Overview

1.1 History of Environmental Protection in China

As in the industrialized countries, environmental protection in China has been growing with the arising of enormous environmental problems and evidence of their damages to our habitat and public health. The causes of environmental problems have much correlation with social and economic development.

At the beginning of 1950s, China implemented its first Five-year National Plan, with an industrializing strategy focused on heavy industry. Environmental problems began to appear when large-scale industrial complexes were constructed. A forest of smokestacks became a symbol of modernization.

In order to realize an immediate and rapid industrial development during the 'great leaping-forward' period in 1958, China carried out a development strategy pillared by steel and iron industry. A crowd of unplanned out-of-date processes and indigenous smelting furnaces were built, which resulted in extensive ecological degradation.

During the 1960s, China further stressed on establishing an independent self-supporting industrial structure. More serious air and water pollution generated as a consequence of constructing heavy industries in the middle and west of China. After 1970, environmental problems became more acute when many pollution accidents happened. It was the 1972's Stockholm Conference on the Human Environment that aroused the environmental awareness of the Chinese Government.

In the late 1970s, China adopted a reform and opening-up policy and began to transit from planned economy to a socialist market economy. With two decades' rapid economic growth, particularly fast development of township and village enterprises (TVEs) as representatives of non-state-owned enterprises, urban air pollution and water pollution of main rivers and lakes have been more and more fierce. In response to severe environmental situation, the Chinese Government has formulated a series of environmental laws, regulations and standards, as well as implemented a set of environmental policies and systems. The history of environmental protection in China can be summarized as the following three stages:

Stage I: Foundation (1972 - August 1982)

From Chinese delegation attending the 1972's Stockholm Conference till the First

China National Conference on Environmental Protection held in Beijing in Aug., 1973, Chinese government proposed 32-Chinese character guiding principles: 'overall planning, rational layout, comprehensive utilization, recycling, public participation, taking initiative actions, environmental protection and benefiting the whole society', which marked the beginning of environmental protection work in China.

i) Theoretical knowledge

During this stage, environmental protection and ecological protection had been received more attention by the government whose knowledge level raised to a new stage. Firstly, environmental problems are not simple 'three-wastes', but important factors which may impede China's social-economic development. Secondly, the dilemma between environment and economy should be considered into the development strategy. Environmental protection should be integrated into economic growth to realize an harmonious development of population, resource and the environment. Thirdly, environmental management should be given first priority for environmental protection work.

ii) Policy and legislation

Chinese government adopted a set of environmental policies and promulgated several environmental laws to strengthen environmental management, including:

- On September 13, 1979, the Environmental Protection Law (Trial Version) was enacted by the Eleventh Meeting of the Standing Committee of the Fifth National People's Congress. From then on, the nation's environmental protection has been enforced on a sound legal basis.
- The System of Environmental Impact Assessment was explicitly stipulated in the Environmental Protection Law (1979): 'Site selection, designing, construction and production of every enterprise and institution should avoid polluting the environment and deteriorating the ecological system. Every new project, rebuilding project and expansion project must submit Environmental Impact Report to the environmental administration or other authorities concerned for their examination and approval.' The implementation of this system promoted the transformation from end-of-pipe control to pollution prevention and control.
- On May 2, 1982, the State Council released a Circular requiring the implementation of pollution charge system. The Circular also defined the rate of pollution charge, source of funding and usage of pollution charge. This had been an effective economic incentive for pollution control.

iii) Capacity building

After the First China National Conference on Environmental Protection in 1973, the State Council established a Leading Group on Environmental Protection in December 1974, which was composed of members from 20 ministries and state commissions, such as State Planning Commission, Ministry of Construction, Ministry of Industry, Ministry of Agriculture, Ministry of Transportation, Ministry of Water Conservation and Ministry of Public Health, etc. Its major responsibilities included making guiding principles and policies, formulating administrative regulations, defining state environmental planning and coordinating environmental protection work among different sectors. The founding of the Leading Group marked the beginning of environmental administration in China. The Environmental Protection Law (1979) stipulated the principles for establishing local environmental administrations and correspondence responsibilities. To respond to the Environmental Protection Law, local governments of provinces, autonomous regions and municipalities directly under the Central Government successively established local Environmental Protection Bureaus (EPBs). Ministry of Metallurgy, Ministry of Chemical Industry, Ministry of Light Industry, Ministry of Textile and Ministry of Petrochemical Industry, etc. also set up sectoral environmental protection administrations. During the administrative organizational reform in 1982, the Leading Group on Environmental Protection of the State Council was rescinded and its work was assigned to the Department of Environmental Protection of the Ministry of Urban and Town Construction.

Stage II: Development (September 1982 - April 1989)

The Second China National Conference on Environmental Protection was a milestone of environmental protection in China. General principles were established during this conference: 1) Environmental protection is a fundamental state policy; 2) China adheres to the strategy of 'three synchronizing' and 'three coordination', *i.e.* synchronizing the planning, implementation and development of economic growth, urban and town construction and environmental protection to facilitate the coordination of economic benefit, social benefit and environmental benefit; 3) Intensifying environmental management is a key task for environmental protection work.

i) Improvement of environmental policy framework and legislation

During this stage, the framework of environmental policy had been formed which consisted of three levels (see Figure 1). The 'fundamental state policy' was the highest level. 'three-synchronizing' and 'three-coordination' was the second level. The third level was 'three major environmental policies', *i.e.* 'emphasizing prevention and integrating both prevention and control'; 'polluters pay' and 'strengthening environmental management'. Further, there also contained

environmental economic policies, ecological protection policies and technical policies, etc. in the framework.

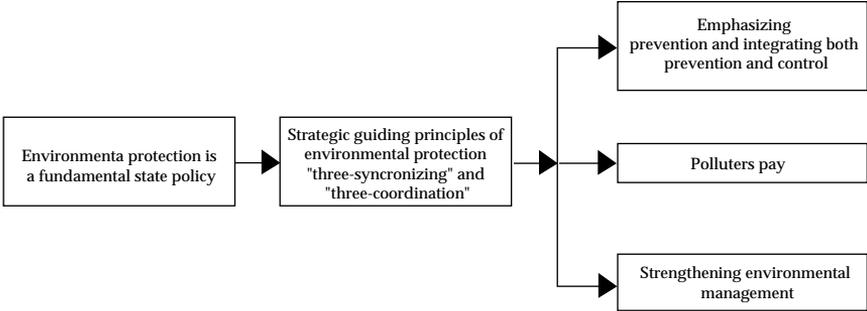


Figure 1 Framework of Environmental Policy in China

The initial legal system consisted of the Constitution, the basic Environmental Protection Law, administrative laws and regulations and local regulations (see Figure 2).

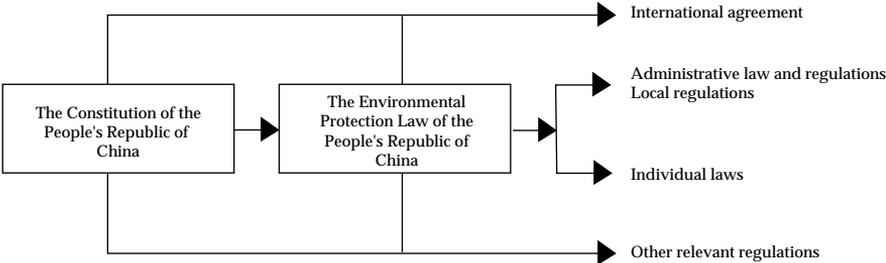


Figure 2 Environmental Legal System in China

ii) Formation and development of macro environmental management system

In May 1984, the State Council decided to establish the State Environmental Protection Committee. In 1988, the National Environmental Protection Agency (NEPA) was founded, directly affiliated to the State Council. Governments at each level also built local EPBs. A comprehensive environmental management mechanism with multi-levels and multi-departments was set up during this stage (see Figure 3).

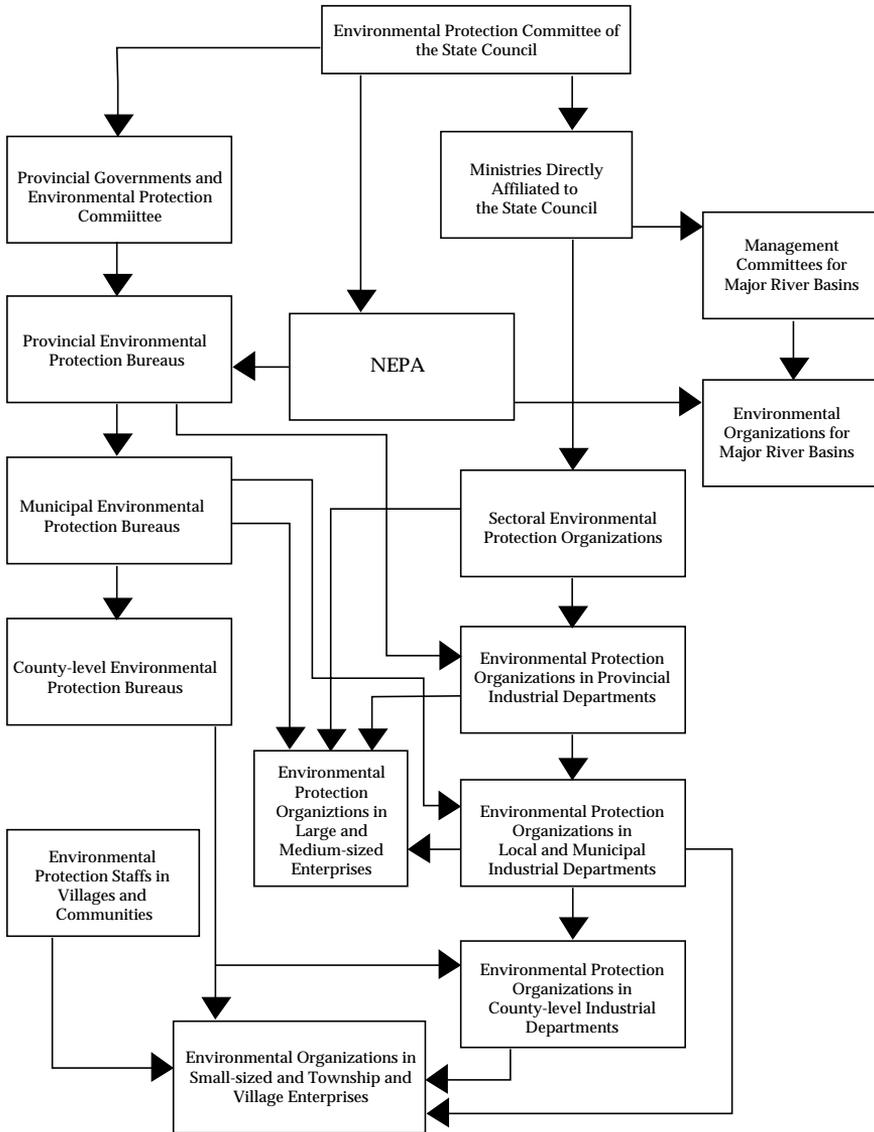


Figure 3 Environmental Management System in China

Stage III: Reform and improvement (May 1989 - Present)

In this stage, environmental issues have been of great importance around the world. During the Third China National Conference on Environmental Protection held in April, 1989, it was proposed that 'China should try to explore a road for environmental protection with Chinese features'. After the 1992's Rio Earth Summit, sustainable development has been received common recognition. In 1994, the Chinese government released China's Agenda 21 - White Paper on Population, Environment and Development in the 21st Century. The Fourth China National Conference on Environmental Protection was held in July 1996, during which two significant actions were advocated, *i.e.* National Plan for Total Emission Control of Major Pollutant Discharge during the Ninth Five -Year Plan and China's Planning for Cross-century Green Projects. In September 1996, the State Council ratified the Ninth Five-year Plan and Prospective Objectives in 2010 for Environmental Protection.

In this stage, environmental management has experienced three transformations: 1) from end-of-pipe control to life-cycle environmental management; 2) from concentration control to total emission control; 3) from administrative management to environmental management dependent on legislation, regulation and procedure.

The regime of environmental policy and legislation has been improved. In December 1989, the amended Environmental Protection Law was promulgated. At present, there are six environmental protection laws: 1) Environmental Protection Law; 2) Law of Prevention and Control of Water Pollution; 3) Law of Prevention and Control of Air Pollution; 4) Regulations of Prevention and Control of Environmental Noise Pollution; 5) Law of Prevention and Control of Solid Waste Pollution; and 6) Law of Marine Environmental Protection. There are also nine laws for resource protection. The revised Criminal Law added the definition of crime destroying the environment and resources. The nation has issued 28 environmental administrative regulations, 70 rules and 375 national environmental standards. There are more than 900 local environmental regulations.

Further, China established eight environmental management systems, including: 1) system of environmental impact assessment; 2) system of 'Three Simultaneity'; 3) system of pollution charge; 4) system of pollution discharge permits; 5) system of quantitative exam on integrated management of urban environment; 6) target responsibility system for environmental protection; 7) system of centralized pollution control; and 8) measure of setting deadlines for pollution source control.

In the spirit of the UNCED, China advocated ten countermeasures for the environment and development towards the end of this century and the 21st century:

- implementing strategy of sustainable development;
- taking effective actions for industrial pollution prevention and control;
- promoting integrated management of urban environment with emphasis on air pollution , water pollution, solid waste and noise pollution in urban areas;
- raising energy efficiency and improving the structure of energy production and consumption;
- promoting ecological agriculture, afforestation and biodiversity protection;
- supporting R&D and the development of environmental industry;
- applying economic incentives;
- enhancing environmental education and raising the environmental awareness of the public;
- strengthening legal system and intensifying environmental management;
- formulating action plan.

1.2 Primary Environmental Issues in China

Economic growth was realized by extensive development, which exerted great stress on the environment. Environmental pollution, centered in cities, has not been effectively controlled. Affected areas of ecological deterioration in some regions are expanding. Primary environmental problems in China include:

- Rivers, lakes and reservoirs are extensively polluted in varying degrees, particularly waters in industrializing towns. More than 50% of the ground water in urban areas is polluted.
- Near-shore pollution has not been effectively controlled.
- Soil erosion as a result of desertification and deforestation makes ecological environment in some regions more fragile. Loss of biodiversity threatens some endangered species.
- China's economy is expected to keep a sustained annual growth of 8%, which means more pressure will be placed on the environment, especially in the less-developed regions in the middle-and-west.
- Though the emission level of SO₂ and CO₂ per capita is much lower than the average world level, total emissions are huge.

Presently, Chinese government are taking stringent measures on waste water

treatment of 'three rivers' (Huaihe River, Haihe River and Liaohe River) and 'three lakes' (Taihu Lake, Chaohu Lake and Dianchi Lake)' and air pollution control in 'two control zones' (SO₂ control zones and acid rain control zones) and 'one city' (Beijing).

1.3 Attitude towards Global Environmental Issues

Since the quality of global environment and how to solve global environmental issues have close relations to China's sustainable and stable social-economic development, Chinese government has been attaching great importance to both regional and global environmental issues. China positively participated in the activities for solving global environmental issues and joined 18 international agreements, including Montreal Protocol on Substances that Deplete the Ozone Layer, United Nations Framework Convention on Climate Change and United Nations Biodiversity Convention, etc. More than 10 programmes and regulations, e.g. China's Agenda 21 and China's Biodiversity, were formulated as commitments to the international agreements.

On the other hand, China is still a developing country. Poverty is considered as one of top social priorities and the essential cause of environmental deterioration. Inadequate development makes dozens of millions of people live at the edge of the minimum level for living. They can not afford sufficient food, clothes, housing, health care and education, therefore China should undoubtedly devote to its economic development. In order to realize economic growth without sacrificing the environment, China should insist integrating environmental concerns into economic development. Sustainable development of China will contribute to the settlement of regional and global environmental issues.

2. Contextual Overview

Since 1978, China's economic regime has experienced a fundamental reform transforming from centralized planned economy to socialist market economy. Tremendous achievements were made during the last two decades. GNP increased from RMB 452 billion yuan in 1980 to RMB 6,756 billion yuan in 1996, with an annual growth of 10.3%. GNP per capita in 1996 was RMB 5,453 yuan. China has merged into the international economy.

With rapid economic development, living standard was improved in terms of income raising, poverty elimination and public health improvement. The average annual income raised from RMB 762 yuan in 1980 to RMB 6,210 yuan in 1996, with annual increment at 11%. The average annual income of village residents was RMB 2,807 yuan in 1996. Though the level of income has raised rapidly, it is still far lower than the average world level. Moreover, the income was unevenly distributed among different regions and between cities and villages. Income level in cities is higher than that in villages and income of coastal residents is greater

than that of residents living in the less-developed regions in the middle-and-west. 70% of the total population are rural residents. There are 80 million poor people live mostly in the villages and mountain areas in the middle-and-west of China. Eliminating poverty and evenly distributing social wealth and resources have been great challenges and responsibilities for Chinese government. One of the essential objectives for economic growth, opening-up and reform and social development in China is to accomplish common well-being. In order to realize this objective, Chinese government on one hand has accelerated economic development and cumulated welfare by encouraging people in some special zones to become rich; and on the other hand, it positively dedicated to poverty elimination by advocating richer regions to assist poorer regions.

At present, the consumption level has improved dramatically. People can afford sufficient food and clothes and they are now pursuing well-off living. However generally speaking, the consumption level of major commodities is still far lower than that in developed countries. In 1996, average consumption of energy per capita was 1.13 tons of standard coal energy¹, average consumption of food per capita was 265kg, number of refrigerators owned by per 100 families was 70 sets, number of televisions owned by per 100 families was 119 sets, number of telephone owned by per 100 persons was 5.8 pieces and number of private cars owned by 1,000 persons was 2.4 pieces.

The consumption pattern is not rational in terms that the share of food consumption is much greater than that of cultural consumption. On the other hand, the conflicts between population explosion and intensive depletion of resources are becoming more acute. Average resources per capita, such as fresh water, arable lands, forests and mineral resources, etc. are far lower than the average world level, which has been the 'bottle-neck' of restricting sustainable development in China. China is facing growing challenges for further improvement of consumption level.

China has adopted effective policy for population control and realized remarkable achievement. However, huge size of population, lower education and aging structure are three major population issues in China. Entering 1990s, China has been faced with third peak birthrate since 1949. Total population in the end of 1996 was 1.22 billion and is projected to reach 1.3 billion in 2000.

3. Current State of Environmental Governance Mechanisms

3.1 Political System

China is a communist and federal state which has exercised people's democratic dictatorship since 1949 when the People's Republic of China was founded. As

¹ One ton of standard coal energy is equal to 29.31×10^9 J.

the state machinery, the People's Congress System is a centralized democratic political system, comprising organ of state power, administrative organ, procuratorial organ, judicial organ and military organ. The People's Congress (*i.e.* People's Congresses of all levels) together with its Standing Committee are organs of state power which exercise their powers over state or localities according to the Constitution and laws. Their major authorities include legislative power; decision-making power over major state policies and urgent social and economic issues; personnel appointing and removing power; and the right of supervision over the administrative organs and the judicial organs.

The National People's Congress (NPC) is the highest level of state power. The relationships among different levels of the People's Congress are equal and relatively independent. On the one hand, the establishment of the People's Congress of each level is a bottom-up process, in which delegates of upper level accept supervisions from lower levels. On the other hand, the power of each level is top-down, by which the upper level exercises legal supervisions over the lower levels.

The administrative organs includes the State Council and Local People's Governments (LPGs). The State Environmental Protection Administration (SEPA), a ministerial authority affiliated to the State Council, is responsible for national environmental protection. Local EPBs are local authorities responsible for local environmental protection under LPGs.

3.2 Legislative Bodies

With respect to environmental legislation, the NPC is in charge of drawing up the Constitution, the Criminal Law and the Civil Law. The Standing Committee of the National People's Congress (SCNPC) is responsible for formulating the Environmental Protection Law (*i.e.* the environmental basic law), special laws on the protection of resources and laws on pollution prevention and control.

The State Council has charge of making administrative statutes on environmental protection. Ministries and state commissions, directly affiliated to the State Council, are responsible for formulating environmental protection regulations and issuing resolutions and orders. Regulations made by this level must not conflict with laws made by NPC and SCNPC.

Local People's Congress(LPC) and its Standing Committee (SCLPC) are in charge of local laws. LPGs and local EPBs are responsible for local regulations and issuing local resolutions and orders. Regulations made by this level must not conflict with laws and regulations made by the above mentioned two levels.

The relations among various legislative bodies include:

- NPC and SCNPC enjoy the highest legislative power;

- The relation of the State Council to NPC and SCNPC is a relationship of subordination, of which the State Council possesses the right to submit motions to NPC, while NPC and SCNPC have the power to repeal regulations, resolutions and orders enacted by the State Council;
- The legislative power of LPC and LPGs is subordinated to NPC and the State Council. However, local legislative bodies play important roles in the sense of translating the Constitution and laws into practice;
- The relation between LPC and LPGs is similar to that of NPC and the State Council.

3.3 Administrative Structure

The People's Government

The decision-making actors of environmental governance in China are the People's Governments of each level, who intervene environmental protection by making and implementing environmental laws, regulations, policies and standards. They hold the liabilities for environmental quality in regions under their jurisdiction and are responsible for integrating environmental planning into the social and economic development plan.

Environmental administrative authorities

Since environmental protection in China greatly relies on the government, environmental administrative authorities hold important positions in environmental governance.

SEPA (see Box1) and provincial EPBs have the responsibilities for decision-making, macro-guidance, coordination among sectors and supervision over lower levels. Town and county-level EPBs are responsible for the implementation of state policies, laws, regulations and standards, monitoring pollution sources, supervision on report and registration of pollution discharge, issuing pollution discharge permits, investigation on pollution control and collecting pollution charge. This is the micro-level. They have the liabilities to report to their upper level and enjoy the right to submit proposals to the upper levels. Municipal environmental administrations, which are between the two levels, have both macro and micro functions.

Box 1: Structure and Function of SEPA

During the administrative organizational reform in March 1998, the former NEPA was upgraded to ministerial level as the State Environmental Protection Administration (SEPA), directly affiliated to the Central Government. Its responsibilities include:

- Drafting national guiding principles and policies, formulating administrative regulations on environmental protection; implementing environmental impact assessment for major state economic-technical policies, development planning and economic planning; working out national environmental protection planning; coordinating the formulation of pollution prevention planning of major regions and major river basins and supervising its implementation.
- Formulating and implementing regulations on the prevention and control of air pollution, water pollution, soil pollution, noise pollution, solid waste, hazardous waste and automobile pollution; providing guidance and coordinating the protection of marine environment;
- Supervising the exploitation and utilization of natural resources which may exert impacts on the ecological environment; supervising the construction of ecological environment and the reclamation of ecological degradation; supervising and examining the protection of natural reserves, scenic spots, historic resorts and forest parks; supervising and examining the protection of biodiversity, wild species and control of desertification and supervising state natural reservoirs;
- Providing guidance and coordinating local governments and different sectors concerned in addressing major cross-regional or cross-valley environmental issues; investigating and handling major pollution accidents and ecological destruction; coordinating cross-provincial environmental disputes and examining the implementation of laws and regulations;
- Formulating and issuing national criteria of environmental quality and standards of pollution discharge; verifying municipal overall planning in respect to environmental protection; coordinating the compilation of state environmental quality report; issuing national bulletin of environmental state and drafting guidelines of national strategy on sustainable development;
- Formulating and implementing environmental management system; examining the environmental impact report of developmental projects

and providing guidance on the construction of ecological demonstration projects and eco-agricultural projects.

- Supervising the system of eco-labelling and promoting the development of environmental industry;
- Holding the responsibilities for environmental monitoring, statistics and information and promoting the participation of the public and NGOs;
- Drafting guiding principles on global environmental issues; responsible for international cooperation in the field of environmental protection; participating in activities of global environmental protection; supervising and coordinating the performance of international agreements in China;
- Holding responsibilities for nuclear safety; etc.

SEPA installed ten functional departments in addressing the above responsibilities, including general office, department of planning and finance; department of policy and legislation; department of administration and personnel; department of science, technology and standard; department of pollution control; department of natural resource conservation and ecological protection; department of nuclear safety and radiation management; department of supervision and management, and department of international cooperation. There are 200 staffs with one General Administrator and 4 Deputy Administrators.

The strength of this multi-level administrative mechanism is to facilitate the implementation of policies, laws and regulations. However, the top-down decision-making process has its weaknesses. First of all, because the Central Government and SEPA are decision makers and local EPBs are actors for exercising policies, there lacks the feedback mechanism from lower-level to upper-level in the process of decision-making, which has the possibilities that some policies and systems can not reflect the actual situation and fail to address priority problems. Secondly, during the decision-making process, there are no adequate channels for the communication among decision-makers, enterprises, the public and the media, therefore, enterprises may not take initiatives in response to the policies and the public may not play a positive role in participation, which may influence the effectiveness of implementation.

Other administrative authorities

Besides SEPA, other administrative authorities of the State Council, such as the

Ministry of Agriculture, the Ministry of Water Conservation and the National Marine Agency, etc. are responsible for the protection of resources. Sectoral authorities of the State Council, such as the Ministry of Chemical Industry and the Ministry of Metallurgical Industry, etc. are in charge of pollution prevention and control within each sector.

In the vertical direction, local EPBs are supervised and directed by SEPA. In the horizontal direction, other authorities of the State Council are parallel to SEPA with the same objectives, only differentiating in that the former one is responsible for environmental protection work within its sector while the later one is in charge of nationwide environmental and ecological protection.

LPGs have the same administrative structure as the State Council. Lower level is subordinated to upper level.

3.4 Industry

According to the Resolution on Environmental Protection (1984) made by the State Council, large and medium sized enterprises are required to set up environmental unit or designate full-time staffs for environmental work within each enterprise. In order to observe national as well as local environmental regulations and standards, these environmental staffs conduct source investigation and monitoring, prepare report of environmental quality assessment and ensure the proper operation of pollution control facilities.

For recent years, many large-scale or export-oriented enterprises have taken initiatives to satisfy the international environmental requirements on industrial process, production and products. On the one hand, they carried out technical reform and life-cycle control to raise production efficiency and therefore contribute to energy conservation and reduction of emissions. On the other hand, they invested in pollution control facilities (see Table 1). Till the end of 1997, 64 enterprises gained eco-labels for 264 categories of products. Some enterprises implemented ISO 14000 environmental management system.

Table 1 Pollution Prevention and Control by Enterprises²

Pollution Prevention and Control	Rate
Complying with the standard for waste water discharge	61.8
Smoke prevention and dust control	90.4
Process gas control	79.4

Source: China Environment State Bulletin: 1997 (NEPA)

² Excludes township and village enterprises.

Generally speaking, however, most enterprises are taking passive attitudes towards pollution prevention. The environmental awareness among enterprises is still low. Large-scale enterprises usually invest in pollution control more intensively than small and medium sized enterprises. Enterprises who gain profits are more likely to invest in pollution prevention than those who suffer loss.

State-owned large and medium sized enterprises are the only main targets of environmental monitoring, pollution charge and fine, while small-scale enterprises can escape from their liabilities and TVEs are excluded from environmental monitoring and pollution charge. Because the cost increased when enterprises invested in pollution control while others did not invest, the unequitable enforcement of law led to an unequal competition, which resulted in passive reaction of enterprises against pollution control.

Enterprises who installed pollution control equipment can not yet reach the standard set for pollution discharge, partly because there are no efficient technologies available. Another reason lies in that the marginal abatement cost for satisfying the standard by most facilities is high. This greatly frustrated the enthusiasm of enterprises for their investment in pollution prevention and control.

The rate of pollution charge is much lower than the operating cost of pollution prevention facilities. For example, the operating cost for one ton of waste water treatment in a pulp enterprise is around RMB 1Yuan, but pollution charge for one ton of waste water is only RMB 0.1Yuan. Therefore, enterprises would rather buy the right for pollution discharge.

3.5 Public Participation

Scientists and experts are playing more and more important role in influencing policy-making in China. It was scientist who can predict damages caused by environmental pollution and ecological degradation, perceive the roots for those damages and find out solutions. There are many governmental and non-governmental research institutions dedicating to technological R&D, ecological protection, information, environmental economics and policy research, etc.

It is worth to mention the China Council for International Cooperation on Environment and Development (CCICED) which is co-sponsored by foreign countries and the Chinese Government. Founded in 1992, especially influenced by the 1992's Rio Conference, CCICED has developed to contain nine working groups in such broad areas as energy strategies, resource accounting, sustainable agriculture, transportation, environment and trade, cleaner production, pollution control, biodiversity and environmental economics. Convening both high-level officials such as vice State Chairman Wen Jiabao as well as deputy Ministers and

domestic and foreign scientists, CCICED provides a proper channel between decision-makers and scientists. Through cooperation on researches by domestic and foreign scientists and organizing a Plenary Meeting once a year, many proposals have been adopted by the government.

The media plays a positive role in revealing environmental violation, informing the public, reporting pollution accidents and thus influencing the business behaviors and governmental decisions. The Long March of Environmental Protection, which is a special documentary film co-produced by CCTV and NEPA with nationwide reporting coverage in 1994, revealed the state of the environment, both environmental friendly and badly business behaviors and ecological degradation. Another example is weekly reporting of urban air quality via the media in many cities, which was promoted by NEPA in 1997.

For political reasons and low environmental awareness among the public, there are few environmental NGOs in China. The public and NGOs played minor roles in environmental governance. However, for recent years, frequent incidences of pollution accidents and their damages to the public health have aroused public concerns on environmental problems which are closely linked to their health and living, such as noise, air and water pollution. Victims complained about degraded environmental quality, informed local government against pollution discharge and a few even brought suits against polluters, which placed pressures on local governments in certain degrees. However, organized civil protest has not developed in China.

Public participation has been guaranteed by the Constitution and laws pertaining to environmental and resource protection. Article 6 of the Environmental Protection Law stipulates that every institution and citizen holds the liabilities to protect our environment and enjoy the right to report and accuse.

More recently, the modified Law of Water Pollution Prevention and Control (1996) added that Environmental Assessment Report for new construction projects should include opinions from local citizens and other institutions.

However, there still lacks proper mechanism for bringing the public into full play. It has been suggested in the National Programme for Environmental Protection (1998 - 2002) that mechanism for public reporting, hearing and participation in EIA should be established and improved.

4. Case Studies

Case One: River and Marine Pollution

4.1.1 Current State of River and Marine Pollution and its Consequences

Waters of rivers, lakes and reservoirs in China were extensively polluted in

varying degrees which tends to be worse. Among seven large river basins, *i.e.* the Liaohe River, the Haihe River, the Huaihe River, the Yellow River, the Songhuajiang River, the Zhujiang River and the Yangtze River, the first three are the most seriously polluted rivers. Among urban sections of rivers, 87% are polluted to certain extent, of which 16% are seriously polluted, 11% are polluted, 33% are lightly polluted and 23% remain clear. Major pollutants include oil, ammonia nitrogen and volatile phenol. In some sections, total mercury pollution is serious. Lakes are seriously polluted. The pollution of total phosphorous and total nitrogen is found extensively, organic pollution and eutrophication of some lakes are serious. In a few lakes and reservoirs, heavy metal pollution could be found as well. Taihu Lake, Dianchi Lake and Chaohu Lake are the most seriously polluted lakes. Major sources of river and lake pollution are waste water discharge. In 1997, total waste water discharge reached 42 billion tons, of which 23 billion tons generated from industrial sources and 19 billion tons from domestic sources.

Several factors are attributed to the causes of river and lake pollution. Firstly, current environmental monitoring and administration, which target only state-owned enterprises, do not involve TVEs. From 1978 to 1995, the gross industrial output value made by TVEs increased at 35%. The amount of waste water discharge by TVEs in 1995 reached 5.91 billion tons, which accounted for 21% of the total discharge in the same year (NEPA, 1998).

Characterized in small and medium size and in a great number, TVEs as pollution sources are difficult to be monitored and supervised. Without stringent restrictions on their environmental behaviors, many TVEs discharged untreated waste water and caused serious pollution to the receiving rivers and lakes.

Secondly, because the environmental awareness in many cities and counties is still low, governments of these cities and counties seek one-sided economic profits at the expenses of sacrificing the environment.

Thirdly, under the direction of extensive economic development, heavy polluting sectors such as paper and pulp making, food manufacturing, chemical industry, tannery and electroplating developed without proper planning during the last decade. This unsound industrial structure resulted in many environmental problems especially water pollution. In 1995, COD discharged by paper and pulp making, food manufacturing and chemical industry were responsible for 42%, 28% and 9% respectively of the total industrial COD discharge. Further more, chemical industry was the largest polluters for mercury, arsenic, cyanide and volatile phenol, which accounted for 42%, 46%, 42% and 28% respectively of the total discharge by each.

Fourthly, the execution of environmental regulations and standards by local EPBs is weak, particularly EPBs of county level. The rate of industrial waste water

treatment was 78.9% in 1997 and the rate of industrial waste water discharge complying with the standard level was 54.4%.

Pollution of ground water resulting from runoff contamination was serious and extensive as well. About 50% of ground water was polluted, thus intensifying the conflicts of water resource scarcity. Though water resource of China ranked 6th in the world, the per capita level was 2,292m³, one third of the average world level 7,176m³ (WRI, 1996), which ranked 88th. Per capita level in the North is only one fifth of that in the South. According to statistics, 60% of cities were in shortage of water with a total deficit of 6 billion m³.

Near-shore marine was polluted in varying degrees. Eutrophication is conspicuous and the frequency of red tide was growing. Major pollutants include inorganic nitrogen, inorganic phosphorous and mineral oil. The East Sea is the most seriously polluted and the Bohai Sea ranks second. The major causes of marine pollution lie in that on one hand near-shore enterprises discharged their waste water directly to marine and polluted water from rivers indirectly flows into marine; on the other hand, marine ships and facilities discharged oil pollutants into the sea.

Water pollution exerted great impacts on society, economy and human health, including:

- Serious water pollution threatened the safety of drinking water in towns and village. 64.5% of the population can not access to safe water. During 1994 and 1995, pollution accidents continuously happened along the main stream of the Huaihe River. Millions of residents in Huainan, Bengbu City and Yutai City could not access to drinking water for several weeks. Cyanophyceae appeared frequently in Taihu Lake, which made Wuxi Water Plant close for twenty days.
- Industrial and agricultural sectors suffered great economic losses as a consequence of water deficit. In some towns and cities, farmers had to use waste water for irrigating, which not only decreased output, but also caused hazardous substances remained in food. Water pollution also had negative impacts on fishery, such as a reduction in catches. Annual economic loss caused by water pollution is estimated up to RMB 33 billion Yuan (NEPA, 1997).
- Water pollution also damages human health. According to a health census, the incidences of intestines diseases, cancer and congenital malformation of infants in polluted regions were obviously higher than that in unpolluted regions.
- Frequent water pollution accidents in cross-regional areas caused more and more disputes and disturbed social stability.

4.1.2 Agenda Setting

Frequent accidents of water pollution resulted in scarcity of drinking water and health damage. Some factories had to stop production and farmers suffered loss from less harvest. These have caused growing complains from victims to the local governments. Increasing cross-regional disputes between victims and polluters also became sticky businesses for local governments. Report of monitoring data from local EPBs also sounded a warning to local governments. Local governments began to report this situation to upper levels.

The media also played a certain role in reporting pollution state of main rivers and lakes via TV, radio and newspaper. Its influences might not only be restricted to a specific region, but to the whole nation and aroused far-reaching concerns.

After on-site investigation by NEPA and the Central Government, as well as broad discussions among ministries and scientists, the Government decided to put water pollution prevention and control onto its agenda in 1994 and set water pollution as one of top priorities of environmental protection, with special emphasis on 'three rivers' and 'three lakes'.

Efforts made by many actors including citizens, local governments, local EPBs, scientists, the media, NEPA and the Central Government jointly affected the placing of water pollution issues on the political agenda. However, it was not there until extensive and serious pollution had threatened human health, generated regional water crisis and cross-regional disputes, and restricted regional social and economic development.

4.1.3 Implementation

There are many ministries involved in water resource management and protection in China. The Ministry of Water Conservation holds main responsibilities for the protection of water resources, including development and protection of main river basins; planning of water supply in main cities; construction of irrigation works; implementation of water and soil conservation; and construction and management of reservoirs. There are seven water basin Commissions under the Ministry of Water Conservation, which are mainly responsible for the coordination of cross-regional water conservation. Each province, city and county set relatively independent unit for water conservation under its jurisdiction.

SEPA is responsible for the formulation of regulations and standards on water pollution prevention and on the protection of water quality. Local EPBs are responsible for the execution of laws, regulations and standards and the monitoring and supervision of pollution sources.

Moreover, the Ministry of Construction and its corresponding local units are responsible for water supply, sewage collection and treatment. The Ministry of

Public Health is responsible for monitoring the quality of drinking water and the incidences of relevant diseases.

Since 1984, the Chinese Government has enacted the Law of Water Pollution Prevention and Control, other 11 special laws, regulations and policies on water pollution prevention and 24 standards relating to water quality, drinking water and waste water discharge. Based on three fundamental principles for environmental protection in China, a set of systems such as EIA, 'three simultaneity', pollution charge, reporting and registration of pollution discharge and centralized control were introduced for water pollution prevention and control.

In 1996, 40,869 waste water treatment facilities were running, by which 3.86 million tons of COD were reduced. At the end of 1996, 160 domestic sewage plants were constructed with an annual capacity of 1.4 billion m³.

Box 2: Water Pollution Control in Huaihe River Basin

Water pollution prevention and control of the Huaihe River can be a good example to illustrate the implementation. Huaihe River flows over four provinces, i.e. Henan, Anhui, Shandong and Jiangsu, and consists of more than 190 branches such as the Yinghe river, the Wuhe River, the Hongruhe River and the Xihe River, etc. The catchment area covers 270,000 km² with 150 millions of residents. Since 1990s, the water quality in the Huaihe River has decreased sharply and some sources of drinking water have been seriously polluted, which brought about great impacts on industry, agriculture and human health. The grim situation aroused attention of the Chinese Government. In 1988, the Leading Grouping on Water Resource Protection of the Huaihe River Basin, which was composed of members from NEPA, the Ministry of Water Conservation and four Provinces, was established. In August 1995, the State Council promulgated and implemented the Temporary Regulation on Pollution Prevention and Control of Huaihe River Basin, the first environmental regulation for river basins. It definitely stipulated targets for pollution prevention and control, responsibilities of ministries and four Provinces and measures that should be taken for pollution control. Meanwhile, based on the Regulations, NEPA together with the State Planning Committee, the Ministry of Water Conservation and four Provinces began to draft a agenda for pollution prevention and control of Huaihe River Basin. In June 1996, the Agenda and the Ninth Five-year Plan for Pollution Prevention and Control of the Huaihe River was approved by the State Council.

- The Agenda stipulates a plan for total amount control of pollutants for Huaihe River Basin and requires that discharges from industrial

sources along Huaihe River Basin must comply with the standards by 1997.

- The Agenda divides the river basin into seven controlled areas and 82 controlled sections and defined water quality criteria for each section. In particular, it requires to designate full-time institution responsible for regular monitoring.
- In order to make the river clear in 2000, the Agenda includes two phases: 1) In 1997, industrial pollution discharges are required to comply with the standards. Seriously polluting small-scale enterprises which are not economically viable for pollution control are required to be shut down, stopped production or reconstructed; 2) A number of waste water treatment plants will be constructed. 303 potential projects are listed in the Agenda which requires a total investment of RMB 17 billion yuan.

Since the government attached great importance on the Huaihe River and local governments strictly implemented policies and laws, 1111 pulp-making factories with annual capacity lower than 5,000 tons and other 3,678 seriously polluting small-scale enterprises were shut down or stopped production in four Provinces. In response to the actions, newspaper, broadcasting station and TV station reported on stories. Citizens participated in supervision and reporting. At the end of 1997, the target was basically achieved and set a good example for water pollution control.

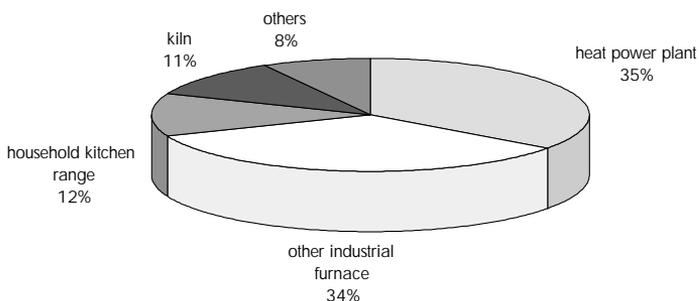
Case Two: Air Pollution

4.2.1 Current State of Air Pollution and its Consequences

Air pollution in China is characterized by typical smoke and dust pollution. Major pollutants are SO₂ and smoke dust due to the dominant share of coal (75%) in the consumption of primary energy in China.

Supporting rapid growth of economy and an improvement of living standard, the consumption of coal increased from 0.98 billion tons in 1990 to 1.39 billion tons in 1996, with an average annual growth of 5.8%. The consumption per capita was 1 ton of coal equivalent, which is much lower than the level in industrialized countries.

In 1997, the total emission level of SO₂ was 24 million tons, of which 35% generated from heat power plants, 34% form industrial furnaces, 11% from kilns and 12% from household kitchen ranges (see Figure 4). SO₂ emissions from TVEs



Source: *Pollution Control Strategy, NEPA, 1997*

Figure 4 Composition of SO₂ Emission Sources

made up 26.4% of the industrial sources (see Table 2).

In 1997, the total emissions of smoke dust were 19 million tons, of which 82.6% from industrial sources and 17.4% from households. Smoke dust emissions from TVEs were responsible for 56.2% of the industrial sources.

Table 2 Emission Level of Main Air Pollutants

Pollutants	Total Emission Level (million tons)	Industrial Sources (%)	Household Source (%)	County-level or above-County Level Sources (%)	TVEs (%)
SO ₂	23.64	78.9	21.1	73.6	26.4
Smoke dust	18.73	82.6	17.4	43.8	56.2
Fine dust	15.05	100	0	36.4	63.6

Source: *Pollution Control Strategy, NEPA, 1997*

In 1997, the total emissions of fine dust were 15 million tons. Steel and cement sectors were two major contributors which were responsible for 15 percent and 70 percent, respectively. Fine dust emissions from TVEs contributed to 63.6% of the industrial sources.

According to the monitoring data of 1997, the average annual level of SO₂ concentration exceeded national standard II³ and average daily level exceeded national standard III in 62.3% cities. Further more, the coverage of acid rain as a consequence of SO₂ emissions has been growing. There formed five zones of

³ The average annual criterion of SO₂ concentration in Standard II is 0.06mg/m³, which is the baseline for long-term exposure without causing health damage. The average daily criterion of SO₂ concentration in Standard III is 0.25mg/m³, which is the baseline for short-term exposure without causing acute health damage.

acid rain, *i.e.* southern and south-western zones covered most regions in Guangdong Province, Guangxi Province, Sichuan Province and Guizhou Province; central zone centered in Changsha and Nanchang; eastern zone centered in coastal cities Xiamen and Shanghai and northern zone centered in Qingdao.

The total number of motor vehicles raised from 6.3 million in 1990 to 11 million in 1996 as a result of the development of auto industry, which has an average annual growth of 9.7%. Particularly in metropolitans such as Beijing, Guangzhou, Chengdo and Shanghai, the growth of automobiles was much higher than the average rate. Emissions of NO_x, CO and CH from autos have been increasing year by year. Densely populated, these metropolitans are suffering large transportation volume and traffic jam, which result in growing emissions from motor vehicles.

Fine particulate (with diameter less than 10 μ m) and super fine particulate (with diameter less than 2.5 μ m) in the ambient air which mainly caused by smoke dust emissions are the most hazardous pollutants to human health. Scientists can show that the dominant leading to chronic respiratory diseases in China is air pollution. Among the causes of death, respiratory disease ranks first in rural areas and third in cities.

Lead produces irreversible negative impacts on the intellectual development of children. Lead-containing gasoline consumed by motor vehicles is a growing source of lead pollution as a result of the increase in automobiles. Two studies in Fuzhou city demonstrated that emissions from automobiles have a normal correlation to the increase of lead level in the blood of children (Li *et al.*, 1992 and 1993).

Long-distant transfer of SO₂ leads to the expansion of acid rain, which emerges as a regional issue accompanying with damages on agriculture, ecological system and buildings. An economic loss of RMB 116 billion Yuan was estimated in 1995 in China due to acid rain, which made up 2% of GNP. In addition, ODS and GHGs are contributors to such global issues as global warming and ozone depletion.

Major causes of air pollution include:

- In the process of making economic policies, industrial policies and planning of urban construction and development, it only stressed short-term and partial demand for economic development without considering the protection of atmospheric environment. Unplanned expansion of production scale and out-of-date technologies cause sever air pollution.
- The energy efficiency is low.

- The investment on air pollution prevention and control is not sufficient.
- The infrastructure for central heating is inadequate.
- The rate of air emission charge is low. Enterprises would rather pay for the emission charge than invest in emission control.
- Though a set of laws and regulations for air pollution prevention and control have been made, the implementation is not effective.
- Both economically and technologically efficient technologies are not available for air pollution control.

4.2.2 Agenda Setting

Because air pollution is directly detrimental to the public health (for example, an increase of coal consumption in the north in winter due to heating results in a growth of respiratory diseases), complains from the public as a consequence of severer air pollution placed pressures on local governments.

On the other hand, domestic scientists as well as foreign experts have conducted broad researches on the estimation of loss caused by air pollution and the solutions for pollution prevention and control.

However, it was the government who played a major role in placing the issue onto the agenda. On one hand, the government recognized the evident damages on human health and great economic loss as a result of air pollution. On the other hand, air pollution is a trans-boundary issue which can influence regional environment as well as global environment. As commitment to UNFCCC and Montreal Protocol, the Chinese Government has taken measures to response to air pollution.

Political factor is another impetus for setting the agenda against air pollution. Though still low in a sense of per capita level, China will ranks first for the total production of ODS and become one of the largest emitters of CO₂. The Chinese Government has received great pressures from the international society. SO₂ emissions from China were also be regarded by neighboring countries as contributors to regional acid rain.

4.2.3 Implementation

SO₂ and acid rain control

Acid rain and SO₂ pollution received more attention from the State Council. The Law of Air Pollution Prevention and Control, passed by SCNPC in August 1995, stipulates that acid rain control zones and SO₂ control zones are required to be

demarcated for the controlling of SO₂ and acid rain.

According to the Resolution on Environmental Protection (1984) enacted by the State Council and the Ninth-Five Year Plan and Long-term Target in 2010 on Environmental Protection, the targets for the controlling of SO₂ and acid rain in the 'two control zones' were set, which include two phases.

The targets set for 2000 include: 1) SO₂ emissions from industrial sources must comply with the standards; 2) Total emissions in the 'two control zones' must be controlled within the level set by the Government; 3) Air quality of major cities in the 'two control zones' must reach national environmental quality standards; and 4) The trend of acid rain in acid rain control zones should be mitigated.

The targets for 2010 include: 1) SO₂ emissions should be controlled at the level of 2000; 2) SO₂ concentration of ambient air in all cities located in the 'two control zones' should reach national standard of air quality; 3) the coverage of acid rain which pH<4.5 should be reduced distinctly.

Government has taken substantial actions and mobilized all sectors to realize the targets for SO₂ emission control in the 'two control zones'. SEPA has the main responsibilities for SO₂ and acid rain control, while other sectors take initiatives to tackle sectoral emissions.

LPGs and industrial sectors are responsible for drafting local and sectoral planning of SO₂ prevention and total emission control and integrating it into the local planning of social and economic development.

The Ministry of Coal and the Ministry of Construction have taken actions to restrict the consumption of high-sulphur coal. At present, the annual production of high-sulphur coal (sulphur content>3%) is 90 million tons, accounted for 7% of the total production in China. Most high-sulphur coal mines are located in the regions suffering serious acid rain. The exploitation of new high-sulphur mines is now forbidden. Existing high-sulphur mines will be restricted on their production or shut down. New or reconstructed coal mines (sulphur content>1.5%) are required to install coal dressing and selecting facilities.

The planning sectors and transportation sectors have taken initiatives to give priorities to regions of high sulphur coal in getting low-sulphur coal and dressed coal. By 2000, all household boilers and kitchen ranges are required to burn dressed coal or formed coal.

In 1995, the total capacity of heat power plants in China was 160MW. SO₂ emissions from heat power plants were responsible for 35% of total emissions. It is estimated that the capacity will reach 220MW in 2000 and SO₂ emissions will hold half of the total level. Therefore, SO₂ emission control by heat power industry

is vital for a successful SO₂ reduction.

The Ministry of Electricity has the responsibilities for SO₂ emission control of the sector. New plants are required to facilitate desulfurization equipment if sulphur content is greater than 1%. Existing plants are also required to take measures for SO₂ emission control and finish the installation of desulfurization equipment or other effective facilities by 2010. Studies show that investment in desulphurization for a new plant will make up 15% of the total investment, while investment in desulphurization for an existing plant will increase 20%-50% more. It infers that investment in desulphurization for new plants is more cost-effective.

Chemical industry, metallurgical industry and cement industry are other major contributors to SO₂ emissions. Their emissions account for 20% of the national level. Based on the Law of Air Pollution Prevention and Control, these sectors have taken administrative measures to require enterprises to reform their out-of-date process and equipment.

Local EPBs, who played important roles in the implementation, are responsible for source monitoring, supervision and collection of SO₂ emission charge. If emissions can not be controlled within the target level by enterprises in a specified period, EPBs will take administrative measures to shut down these enterprises.

CO₂ control

The main source of CO₂ emissions in China is the consumption of fossil fuel. Though China did not make a commitment to reduce its CO₂ emissions, the Government has taken many voluntary measures with special emphasis on energy conservation and industrial restructure to reduce CO₂ emissions.

On one hand, the average annual growth of GNP from 1990 to 1996 was 11.2%. Although China's economic growth was greatly dependent on energy, the average annual increase of energy consumption was only 5.8% in the same period, much lower than the economic growth. This proves that China did not take a 'business as usual' trajectory for its economic development.

On the other hand, the energy intensity (amount of primary energy consumed per unit GDP) has decreased 50% since 1980, with an annual decrease of 4.5% (World Bank, 1997). Though it was not rare for a matured economy, it is unprecedented when China tried to realize a rapid industrialization while keeping a decreasing rate of energy intensity at the same time.

Many policies aimed at industrial restructure and raising energy efficiency contribute to the control of CO₂ emissions, of which three policies are worth mentioning. They are:

- Economic reform policy. Since 1978, China has carried out a transition from

planned economy to market economy and from extensive economic growth to an intensive one. This greatly promotes the shift of investment in advanced technologies and processes and the transformation of industrial structure to high value-added and low-energy intensified products. The share of service sector is growing in the economic structure.

- Energy conservation policy. Since 1980, China has successfully launched nationwide activities on energy conservation which resulted in an evident decrease of energy intensity.
- Energy price policy. A rise in coal price, oil price and electricity price gave an incentive to the energy consumers to take energy conservation and increase energy utilization efficiency.

Besides, the government also introduced energy conservation technologies, desulphurization technologies and implemented the system of SO₂ emission charge. In 1997, NEPA promoted a weekly report system on urban air quality. By April, 1997, 35 cities issued air quality report via the media, which aroused the attention of municipal governments, received more concerns from the public and increased the environmental awareness of the enterprises.

Case Three: Deforestation

4.3.1 Current State of Deforestation

China had abundant forest resources in history with a forest coverage up to 49% and 26% in Qing Dynasty. However, driven by short-term economic profits and due to lacking the awareness of forest protection, a large quantity of natural woods were destroyed. Currently, forest area is 0.13 billion hm² with a coverage of 13.93%, unevenly distributed and concentrated in north-east and south-west. The forest owned per capita is only 0.114hm², one sixth of the average world level.

In summer of 1998, China suffered sever floods in the Yangtze River, the Nenjiang River and the Songhuajiang River which lasted for about two months. It was estimated that the economic loss caused by floods was up to RMB 250-300 billion yuan, accounted for 3%-4% of GDP. One of the major causes was destruction of natural forests in the upper stream of the Yangtze River which resulted in soil erosion - culmulation of sands - lift of river bed - loss of capacity for flood control - unbalance of ecological environment. The rate of deforestation increased sharply. There once had thick coverage of forests along the Three Gorges in history, but the coverage is now only 7.5%-13.6%. In Heilongjiang Province, the coverage of forests decreased from 53.4% in 1949 to 35.55% in 1993. The size of tropical rain forest decreased from 0.9 million hm² in 1956 to present 0.24 million hm². The coverage of natural forests dropped from 26% to 7.2%.

The Ministry of Forest (reorganized as the National Forest Agency during the state institutional reform in March, 1998) has the main responsibilities for the extraction, plantation and protection of forest resources in China. Not recognizing the ecological damages that may stem from deforestation, the forest sector had laid more stress on extraction than on afforestation under its guidelines. Since no price system was applied to wood extraction, the depletion of forest resources was not economically compensated and the funds for afforestation were not sufficient. The extraction rate was greater than the recovery rate for a long period. Presently, the share of matured and post-matured forest is 29% of the total forests.

Another factor for the destroy of forests is the expansion of agriculture land. In Hainan Province, the encroachment of forest areas, as a result of slash-and-burn cultivation practices, was up to 10,000hm² annually. Similar phenomenon occurred in Yunan Province and Heilongjiang Province.

Though wood extraction is controlled by the Government based on the Forest Law, illegal extraction is prevalence in some regions, especially on the borders of administrative regions where the execution of laws is vulnerable. The illegal extraction was once two times as much as controlled extraction.

In the transition from planned economy to market economy, forest sectors have been receiving less financial support from local governments. To support their huge administrative expenses for a large amount of staff team, they pursued short-term economic profits without giving respect to the long-term ecological and social value gained from forest resources. Another factor is because firewood is used as major energy in rural areas. When there were not sufficient firewood for farmers, they cut down trees as substitutes. It was once reported that the annual depletion of forests consumed as fuel was up to 30% of the total consumption.

Forest fire was another cause for deforestation. There are several factors for forest fires, however 90% resulted from inappropriate human practices. The fierce fire in Daxinganling Forest in 1987 was a disaster and resulted in great economic losses.

4.3.2 Agenda Setting

Ecologists and scientists in forest sector and environmental sector had recognized that the ecological and social value of forest resources are much greater than their economic value (about 8:1). Scientists have conducted many researches on the accounting of forest resources and submitted many proposals, such as proper pricing of forests, to the government.

Severe destruction of forests leads to ecological degradation, loss of biodiversity, desertification and frequent incidence of floods. Ecological deterioration becomes

one of main factors for poverty in some mountain regions and flooding areas. Victims began to accuse the forest sectors.

These have been received more attention from the government. Particularly after the severe floods of the Yangtze River and the Nenjiang River last year, the State Council convened forest sector, environmental protection sector, agriculture sector and scientists and ecologists for countermeasures against deforestation. On August 5, the State Council issued an emergent Circular on the protection of forest resources, which stipulates that wood extraction in the upper stream regions of the Yangtze River is forbidden and the afforestation by forest sector must be greater than their extraction. Scientists played a positive role in placing the issue on to the agenda.

4.3.3 Implementation

In 1979, the SCNPC designated March 12 as the National Treeplanting Day. In 1997, 2.5 billion trees were planted by voluntary activities. On Jan. 1, 1985, the SCNPC enacted the Forest Law, which stipulates the principle of afforestation and requires that the annual extraction rate must be less than the growth rate of forests, aimed at mitigating the forest deficit. The administrative and criminal punishment and fine on illegal activities are also defined in the Law.

Local governments established special organizations for the management of forest lands and resources. Local forest administrators appointed forest police in target zones, who are responsible for the supervision of illegal extraction. Inspection stations are set in each forest district to control wood extraction.

In the late 1970s, the Ministry of Forest began to promote 'five afforestation projects', *i.e.* 'Sanbei' shelterbelt, shelterbelt in the middle and down-stream of the Yangtze River, coastal shelterbelt, afforestation in plain region and afforestation in Taihang Mountain. Local forest sectors played important role in the construction of these projects. In 1997, 2.07 millions hm² of afforestation was achieved.

4.4 Policy Recommendations

The major contributor to achieving rapid economic growth in China is the industrial sector⁴, of which the positive roles played by TVEs can not be neglected. For recent years, the share of annual industrial production made by TVEs in total industrial production has been up to 27%. However, pollution generated by TVEs has become growing factor for many environmental problems. According to a survey on TVEs' pollution sources made by NEPA in 1997, waste

⁴ The share of agriculture sector, industrial sector and service sector in the economic structure of China in 1996 was 20%, 49% and 31%, respectively.

water discharged by TVEs was responsible for 21% of the total industrial discharge in 1995. Table 2 also shows evidence of great contribution to air pollution made by TVEs. Compare to the levels in 1989, waste water discharge and emissions of SO₂, smoke and fine dust from TVEs increased 120%, 22.6%, 56.5% and 182%, respectively.

TVEs have not been included in the system of monitoring and pollution charge, which has become a major factor for their severe pollution. Therefore, to strengthen the environmental supervision on TVEs remains an arduous task for environmental protection in China.

Several administrative measures, such as shutting down and setting deadline for air and water pollution control, have been proved as effective ways for short-term controlling of TVEs' pollution and should be insisted. However, in a long-run perspective, restructure of TVEs' from heavy polluting sectors to clean and high-tech sectors should be given more considerations.

The system of pollution charge has been implemented since 1979 as a major economic incentive of environmental governance in China. The total levy collection increased from RMB 1.2 billion Yuan in 1986 to 2.7 billion Yuan in 1993. Though being the most complete system among developing countries, the system of pollution charge in China has not been adaptable to economic development under market condition. Low rate of pollution charges compared with the operating expenses of control facilities made it impossible to serve as an effective impetus for pollution control. On the other hand, the pollution charges are major financial sources of administrative expenses for most local EPBs. Bargains on pollution charges between EPBs and enterprises made the implementation of the system vulnerable.

To reform the system of pollution charge in China will be very important. Many researches have been conducted on what the scale of rate should be increased and on how to properly make use of levy collection as investment in pollution control. A representative of these studies is that co-conducted by the World Bank and Chinese Research Academy of Environmental Sciences.

Because China's environmental governance mechanism is huge and complicated, there exists great gaps among staffs at all levels in terms of capacity and environmental awareness. The capacity of town and county-level is general low which may influence the effectiveness of policy implementation. It is necessary to strengthen the capacity building of town and county-level EPBs.

Environmental governance in China relies mostly on command and control. During the transition period from planned economy to market economy, economic tools can also be fully applied. For example, the water price and electricity price, which are set and controlled by the government, are low without internalizing the value of resources. Policy failure and market failure for resources

and the environment which are public goods result in excessive depletion of resources and environmental deterioration. Therefore, economic tools should be taken into account in the decision-making process to encourage enterprises to raise productivity and save resources and energy conscientiously.

The basic feature of water environmental management in China lies in that SEPA is in charge of overall supervision and coordination and each institution has independent function and responsibilities. This kind of mechanism can make full use of initiatives of each sectors. However, it is difficult to coordinate among various sectors and fail to implement overall supervision. Cross-provincial disputes can not be settled easily and promptly. It is suggested that a powerful administrative body for river management be set up for major river basins.

On one hand, for a long period, Chinese government gave priorities on pollution control and neglected ecological protection and construction. Only recently, the government placed both pollution control and ecological protection onto its agenda. On the other hand, price distortion, in terms of high price of forest products, low price of resources and no price for the environment, can not properly reflect the ecological value of forest resources. Moreover, a complete management mechanism for forest protection has not been formed and there has no overall planning for forest protection.

It is suggested that the legislation for forest protection and implementation should be strengthened. Economic tools, such as ecological compensation charge or ecological tax can be used for changing the behaviors and pattern of consumption.

Public participation was proved in many countries a positive impetus for policy making and the implementation of environmental protection. Studies showed that the frequency of reporting by citizens in many cities was in direct proportion to the frequency of pollution accidents, as well as in direct proportion to the pollution charge collected by local EPBs. However, public participation is still limited in China. Raise of the public awareness and the establishment of public participation mechanism are important.

Many environmental problems are attributed to not addressing environmental considerations into the economic development plan. Environmental deterioration caused by improper economic policies may be irreversible and far-reaching. Therefore, it is necessary to implement EIA for major economic policies and for long-term national and regional development planning. Cost-benefit analysis, cost-effectiveness analysis and other tools can be used for the selection of optimal policy.

Experiences in the industrialized countries show that advanced technologies and intensive investment in pollution control are vital for the success of solving environmental problems. Efficient technologies are still not available in many developing countries. To address regional and global environmental issues, such

as acid rain and GHGs emissions, it is necessary to establish effective mechanisms for the transfer of cleaner technologies. Financial support provided by developed countries to developing countries on pollution control is also important.

The project of demonstration cities in China, a cooperative project between the Chinese Government and the Japanese Government, will be supported by loans of Japanese yen with a return period of 40 years and interest rate of 1.3% (0.75% for air pollution control). Comprehensive pollution control projects with special emphasis on air pollution control will be developed to improve the environmental quality in three selected cities, i.e. Guiyan, Chongqing and Dalian in the first stage. This kind of cooperation will be an good example for the transfer of cleaner technology and financial support.

Environmental education aimed at raising the environmental awareness is of importance. A series of courses have already been organized for directors in governmental agencies in China. Courses on environmental protection are set in primary and high schools. It is recommended that communication and cooperation on environmental education, especially designed for enterprises and the public should be promoted among Asian countries.

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Comments

Kenji Kamino

1. Tasks of Environmental Protection Policy in China

Ms. Xin's paper consists of four parts. The 1st part surveys process of environmental schemes and policies from 1950s to today. This shows us some frameworks for the environmental governance. The second part inquires each division and the third part analyses the current mechanisms of environmental governance in China. Lastly, the fourth part tries to study some cases, depending on her governance theory.

At the part 1, developments from 1972 to today are divided into 3 parts and each provides materials for analyzing the governance. As many writers point out, since the turning toward a line of Innovation and Opening in 1978, China experienced great changes of economy and politics. Especially in 90s, the tempo of that changing, of which period Ms. Xin calls the third division, is rapidly progressing. Today, the Chinese problem of environment holds multi-sided, and at the same time, multi-dimensional problems with it. As you know, China is now confronted with almost the same difficulties, with which Japan used to cope during these 40 or 50 years after WW II, even though it may be shorter than in other advanced countries. If we arrange some of these difficulties, three types of tasks can be easily identified. At the 1st, there exist environmental victims caused by the rapid industrialization and bad influences of urgent urbanization. But at the same time, at the second, there remain disasters and population problems, which may be peculiar in China.

At the last, China is confronted with new problems, such like coping with acid rain, inflow of wastes to the land, and pollution caused by the foreign enterprises. Governmental system in China, which are needed to deal with these environmental difficulties, also have experienced big innovations in these days, and may be estimated that it has been active to turn its policy to internationalization, and has promoted legal arrangements.

Active as these endeavor may be, these are at only primitive stage and may need to solve many problems in order to function as a hopeful system to be expected

2. Marketization and Environmental Governance

At part 2, Ms. Xin tries to analyze how the economic developments in China, produced by the promotion of Socialism-Type Marketization, influences to the tasks of environmental protection. Here I would like to pay attention to the relationship between economic marketization and environmental governance. It may be also useful to inquire how the rise of productivity and urbanization may influence environmental governance. But, I can not help forcing myself to

focus on the following two points.

2.1 From Public Sectors to Private Sectors

Though it may be no need to repeat again, economic marketization in China means to transfer the subject of economic activity of public sectors to the newly created private sectors, and to arrange conditions for them. This movement may influence not only conditions of environmental pollution, but also methods of control of it. These mean new way of techniques to control the society, because they are not limited to a command and control mechanism in which have only been used in the public sector, but also mean regulation by law and further, new methods including economic incentives. It may be important for governance theory that the method of control became externalized and legalization of the way of control of society became a main task for them. Of course, it does not mean that in classic socialism era there did not exist environmental pollution, but probably they might not have enough knowledge on environmental suffers.

2.2 Role of Non-public Sectors

As Ms. Xin wrote in her paper, it is a very important theme too, what kind of role non-governmental organization, for example, private enterprise, may take, as marketization proceeds. In China there are no social mechanism in which private sectors like residents, NGOs, or enterprises can play an active role. We can pay attention to how Chinese people recognize these actors, or how they estimate their roles in order to tackle with the task of environmental protection. As you all know, it has been only a national government or a governing party that can make a legitimate judgement concerning with the public values and execute it. But is it necessary for Chinese people to turn their head to the pluralism on the legitimacy? I think it may be not so easy to introduce the plural way of thinking and to establish some mechanism to make use of it. In the environmental problem, it may be difficult to solve many tasks, only depending on an unitary system of judging, executing, and estimating various policies. Here it may be indispensable for each sectors, public or non-public, to co-operate with each other. In this case what kind of roles can or shall non-governmental sectors take?

As such, in considering environmental governance in China, it might be one of main factor to inquire the roles of private enterprise, residents or NGO, as well as local governments. The words of decentralization or autonomy may be recognized as significant conception in the Socialism - Type Market. It is because that these phenomena are inevitable result of marketization of economy.

3. Execution Mechanism of Law and Environmental Governance

Though we may recognize new roles of private sectors in environmental governance, it is undoubtedly evident that the central government should be given the most significant part as an actor in environmental governance in this country. It has been a fundamental task for this country to establish Rule of Law as a system of a regime, and many statutes or regulations are promulgated. As Ms. Xin reported, promotion of law reform is one of great gains in China. But to make many laws does not automatically mean a victory of Rule of Law. It is only a primary step. If making laws reaches a certain level, it will be necessary to strengthen the system to execute these laws. By such an endeavor, it will become possible for China to canalize a separation between law and real life of the people, to increase the confidence of the people to their government, and finally to strengthen the consciousness of observance of law.

Ms. Xin pointed that lack of bottom up style of decision making caused loss of proper or reasonable decisions in China. That seems good point in considering how a government can improve its achievement. In order to promote the quality of environmental governance, frequent exchange of information, even in the same organization, or publicity of information will be required. Through such a system, more efficient society for environmental protection seems to be realized more easily.

Ms. Xin clearly indicated many current conditions of environmental governance of this country. I have learned many things from her work.

Environmental Governance in Japan

Mineo Kato

The objective of this report is to discuss the current status of environmental governance in Japan and expose its problems by examining environmental policies and how they are currently used by each actor, including state and local governments, private sector, citizens and NGOs, in dealing with environmental problems.

Chapter 1 will present a historical overview of Japan's environmental policies from the 1960's with an explanation of the current status. Chapter 2 will briefly introduce the land and natural environment of Japan, its industry and economy as well as citizens' lives.

Chapter 3, the main part of this report, will be divided into sections for each actor who plays an important part in making environmental policy and implementing it. Each section will introduce the role of each actor in order to fully present the current status of environmental governance in Japan. Chapter 4, focusing on the global warming problem which is recognized in Japan as the most serious and difficult environmental problem, will examine as a case study actions presently taken by each actor, identify problems with current policies and determine tasks to be completed. The chapter will conclude with some recommendations for improving current environmental policy.

1. The History and Current Status of Environmental Governance in Japan

In this chapter an overview of the history and current status of Japanese environmental policy will be presented. We will take a look at changing environmental policies in Japan, starting with its response to serious pollution problems in the 1960's, followed by the implementation of policies on pollution control and conservation of the natural environment and ecological systems, and finally leading up to Japan's action against global environmental problems such as climate change.

1.1 History and Current Status of Environmental Pollution

1.1.1 Relieving Victims to the Prevention of Pollution

Japan's early action against pollution problems in the 1960's dealt with the serious contamination of the air and water and diseases caused by the pollution. The first extraordinary step was to relieve victims who suffered from diseases caused by pollution. After a series of civil suits claiming damages, a legal principle in tort cases was widely accepted whereby companies that caused pollution would be responsible for civil compensation. Administrative policies directed at relieving the plight of pollution victims were also implemented to ensure swifter

action.

At the so called “Pollution Diet” in 1970 the Basic Pollution Policy Act was enacted in order to respond to increasing pollution problems and, after reviewing existing laws, a total of fourteen pollution related laws were either enacted or amended. However, anti-pollution matters at that time were handled by several different ministries. For example, the protection of citizens’ health was under the Ministry of Health and Welfare and the regulation of private companies causing pollution was under the Ministry of International Trade and Industry. Under such circumstances it was difficult to promote more comprehensive and preventive measures against pollution, and thus in 1971 the Environment Agency was established in order to comprehensively administer pollution control and serve as a liaison to other ministries that deal with environmental issues.

The core of these new anti-pollution policy measures was the establishment of environmental standards and emission regulations. Since the implementation of these policies we have witnessed a conspicuous reduction in air and water pollution and related diseases that accompany such pollution in areas previously identified as being polluted.

However, environmental pollution problems have not been solved completely. Whereas air pollution caused by fixed sources such as factories has decreased, pollution caused by moving sources such as automobiles has increased and many cities have not yet achieved acceptable levels of air quality according to approved environmental standards. Emissions of the more easily controlled pollutant, sulfur oxide (SO_x) has been surpassed by greater emissions of the less easily controlled pollutant, nitrogen oxide (NO_x), posing even greater problems for the environment. Water quality must still be improved although cases of contamination by specific agents and resulting pollution related diseases have become rare. It is also noted that a new problem has arisen where substances exuded from waste disposal plants are contaminating rivers and soils.

Under such circumstances new environmental steps should be taken towards prevention of environmental pollution. Among these measures the environmental impact assessment and PRTR (Pollutant Release and Transfer Report) seem to be the most remarkable.

1.1.2 Individual Lawsuits for Damages and Implementation of a System to Award Compensation to the Victims of Pollution related Diseases

In Japan an industrialization policy favoring the development of the petrochemical industry, heavy industry and chemical industry was implemented in the mid 1950’s. As the result of such developments, the country suffered serious air and water pollution and many cases of health hazard problems during the 1960’s. Such problems included bronchial diseases (*i.e.* Yokkaichi asthma)

caused by air pollution near petrochemical complexes and heavy industrialized areas, a central nervous system disorder (*i.e.* Minamata disease) caused by organic mercury contained in the drain off from chemical plants, and bone disease (*i.e.* Itai-Itai disease) caused by cadmium contained in the drain from mine located upriver.

Victims of such diseases did not receive any compensation except for some medical relief from local governments. Thus the victims had to file civil suits in order to claim damages against companies that caused pollution through their operations. The plaintiffs had won all the pollution lawsuits since 1971 and a legal precedent in tort cases (Polluter Pays Principle: PPP) was established ordering polluters to take responsibility for compensating victims of pollution related diseases.

Although the victims won their cases, the ordeal of a time consuming and costly trial process proved to be only a further detriment to the victims health and so the establishment of new administrative measures that would relieve victims more promptly and effectively without going to court was seen as a necessity.

In 1973 the Pollution Related Health Damage Compensation Act was enacted to reflect this necessity. By this act companies found to be a source of specific pollution related health maladies were taxed depending on the amount of pollutant emissions and the fund was used to compensate pollution victims. At the beginning the use of the fund was limited to compensating medical expenses incurred by pollution victims. After several amendments, the act now assures both medical and welfare benefits that compliment social insurance benefits.

1.1.3 Regulations on Polluting Activities and Financial Aid for Emission Reduction

The core measures taken against environmental pollution problems such as air and water pollution were regulations on emissions and financial support in the form of subsidies or tax reduction to companies committed to reducing pollution.

As an anti-air pollution measure, a set of Emission Standards for individual pollutants was set (density regulations) along with the Air Quality Standard, a standard for ideal air quality. Regular inspections were conducted and compliance to the regulations was enforced according to this emission standard. In the areas where there were many facilities causing pollution, special standards were determined according to the total amount of emissions in the area, since it would be nearly impossible to achieve the environmental air quality standard in such areas even if each facility complied to normal regulations. In each of these specified areas the pollution reduction target was determined by the total amount of pollution in the area and Total Amount Regulations, different emission standards stricter than those used in other areas, were then enforced.

While establishing such regulations, most laws such as the Basic Pollution Policy Act, the Air Pollution Prevention Act and the Water Pollution Prevention Act had financial support provisions such as subsidies and tax incentives to companies for pollution reduction so that they could readily comply with the regulations. This type of financial support measure has been incorporated into the Basic Environment Act which is the foundation upon which Japan's environmental policies today now rest.¹

Although providing companies with financial assistance for pollution reduction may be considered a sound industrial policy, it may not ring so clear when it is tied to the Polluter Pays Principle. Some say that, instead of giving financial aid to companies, they should be charged special environmental taxes as long as they are polluting the environment. The Japanese government has not yet seen fit to implement such measures.²

1.1.4 Pollution Prevention by Environmental Planning and Impact Assessment

Planning preventive measures against pollution problems is essential to the promotion of any comprehensive environmental policy. Planning should focus on determining environmental plans and assessing the environmental impact of each project.

Some local governments have implemented area plans focusing on environmental conservation. In 1993 when the Basic Environment Act was enacted it became mandatory for the state government to establish their basic environment plan, and so a national Basic Environment Plan was developed in 1994.³ Four fundamental principles of the plan are the cyclical system of nature and our life, the necessity of coexistence, full participation by all sectors and people, and promoting global environmental policy. Local governments are currently working on their own environment plans for their respective areas.

The implementation of environmental impact assessment on the national level had been delayed since 1983 when the proposed environmental impact assessment bill was scrapped. Because of this, national level assessment was merely guided by an agreement made by the Cabinet on some of the large scale projects (so called "Cabinet Agreement Assessment"). However, many local governments had already implemented their own assessment systems by establishing regulations or guidelines. In this respect environmental impact assessment as a preventive measure had already taken root in the country.

1 See the Basic Environment Act, Article 22, Section 1.

2 The effectiveness and possibilities of such measures are described in the Basic Environment Act, Article 22, Section 2.

3 The Basic Environment Act, Article 15.

When the Environmental Impact Assessment Bill was enacted in 1997, basic concepts and procedures of assessment were finally standardized. Some important measures such as alternative plans which lacked Cabinet Assessment were announced, examined and incorporated into the act, though insufficient. Actual implementation of the assessment based on the aforementioned act will begin in 1999. It should be noted how effective it will be for prevention of environmental problems.

1.1.5 Environmental Hazards and Public Information Access

The OECD is currently promoting the Pollutant Release and Transfer Report (PRTR) for adoption. The purpose of PRTR is to assure proper management and disposal of chemical materials that can cause harm to human organisms and the environment by compiling and classifying information on how such chemicals are used in industries and how they are disposed of after use.

The PRTR system should be effective in preventing environmental pollution caused by harmful substances used in industrial activities and any resulting harmful byproducts. However, industries are anxious about publicizing such information because it may compromise corporate secrecy of manufacturing processes. Many companies also believe that publicizing their handling of harmful substance has a negative impact on their corporate image. For these reasons the PRTR has not been widely implemented.

1.2 History and Current Status of Nature Conservation

1.2.1 Changing Environmental Awareness

In Japan, a country blessed with a rich natural environment, mild climate and moderate precipitation, people have historically adapted their lives to their surroundings. They shared a common view toward nature, respecting and studying its divine nature, working harmoniously to make effective use of the bounty of nature, always complying with the laws of nature while holding its menacing power in awe.

It would seem that the period of rapid economic expansion since the end of World War II has broken this bond between people and the natural environment. The majority of people have moved to big cities⁴ and the foundation of the economic structure has shifted from agriculture, forestry and fisheries to heavy and chemical industries and commercial service industries.⁵ With this shift came

⁴ According to a 1995 census survey, 40% of the total population live in the three metropolitan areas which consist of less than 10% of the total land area.

⁵ The number of workers in primary industries, which consisted of nearly 50% of the total number of workers immediately after World War II, has now declined to 6%.

a change in people's lifestyle and their lives became more and more alienated from the natural environment. Economic growth made Japan a more materially affluent society but made the people less and less conscious of their natural environment. Technological developments which have enabled man to better handle natural disasters such as storms and floods have caused him to lose their awesome fear of nature's power. This weakened bond between man and nature has opened the way for further unchecked development and diminishing natural environment.

Environmental awareness is once again on the rise in Japan. Global environmental problems, such as global warming, have brought it to the forefront of people's minds. This is also evidenced by recent trends in outdoor recreation activities and changing lifestyles of city dwellers seeking nature in their daily lives.

1.2.2 Wildlife Conservation : from Hunting Control to the Preservation of Species

The history of wildlife preservation in Japan, like many other countries, began with the implementation of hunting regulations. In 1918 "the Act on Birds and Beasts Protection and Hunting" (the Birds and Beast Protection Act) was established. It implemented a licensing system for hunting and regulated areas and methods of hunting for all kinds of birds and beasts living in Japan. This law has provided the basis for wildlife preservation in Japan. As more kinds of species had been added to the list of animals and plants to be protected, it became necessary to establish other laws besides the Birds and Beasts Protection Act.

The Natural Monuments System (the Cultural Heritage Protection Act) was established to protect specified plants and animals and their habitats. Until 1998, 191 animal species and 533 kinds of plants have been designated as National Natural Monument under this system. Local governments can establish their own Natural Monuments Systems to protect specific plants and animals in their area. These types of conservation system, however, can only protect a limited number of species and their habitats.

"The Act on Preserving Endangered Species" (the Species Preservation Act), which came into effect in 1993, aims to systematically preserve endangered species living both domestically and overseas in order to maintain specific diversity and entire ecosystems. Hunting, taking and harming animals and plants is regulated under this act. Habitat protection is incorporated into the act and artificial reproduction of endangered species is also introduced. Until 1997, 51 species had been designated for preservation, but only five areas are designated for preservation of four kinds of species and their habitat. Land use and proprietary rights have made it difficult to claim certain areas for preservation.

After the United Nations' treaty on biological diversity was concluded, "the National Strategy for Biological Diversity" was proposed in 1995, with two long-term objectives: 1. To preserve and sustain diversity of existing species; 2. To seek preservation of diverse interrelationships among species as well as conservation of protected areas for the reproduction of species.

1.2.3 Expansion and Improvement of Protected Areas

Although it is not widely known, 14.1% of total area in Japan is designated as natural parks (national, semi-national and prefectural parks). There are some other systems for preserving the natural environment such as the Natural Environment Conservation Areas System, the Wildlife Protection Areas System, the Natural Monuments System, the Wildlife Habitat Conservation System, and the Forest Preserve System within the National Forest.

Areas within these systems are designated by governmental order and some development activities are regulated. However, when it comes to maintaining these designated areas, unlike publicly owned nature preserves where the authority for maintaining the area is assured, interests of both owner and the user must be negotiated, hence making it difficult to provide adequate maintenance in terms of nature conservation.⁶

Several preserved forests within National Forests are under the control of the Forestry Agency and with their strong management authority are potentially good sites for effective nature conservation. The main purpose of maintaining National Forests is shifting from production of lumber to conservation of natural forests for several reasons. The production and sales of domestic lumber have declined due to price competition from overseas, creating a deficit for the National Forest operation, and the need for environmental conservation is rising. It is expected that expansion of the Forest Ecosystem Preservation Area will play an important role in the conservation of the natural environment. The only concern is that, since such forest preservation systems are not based on specific laws but are rather part of forest management plans under the control of the Forestry Agency, it is possible for such systems to be easily abolished should there be a shift in the Forest Agency's policy.

1.2.4 The Future Agenda

In order to promote nature conservation in terms of preservation of ecological systems, it is essential to assure protection of areas where animals and plants can inhabit and reproduce. In addition to designating natural preserves it is necessary to maintain the environment around the preserves such as the water

⁶ Natural parks in the U.S. and Canada are typical examples of such areas.

purity of rivers, lakes, marshes and seas, reduce air pollution and regulate human factors such as noise, vibrations and artificial lights near the area.

However, establishing a designated nature preserve even in a small area can create many social problems such as conflicts with the landowner or user. Furthermore, if the water and air quality of the area is going to be controlled, it will make the situation even more complicated.

The National Strategy for Biological Diversity suggests appropriate objectives for conserving ecological systems but is unclear on how to achieve these objectives and necessary administrative and social actions.

1.3 Responding to Global Environmental Problems

1.3.1 Global Warming

Prior to the United Nations Conference on Environment and Development (UNCED, 1992, Rio de Janeiro) and adoption of the United Nations Framework Convention on Climate Change (UNFCCC), in 1990 Japan developed the Action Plan for Global Warming Prevention in order to deal with the problem. In 1997 Japan hosted the third conference of UNFCCC (COP3) at which the Kyoto Protocol was adopted.

The national government is currently working on amending energy-related laws and implementation of new laws concerning global warming problems in order to reduce CO₂ and other greenhouse effect gases (GHGs) emissions down to the level set by the Kyoto Protocol.

NGOs, although not very active in Japan, are responding to the global warming problem and their opinions on the international framework and domestic policies are influencing governmental decisions. Private sectors also responded quickly with various initiatives such as energy conservation in their business operation, manufacturing energy efficient products, promoting solar power generation and taking initiatives on overseas afforestation projects.

1.3.2 Tropical Forest Conservation

Japan, one of the biggest importers of tropical forest lumber while at the same time a host country of the International Tropical Timber Organization (ITTO, headquartered in Yokohama), should be in a position to have both interest and responsibility concerning preservation of world forests especially tropical forests.

Today the Japanese government along with Canada and the U.S. participate in meetings of non-European countries regarding setting standards and an index for management of sustainable forests as well as engaging in technological

cooperation in forestry between Japan and other countries in South East Asia, Oceania and South and Central America. Among all the member nations the Japanese government is the largest contributor to the ITTO.

In Japan public awareness as to the need for tropical forest conservation is seemingly low. One of the reasons for this lack of concern may be that, as a result of price competition between domestic and imported lumber, the felling of domestic trees has been reduced. Ironically people do not realize that a large number of trees are now being cut down overseas instead and globally forests are disappearing. Since lumber is mostly used as a construction material or consumed as processed goods such as paper and wooden products and does not usually touch the hands of the public, the end consumer, citizens do not take actions that are directly linked to the tropical forest conservation even if they are concerned.

Some trading companies, however, are taking the environment into consideration when importing lumber. Some construction companies and paper manufacturing companies are attempting to reduce the amount of lumber used and are concerned about the environmental situation of the countries which produce lumber. These companies pay special attention to the “Forest Certification System” and the recent trend in labeling on lumber and lumber products aimed at maintaining a “Sustainable Forest” through careful forest management.

Some NGOs have participated in tropical forest preservation and reforestation and through individual support to these NGOs public interest in tropical forest preservation is rising.

2. Land, People and Industry of Japan

2.1 Land and Natural Environment

Japan is located in the monsoon zone of the eastern coast of the Asian continent, and the total land area is 377,836 square kilometer. Over two-thirds of Japan is covered by mountainous terrain, and alluvial plains occupy only 13 percent. The notable features of the climate of Japan are the wide range of yearly temperatures and the large amount of rainfall. However, because of the complexity of land configuration, there are numerous regional differences throughout the seasons.

2.2 Population, Demography and Living Area

Japan's population is 125 million, the seventh largest in the world. Japanese population is aging faster than any other country in the world, becomes a situation that is causing serious problems to Japanese society. The percentage of Japan's population aged 65 or over was only at the 7 percent level in 1970s, it

reached 14 percentage in 1995. With rapid economic growth during postwar period, there was a strong tendency towards regional concentration. As a result, more than 40 percent of Japanese live in the three major city areas of Tokyo, Osaka, and Nagoya.

2.3 Industry and Economy

2.3.1 Scale of the Economy

The Japanese economy is the world's second largest market economy, with a gross domestic product (GDP) of US \$ 5 trillion in 1995. In the same year, per capita income was more than US \$ 30,000. This high-income scale was achieved largely due to high economic growth from the mid 1950's to the late 1960's. After the end of the 1986 to 1991 boom period known as "bubble economy", the economic growth slowed drastically and Japan has fallen into a state of recession.

2.3.2 Industrial Structure

The rapid economic growth resulted in significant changes to Japan's industrial structure. Production shifted from a heavy reliance on agriculture and light manufacturing to a focus on heavy industry and, increasingly, services. In the mid 1950's, the primary sector still accounted for 24 percent of output and 37 percent of labor force; in contrast, manufacturing accounted for only 24 percent of output and 19 percent of employment. Then in 1995, 6 percent of labor force was in primary sector occupations, 33 percent in secondly, and 61 percent in tertiary.

2.3.3 Energy Consumption and Efficiency

From the mid 1960's to the early 1970's, rapid economic growth also led to 10 percent average annual increase in energy demand. During the same period, there was shift from coal to oil as an energy source. Japan's dependence on imports for its energy supply rose over 90 percent. Because Japanese corporations positively initiated the development of energy saving technologies facing the oil crisis in 1970's, Japan has become the most energy efficient country. In 1995 amount of energy consumption per capita was 3,573 kilogram, which was less than half of the USA.

3. Current Status of Environmental Governance Mechanisms

In this chapter the current status of environmental governance in Japan will be summarized, describing the actors that are playing important roles in planning and implementation of environmental policies. The three areas of environmental problem to be focused on are environmental pollution (air and water pollution),

nature conservation (preservation of natural environment and ecological systems) and global environmental problems (global warming).

3.1 The State Government

3.1.1 Role of the State Government in Environmental Governance

Environmental policies at national level involve the establishment of environmental laws and nationwide implementation of them through the administrative systems. Their fundamental principles are manifested in the Basic Environment Act enacted in 1993.

Environmental administration in national level is under the control of the Environment Agency as it is stated in article 3 of the Environment Agency Establishment Act: The duties of the Environment Agency is to prevent pollution, to conserve the natural environment and to promote comprehensive administration of environmental conservation in order to contribute to and assure citizens of sound and civilized lives. The main role of the Environment Agency is to act as an administrative liaison for other ministries that deal with the environment. Since the Environment Agency does not always has absolute authority over other ministries, there are cases where the agency cannot act in the most effective way in order to ensure the conservation of environment.

3.1.2 Policy and Measures against Environmental Pollution Problems

The government has implemented several acts in order to deal with typical environmental pollution problems such as the Air Pollution Prevention Act, the Water Pollution Prevention Act, the Vibration Regulation Act, the Noise Regulation Act, the Odor Prevention Act and the Soil Pollution Prevention Act. The Basic Pollution Policy Act (enacted in 1967) laid the foundation for anti-pollution measures and was in effect until it was replaced by the Basic Environment Act in 1993.

Some of the major anti-pollution measures that have been enacted are the setting of environmental standards, regulations on emissions of each pollutant and noise levels and financial assistance for achieving standards such as subsidies and tax reductions. Such actions are supposed to be national affairs but air and water pollution management is entrusted to local governments as delegated affairs. This delegation system, however, has come under fire and is one of the important issues to be discussed as government authority become further decentralized in the future.

As described in section 1-1-2, establishment and operation of the pollution victim compensation system, providing pollution victims with adequate medical treatment and welfare was a significant factor in instigating national action

against environmental pollution problems. Although it seems that the need for such compensation system is no longer in great demand as severe environmental pollution have decreased, developing appropriate compensation measures is still essential to safeguard the public from any further pollution problem, should it arise.

Management and handing of various chemicals that can cause harm to humans and the environment is recently arisen environmental problem that requires urgent countermeasures. The OECD has already suggested the implementation of the Pollutant Release and Transfer Report (PRTR) to deal with such problem and the Japanese government has adopted a preliminary pilot project prior to implementing PRTR.

3.1.3 Steps toward Nature Conservation

In order to protect wildlife and the natural environment, the Environment Agency is in charge of operating conservation systems based on various laws such as the Natural Environment Conservation Act, the Natural Parks Act, the Hot-spring Act, the Birds and Beasts Protection and the Species Preservation Act as well as implementing other miscellaneous projects that are not necessarily based on a specific law.

Since the Environment Agency does not have jurisdiction over most of the land necessary for nature conservation, establishment and management of natural preserves such as Natural Parks (national parks, quasi-national parks and prefectural natural parks) and Wildlife Habitat Conservation Areas relies upon merely the designation of the areas and regulation on some development within the areas. In this respect such style of nature protection is not sufficient in terms of the conservation of entire ecological systems.

While some precious wildlife and natural areas deemed to have academic and social values are protected as National Monuments by the Cultural Heritage Protection Act under the jurisdiction of the Agency for Cultural Affairs, such a method of protecting specific individual species and landscapes does not contribute to the conservation of the entire ecological system.

Many of the major natural environment areas in Japan are located in National Forests controlled by the Forestry Agency and most of them are designated as nature conservation areas such as Natural Parks or Natural Monuments. The Forestry Agency has recently made a drastic change in its policy regarding National Forest management shifting from lumber production to environmental protection and is promoting preservation of the natural environment by establishing Forest Ecosystem Preservation Areas within National Forests.

“The National Strategy for Biological Diversity “ implemented in 1995 emphasizes the preservation of diversity of existing species and conservation of

protected areas to sustain the diversity. However, only a few specific actions to achieve such goals have been taken.

In addition to domestic actions toward nature conservation, the government has participated in international initiatives such as the World Heritage Convention and the Ramsar Convention.

3.1.4 Policy and Measures against Global Environmental Problems

The Japanese government has been actively participating and promoting many global environmental policies such as global warming prevention, ozone layer protection and the preservation of worldwide biological diversity.

Japan has enthusiastically entered international treaties such as the Ozone Layer Protection Treaty (1985) and its Montreal Protocol (1987), the UN Framework Convention on Climate Change (1992), the Biological Diversity Convention (1992) and the Environmental Protection Protocol to the Antarctic Convention (1997) and is further developing international measures (e.g., hosting COP3 of UNFCCC in which the Kyoto Protocol was adopted).

Relevant domestic laws are being amended in order to comply with the purposes of the above-mentioned treaties. For instance, manufacturing and use of specified freon gases (CFC) is now regulated based on the Ozone Layer Protection Act and some amendments were made to the Energy Conservation Act in order to deal with the global warming problem and to achieve the standard of CO₂ emissions reduction enforced by the Kyoto Protocol (6% less than 1990 standard). In 1998 the Act to Promote Global Warming Policy (the Global Warming Policy Promotion Act) was enacted and set the basic national policy to address the problem, although specific actions have not yet been taken.

3.1.5 Trends and Agenda

A noteworthy trend in the implementation of environmental measures at the national level is the argument on who (or which ministry or agency) is going to take important part. Previously the Environment Agency would give advice with respect to environmental protection to other ministries and agencies that handled affairs in development and industries such as the Ministry of Construction, the Ministry of International Trade and Industry and the Ministry of Agriculture, Fisheries and Forestry. Although this scenario still applies to the current relationship among those ministries, there seems to be some changes in the handling of specific environmental problems.

For example, after COP3 when amendments to laws and regulations dealing with global warming were considered, there was an apparent conflict between the Ministry of International Trade and Industry which favors more of an energy

related approach and the Environment Agency which seeks more comprehensive measures.

Since most areas of public land within Natural Parks and other nature preserves are located in the National Forest, the Forestry Agency which has been committed to cutting trees for commercial profit and the Environment Agency which has historically advocated environmental protection would often find each other on opposite sides of a philosophical fence post. As the Forestry Agency changed its policy to one of environmental protection, their philosophical confrontation shifted to a turf battle over who should take the initiative in nature conservation. After the recent amendment of the Rivers Act, incorporating some environmental concerns, the Ministry of Construction under which major rivers are administered has stepped into the fray handling conservation issues related to rivers.

Such rivalry among ministries and agencies is another example of their traditional struggle for authority. But this attention to environmental problems can have positive effects on environmental governance. It is seen as a step toward more positive policy integration in environmental administration. The competition itself may have a effect to improve the quality and standards of environmental administration. However, there is a fear that in such a situation the administration of environmental affairs could become so decentralized and powerless as to render it completely ineffective. In either case it is noteworthy that environmental issues have become so important that their handling is contended for among ministries and agencies.

3.2 Local Governments

3.2.1 Policy and Measures against Environmental Pollution Problems

Local governments played an important role in preventing pollution during the time when the state government had not come up with sufficient anti-pollution measures to deal with serious air and water pollution. Many anti-pollution measures proposed by local governments are remarkable for their resourcefulness and ingenuity. For example, regulating the total amount of emissions as a countermeasure to air and water pollution was initiated by local governments in Yokkaichi, Osaka and Kanagawa where such problems were of an urgent matter.

One of the most remarkable aspects of local governments' anti-pollution actions is the pollution prevention agreement between a company and a government in order to prevent pollution. The agreement prescribes responsibilities of companies and regulations on their industrial activities such as regulations on pollutants including soot, smoke, drainage, noise, vibration and offensive odor. It also includes administrative inspection and operation shutdown as a punitive measure in case of contract violation.

The reason local governments used such measures was because local governments, especially municipalities did not have adequate authority over pollution control. Since the harmful influence of pollution problems on residents had to be urgently dealt with, instead of using administrative power for imposing regulations on companies, local governments had no other choice but turning to making agreements with them. Another reason was that, unlike imposing regulations by laws, making agreements allowed local governments to be flexible when dealing with each company depending on their situation and consequently was considered to be a more effective anti-pollution measure when applied locally.

Today when local governments develop their own anti-pollution measures, especially when they try to establish new regulations, they must be careful not to deviate from national laws. Local governments are allowed to establish new regulations if they include an item over which local governments' authority to enact an ordinance is not regulated by national laws or if they are different from the existing regulations prescribed by national laws. (This is often referred to as "yokodashi" or supplemental) It is now widely argued whether or not local governments should be allowed to establish new regulations that are stricter than existing regulations set by the national government (often referred to as "uwanose" or add-over).

Although amendments to the Air Pollution Prevention Act and the Water Pollution Prevention Act (1970) allow prefectural governments to add stricter regulations to the existing ones set by national laws regarding air and water pollution, it remains necessary to develop rational guidelines regarding national and local governments' authorities over environmental issues. Regulations with national standards are not necessarily adequate to all conditions and situations. As the result, stricter and wider pollution regulation by local governments is required according to the social and environmental conditions of each area. Such local regulations therefore should be respected validly.

Similar problems can be seen in the implementation of environmental impact assessments. Many local governments had already implemented their own assessment programs before the national government finally enacted the Environmental Impact Assessment Act in 1997. Some of the assessment programs developed by local governments are more advanced than the requirements described in the National Assessment Act in terms of the range of target projects and residential participation. Adjustments should be made prudently to both local governments' assessment systems and that of the state government in order to balance them out.

3.2.2 Steps toward Nature Conservation

Local governments have been making steady effort toward environmental

protection. All 55 semi-national parks and 304 prefectural parks are managed by prefectural governments. Although generally speaking their administration standards are not the best, some prefectures are more advanced in their park management than the management at national parks. Environment related sections of prefectural governments have also been in charge of the management of certain areas of national parks in cooperation with the state government.

3.2.3 Responses to Global Environmental Problems

In their efforts against global environmental problems, some local governments have been offering technological and financial assistance as well as personnel education to developing countries mainly in Asia in their environmental projects.

An increasing number of local governments are concerned about the global warming problem and are implementing countermeasures. Another recent trend is that many local governments are seeking approval for ISO14002 (the Environment Management System) in a shift towards more comprehensive environmental protection measures.

3.3 Private Sectors

3.3.1 Changing Attitudes to Environmental Pollution Problems

When the first serious pollution problems arose in Japan, companies and industries were not very cooperative in dealing with such problems. As the defendants in civil trials for compensation of pollution related damages they strongly denied charges. Companies were offended by new regulations to reduce pollution. On the other hand, citizens and communities strongly criticized the companies that were causing pollution. The Polluter Pays Principle (PPP) as suggested by the OECD fostered the idea that a polluter is responsible for all the expenses necessary to clean up polluted sites. In Japan it would seem that this principle was regarded as “the Polluter Punishment Principle”, i.e., a polluter must be punished.

This situation gradually changed in time and private sectors became willing to negotiate with governments and citizens regarding pollution prevention. For instance, companies responded positively to making agreements with local governments on pollution prevention. (See section 3-2-1: Policy and measures against environmental pollution problems.)

Today, as severe pollution problems which arose in the 1960's are almost resolved and public awareness of the environment rises, companies are very careful not to be pointed to as a polluter and more readily agree to settle their difference out of court in order to avoid being labeled publicly as a polluter.

Besides such a change in attitude, there has been another remarkable trend in the private sector. Companies are incorporating pollution prevention into their corporate projects, using a new PPP principle, *i.e.*, “Pollution Prevention Pays”.

However, many companies are still unwilling to publicize the impact of their industrial activities on the environment as described in sections 1-1-5: Environmental hazards and public information access and 3-3-4: Effect of ISO14001 “Environmental Management System.”

3.3.2 Participation in Nature Conservation

The private sector has not yet largely contributed to nature conservation since development in their corporate sense means destruction of the natural environment and new development is yet continuing to diminish natural areas and wildlife habitats.

Some companies, however, have started participating in nature conservation activities in order to appeal to the environmental consciousness of consumers and promote a better corporate image. Many companies donated funds to NGOs promoting nature conservation, but this trend has been declining due to Japan’s recent sluggish economy.

There are some companies that are engaged in nature conservation activities through afforestation and the maintenance of nature preserves. One power company, for example, has an ownership to land within a famous national park. This property has been owned and managed as catchment area of a river needed to run hydraulic power plant downstream. Today, the power company advertises their effort in maintenance and management of the natural environment of the area through their subsidiary company.⁷

However, nature conservation activities by companies are limited to only the ones that help to improve their corporate image among consumers. Information on the negative environmental impact caused by companies and industries hardly ever reach the public. In order to get more accurate information about companies’ involvement in nature conservation, both their effort in nature conservation and the impact of their activities on ecological destruction must be examined and evaluated. For this concern, attention must be paid to the effect of environment management systems in the private sector such as ISO14001 and especially the environmental ordinance system outlined in it.

3.3.3 Responses to Global Environmental Problems

The Federation of Economic Organizations (FEO or keidanren), an organization

⁷ Many areas within natural parks (even in national parks) are privately owned since the natural parks system in Japan is based on the designation of areas and regulations on some developing activities within.

of leading industries in Japan, developed the FEO Global Environment Charter in 1991 and manifested global environmental principles from industry's point of view. The charter asks industries for environmental consideration in their every industrial activity as well as active participation in environmental protection, applying the latest information and appropriate technologies in both domestic and overseas operations, especially in developing countries.

One of the most remarkable actions against global environmental problems by the private sector is their effort to deal with the global warming problem. The Federation of Economic Organizations identified objectives for each industry in its "Voluntary Action Program" and is working toward their achievement. One manufacturer of automobiles, which are the primary source of CO₂ emissions, recently started a large scale afforestation project in Australia in cooperation with some trading companies, aiming at offsetting the CO₂ emissions of the company and the cars it produces and preparing for future negotiation concerning CO₂ emission rights. This type of overseas afforestation project is becoming popular among industries.

Another trend is that companies are competitively developing new business plans that are directly linked to the solution of the global warming problem. Some of the examples for this are improving energy efficiency of automobiles and appliances, production of new types of energy such as solar power, recycling businesses and manufacturing of new types of vessels aimed at future demands for improved fuel efficiency.

Private sectors have not yet taken many actions against other global environment problems besides global warming. Although some trading companies and construction-related companies take the environment of lumber producing countries into consideration when importing lumber and lumber products, effective environmental measures with respect to lumber production (forestry) industries have not been implemented yet since environmental management systems like ISO14001 are not widely used in forestry on a global basis.

3.3.4 Effect of ISO14001 "Environmental Management System"

The environmental management system "ISO14001" (or "ISO14000 series") issued by the International Organization for Standardization (ISO) has been very influential on environmental projects undertaken by the private sector. The system is used by individual companies for evaluating the negative environmental impact of their corporate activities in an effort to reduce such impact. Acquiring the ISO14001 certification is optional but many leading Japanese companies are rushing to get one since in the past they made a late start in acquiring ISO9000 "Quality Management System" and got an unexpectedly severe blow in the international market for it.

Unofficial data shows that as of July 1998 the number of ISO14001 certifications acquired totals 5,147 by 55 countries and regions and Japan holds the highest number at 1,018, far over the number acquired by England and Germany, both have about 630-650.⁸

The reason for ISO14001's popularity can be explained by the fact that a company with ISO14001 has a better corporate image and without ISO14001 a company can be ostracized in business transactions. The number of company acquiring ISO14001 is rapidly increasing because big companies which already have ISO14001 are asking their business partners to get one also.

Such initiatives where companies take voluntary actions against environmental problems is desirable. However, the current environmental management system by ISO does not require companies to publicize the environmental impact of their corporate activities. Since disclosure of companies' environmental performance is not mandatory, it is difficult to compare the environmental impact caused by companies with their efforts to improve environmental performance.

In this respect the acquisition of ISO14001 by companies may be merely a means to improve their corporate image. It is expected that companies will willingly share with public the result of the evaluation on their environmental performance and seek to be rated on the basis of their efforts to improve the environment.

3.4 Citizens and NGOs

3.4.1 Participation in Nature Conservation Activities

Citizens and NGOs have been actively participating in conservation of the natural environment and wildlife although currently there are not so many influential NGOs in Japan.

Many citizens participate as volunteer nature guides in natural parks. They also participate in many activities such as wildlife protection, maintenance of mountains and forests, and creating biotopes in their surrounding areas. These types of nature conservation activities have a recreational aspect for participants and thus in many cases they work as volunteers and pay their own expenses. On the other hand, such activities may not serve as a lasting conservation contribution to nature.

In some areas national trust campaigns are carried out and properties are bought for nature conservation purposes. Although an NGO must be well organized in order to carry out such campaigns, the difficulties NGOs have in acquiring a corporate status has been one possible factor that keeps NGOs from promoting

⁸ Source: Nihon Keizai Shinbun, September 7, 1998, evening edition, p.3.

more effective environmental protection activities. Recently enacted, the Non-Profit Activity Promotion Act (the NPO Act, 1998) is expected to reduce the difficulty NGOs face in acquiring a corporate status. It should be noted if this will have any positive effect on NGOs' environmental activities.

3.4.2 Everyday Solutions to Environmental Problems

The most common way for citizens to participate in environmental activity is related to waste disposal. This includes segregating waste for recycling purposes, bringing reusable waste to a special recycling facility, reducing waste and changing lifestyles for energy conservation. Keeping an "Environmental Household Account Book" is an interesting approach to reduce CO₂ emission generated by everyday life.

When individual citizens try to take actions against environmental problems in their everyday lives, the problem is that only limited information and few options are available to them. Even if they want to buy products that have less of an environmental impact, they do not have access to information on each product's impact on the environment. It is hard to find products without waste such as heavy packaging. Furthermore, systematic collection of recyclable materials has not yet been implemented. In order to solve these existing problems, more information must be provided by governments and industries and new systems which enable environmentally sound consumer decisions must be established

4. Case Studies: Climate Change Policy and the Improvement of Forest Ecosystem Conservation through the National Parks System

In this chapter, the present situation of Japan's environmental governance is examined through the two case studies. One is climate change policy which requires comprehensive approach to tackle the problem. The other is forest ecosystem conservation through the national parks system.

4.1 Climate Change Policy

4.1.1 Present Condition of the GHGs Emission

The climate change in global scale such as global warming caused by the emission of GHGs (greenhouse effect gases) is the most important environmental problem to Japan.

Japan's GHGs emission is 5% of the total emission of the world. This volume ranks the 4th. following the U.S.A, China and Russia, and take the 2nd. place among the OECD countries. The emission per capita is far lower than the OECD average but a little higher than the average of EU countries(15 states). Japan's per capita emission is also twice higher than the average of the world.

4.1.2 Target of the Policy

The target of climate change policy is set by interanational agreements. The UNFCCC(the United Nations Framework Convention on Climate Change) in 1992 requires stabilizing GHGs emission in 1990 level until the year 2000. Kyoto Protocol(1997) of the UNFCCC sets Japan's new target of 6% reduction from 1990 emission level during the 5 years (average from 2008 to 2012). Japan's Action Plan to Prevent Global Warming agreed by cabinet also states its target to stabilizing emission in 1990 level after 2000.

4.1.3 Implementation and Problems

The Global Warming Policy Promotion Act in 1988 sets national climate change policy. Which requires the promotion of GHGs reduction in the state and local governments and in private sectors by making GHGs emission reduction plan. The act also supports citizens activities in climate change. The secretary of Environment Agency is allowed to request the chief of other ministries and agencies, if necessary, to cooperate in policies and actions for climate change. This could lead to the broader policy coordination and more comprehensive approach in climate change.

The 1998 amendments in Energy Conservation Act introduced "top runner method" to promote continuous improvement in energy efficiency. Under the "top runner method", energy standards is set in the level of the most energy efficient goods in the market. Penalties for the non-compliance to the energy standards are also reinforced. Energy consuming factories are required to submit Energy Saving Plan under new amendments. Despite of these amendments, the approach of the Energy Conservation Act does not necessarily leads to more comprehensive GHGs reduction.

More comprehensive approach and policy is needed to make climate change policy effective. The Global Warming Policy Promotion Act should take such role. However, the effectiveness of the act is questionable. One reason is that, under the Global Warming Policy Promotion Act, the making, implementing and publicizing emission reduction plan is not a duty but just a voluntary activity to private sectors because of the so called "adjustment" with the administrative authority of the Energy Conservation Act. How to secure the request from the secretary of Environment Agency to other ministers and secretaries is not unclear. The system to introduce economic incentives such as environmental tax is also missing. To promote comprehensive climate change policy effectively, an legal base is necessary which can coordinate related acts and policies and can introduce new measures. required.

Private sectors attach importance to international trend in climate change policy. Many companies are already moving toward many actions to improve energy

efficiency and GHGs reduction.

4.1.4 Policy Recommendation

Positive climate change policy and its active implementation in national and local governments and in private sectors are necessary to achieve 6% reduction target set in Kyoto Protocol. Following policy and measures should be considered to achieve the target.

- Establishing legal bases to promote comprehensive climate policy effectively.
- Policy assessment to coordinate related policy and measures and to improve efficiency in their implementation.
- Requiring industries to make GHGs reduction plan and to implement it.
- Introducing economic incentives such as environmental tax.
- Helping local governments' and private sectors' participation in international GHGs reduction activities such as Joint Implementation, Emission Trading and Clean Development Mechanism.

4.2 Improvement of the Forest Ecosystem Conservation through the National Parks System

Forest is Japan's representative ecosystem. It is also important as the source of river and lake through its function to foster water. As the awareness to global warming increases, forest's function as the "sink" of CO₂ becomes important. Natural Parks System such as national parks are important to conserve forest and its ecosystem.

4.2.1 Forest and National Parks

Japan's Natural Parks System (Natural Parks Act) consists of 28 national parks, 55 quasi national parks and 304 prefectural natural parks and covers more than 14% of Japan's land area. 60% of the area of national parks system (which covers 5.4% of Japan's land) is located within the national forest. In some national parks on the northern Japan, national forest covers more than 90% of the park.

4.2.2 Present Condition of the Forest Ecosystem Conservation in National Parks

Forest in national parks has not been conserved in good condition. The reason is in the character of the national parks system of Japan. Japan's national parks system is based on zoning and regulation and park management authority (Environment Agency) does not necessarily have the land ownership of the park

area. National forest is managed by the Forestry Agency which promote logging in the area on a self-supporting basis. As the result, even in national parks, forest conservation becomes difficult.

For example, Environment Agency regulates logging in national parks. Any tree cutting is prohibited in Special Protection Area of park and clear cutting is strictly restricted in Special Areas. However, if it is examined in area bases, tree cutting prohibited area is only 12.5% of the total area of national parks. Selected tree cutting is allowed in 7.9% of the park area and clear cutting is allowed in 79.6% of the national parks area. Moreover, Special Protection Areas in which any tree cutting is prohibited are generally located in high altitude or marsh land and do not have trees for logging. Therefore, logging is actually possible in almost all forest in national parks.

Overuse threatens forest ecosystems too. Total number of visitors to national parks is close to 400 million per year and causes serious environmental impacts on the areas of sensitive and fragile ecosystem. These overuse problems have been originated in insufficient park management.

4.2.3 Policy Recommendation

In order to improve park management and to conserve forest ecosystem in national parks, following policy and measures should be examined.

- Managing forest ecosystem in unity. National forest in national parks should be transferred from the Forestry Agency to the Environment Agency and managed as park land. Alternative to this is to unify the management plan of Forest Ecosystem Conservation Area in national forest with park management plan.
- Purchasing private forest in national parks. The budget for present system to subsidizing private land purchasing by local government should be increased. Besides such subsidization, direct purchasing by the state government must be considered.
- Many types of contracts in forest conservation between land owners and the state or local governments must be considered. Through such contracts, park management authority can be reinforced and more effective control for conservation becomes possible.
- Park managing personnel and budget must be increased. Present condition such as only 167 rangers in total is too little to manage national parks in good condition.

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Comments

James E. Nickum

1. The Environment

One important facet of environmental governance is the “contestable” nature of both the environment (more precisely, what an environmental problem is) and governance. In bureaucratic life, problems tend to be defined along jurisdictional boundaries. They tend to be addressed by parceling them along jurisdictional lines - a chief characteristic of Weberian bureaucracy, and what I have elaborated elsewhere (*e.g.*, Nickum and Greenstadt, 1998) as the “project culture”. The “environmental problem” is really a vast range of problems with varying governance characteristics. This means that, for example, the main purpose of an environmental ministry or agency is often considered to take environmental problems and “coordinate” action on them - *i.e.*, by arranging the parceling activity and assuming itself certain operations (*e.g.*, data bases) that do not easily parcel. It also means that defining the problem is itself an object of governance- or “discourse,” to use another trendy term. Environmental policy problems, according to Hajer (1995: 24) are “historically constituted sets of claims,” defined and phrased as much to reflect institutional and political imperatives as some sort of objective phenomena, although the two are clearly linked in one process. Thus, to jump ahead a bit, when Prof. Kato chooses climate change and national park maintenance as his key issues rather than the water quality, acid rain, and forest cover suggested by the framework, it is to some extent reflective of a certain discursive perspective, notably one that defines problems from the standpoint of the Environment Agency of Japan. Water quality is an area where the Environment Agency often has to surrender the initiative to the Ministries of Construction and Health and Welfare, and to local authorities. Acid rain is now seen as a largely imported problem, since the domestic sulfur oxide emission problem has largely been “solved,” although most acid rain deposition in Japan is still probably from domestic sources.

2. Governance

So much for the environment. What does “governance” mean? Its origins are hierarchical, like government, and in some of the international financial institution parlance, is still in part a code term for the quality of government. Still, there is a recognition, in part sparked by Putnam’s 1993 study of Italy, that good government requires a good relationship, perhaps participatory, with “civil society”. In turn civil society relies on “social capital” - self-organizing capacity within society independent of government (or other hierarchies such as the Catholic Church).

Thus, I suppose, the Tokugawa policy of “make them rely on you, don’t tell them anything” (loose translation) would be indicative of bad governance. Yet the Tokugawa (1603-1867) did a reasonable job of governing Japan for nearly three centuries, and it seems that civil society in Tokugawa Japan was often capable of (indeed, often required to) engaging in self-governance (Nickum, 1999). The mystery of Japanese governance is not new.

3. Japan’s Remarkable Record

This brings me to one of the great mysteries of the Japanese approach to environmental governance - or to the economy, for that matter. Japan’s record of environmental governance is quite remarkable in many areas: (1) the speed with which remedial action was taken where it was technically and economically feasible, (2) the use of innovative techniques such as the pollution victims’ compensation fund and pollution control agreements, and (3) the general state of the environment in many (but not all) key areas (I shall return to this).

4. The Mystery of Japan’s Environmental Governance

Yet Japan’s environmental governance institutions challenge much of the conventional textbook wisdom as to how governance should be done. For example:

- Japan has a weak environmental agency dedicated to coordinating the unwilling strong, many of whom “loan” the agency key staff, including at senior levels.
- PPP in Japan means, in practice, the “pay the polluter principle” (does this differ based on size of industry?).
- Japan’s judicial system has been less than accommodating to plaintiffs except in the most egregious of circumstances and the most extraordinary of times, such as the early 1970s described by Prof. Kato.
- Japan’s environmental NGOs are weak, small, fractious, and rarely confrontational.
- Japan exhibits a high level of “information impactedness” by both government and business, keeping the public in the dark in many critical areas. Thus, for example, Japan and Turkey are the only OECD countries that do not issue figures or estimates for total hazardous waste production.

5. Japan’s Environmental Performance

Despite all the above factors that would seem to inhibit effective environmental governance, by and large, Japan’s environmental performance since the dark

days of three decades ago has been exemplary:

1. **Sulphur oxide emissions** per capita and per unit of GDP are very low (7 kg/cap, compared to 63 kg/cap in the US, 37 kg/cap in Germany and 119 kg/cap in Australia), second lowest in the OECD (next to Switzerland), and are continuing to decline, even though fossil fuel supply tripled from 1980-1995 (and GDP increased by 241%). (OECD Environmental Indicators 1998: 27)
2. **Nitrogen oxide emissions** are the lowest per capita in the OECD (12 kg/cap.), but have not declined since the mid-1980s. (*Ibid*: 29)
3. **Carbon dioxide emissions** grew by 24% from 1980 to 1995 while GDP increased ten times as rapidly - a significant decoupling from GDP and, to some extent, from commercial energy use, which increased by 43.5% in the same period [World Development Report 1998/99: 208-209]. Japan now only emits 5.0% of the world's carbon dioxide while producing 8.0% of the world's GDP. By comparison, the United States emits 24.1% of the carbon dioxide but only produces 20.8% of the world's GDP (see table).

	Japan	China	India	Thailand	USA	World
Population (1997: million)	126 2.2%	1227 21.0%	961 16.5%	61 1.0%	268 4.6%	5829
GNP 1997(PPP) US\$billion	2951 8.0%	4382 11.9%	1587 4.3%	399 1.1%	7690 20.8%	36951
Commercial energy use (mmtoe)1995	497 6.0%	850 10.3%	241 2.9%	52 0.6%	2078 25.2%	8245
CO₂ emissions (mmt) 1995	1127 5.0%	3192 14.1%	908 4.0%	175 0.8%	5469 24.1%	22700
Deforestation rate (ann. ave, 1990-95)	0.1%	0.1%	0.0%	2.6%	-0.3%	0.3%

Compiled from World Bank 1998.

4. **Municipal waste** per capita has increased more slowly since 1980 than in any other reporting OECD country (7% compared to the average of 25%), and at 400 kg/cap. is below the OECD average (530 kg/cap) and well below the US (700 kg/cap). (OECD: 38)
5. **Afforested area** has basically remained stable since 1970, and only one-third of annual growth is harvested (OECD: 55-56).
6. A relatively small percentage of **species** in Japan are threatened [OECD: 65].
7. (Not a remarkable success): Consumption of **pesticides** has declined by nearly one-quarter since 1980, but application rates remain the highest in the OECD

(1,259 kg of active ingredients per sq. km, compared to 202 kg in Germany and 86 kg in the US).

8. (Not a remarkable success): Japan is the world's leading producer of dioxins, stemming predominantly from a poorly planned and governed incineration policy.

6. The Next Puzzle, for Others and for Japan

How these results could come from that governance structure constitute the puzzle of Japan's environmental governance-to date. The next puzzles, of course, are (1) whether there is something in all this for other countries, both developed and developing, Asian and non-Asian, to learn, or are the accomplishments due to an inseparable integument that is (or was) Japan's governance system, historically, culturally, and institutionally bounded? And (2) Will the inherited governance system work for Japan under the quite different rules that are likely to prevail in a globalized, information-based twenty-first century? Even after considering these problems for the past five years or so (*e.g.*, Nickum, 1997), I do not have the answers to these questions, but would propose them as central to any comparative governance analysis.

Now let me turn to some remarks more specifically directed at Professor Kato's paper.

7. The Paper at Hand

Professor Kato's paper provides us a basis for asking some of the important questions about what makes Japan's environmental governance tick, although by and large it does not address those questions directly. Unfortunately, there is little time or space to go through all the different points of interest here, so I will somewhat arbitrarily pick a few, I hope to stimulate further discourse.

a. Choice of problems. In Prof. Kato's paper, we have a concentration on two problems that match the project structure of IGES: global climate change and tropical deforestation. This selection of topics is somewhat different from the three topics suggested by the framework (water pollution, acid rain and forest cover), but is reasonable: IGES pays the bills and these are two very big problem domains where Japan is an important international actor. Prof. Kato also focuses on certain domestic pollution problems that confronted Japan historically, concentrating on industrial pollution, and on national park management. He also dwells to some extent in his narrative on the problems of information (*e.g.*, EIA, ISO and PRTR, but not FOI), an area of environmental governance that is critical but also may reflect in its practice the considerable variety of different national discourses (see, *e.g.*, Nickum, 1993).

b. Range of actors. Yet this also raises a telling point. In the analytic framework, a broad range of actors was suggested as having a potential role to play in agenda setting and implementation. These include “bureaucrats, politicians, scientists, the media, industries, local governments, and non-governmental actors.” In this narrative, the actors are the national (“state”) government, the large corporate (“private”) sector, and a very constrained but sometimes innovative local government. One wonders if they are the only ones allowed to play the environmental governance game in Japan. The Environment Agency is presented as emblematic of the national government. Occasionally other ministries are mentioned, but for the most part the national government remains a largely unbundled entity. The Ministry of Construction, which handles the biggest ticket item in the nation’s environmental budget, sewers, and which has embraced any environmental idea that can be embodied in a public works project, is mentioned briefly, as recently “stepping into the fray”. The Ministry of Agriculture, Fisheries and Forestry is seen primarily through the Forestry Agency, and there only in the context of national parks. Despite the focus on the corporate sector, MITI shows up in this narrative primarily at COP3 to “favor an energy related approach” as opposed to the Environment Agency’s “more comprehensive measures,” with little additional explanation as to how these positions differ. The Ministry of Transportation, Ministry of Health and Welfare, and Ministry of Finance, all crucial Kasumigaseki actors in national environmental governance, especially in the current era of lifestyle-generated environmental problems, do not show up at all.

c. Where are the people? More important than the omission of a ministry or two, however, is the very limited attention given to the other actors mentioned above, especially politicians, scientists, the media, and (somewhat) non-governmental actors. In addition, the citizenry, or civil society, are present only in a very passive sense: as urbanites, they have lost their traditional connection with nature; when they are pollution victims, they receive compensation; when they own land, they make it difficult to implement laws to protect ecosystems; they volunteer as nature guides; they are not aware of the need to conserve tropical forests; they have problems taking action to improve the environment because they have little information and few options. Despite the reference at the end to Jeff Broadbent’s 1998 study of citizen activism in Oita Prefecture, there is little evidence of citizen agency in this narrative—none of the 1970s citizen politics analyzed by Margaret McKean (1981), nothing of the successful anti-phosphorus detergent movement in Shiga Prefecture in the late 1970s, nothing of the clamor over golf courses of the 1980s, nothing of the current NIMBY movements against sitings of real or perceived hazardous facilities. Is there really no civil society in Japan, as some claim, or is it somehow overlooked in this overview?

d. Mechanisms of governance. Another gap, admittedly one that is hard to fill but that lies at the core of the nature of environmental (or any other) governance,

is a sense of how things work (and don't work). There are many problems that could surface on an environmental agenda. Why do certain ones get there and others do not? How are formal mechanisms such as laws, regulations, subsidies and standards banged into place by cooperating and conflicting interests in the political and administrative systems? What really happens at the grassroots level, and what are the actual motives and power positions of important actors? Does culture matter? Is the law a set of general principles for administrators to use in setting top-down regulations, or does it provide a vehicle for challenging bureaucratic decision-making, and if so, who holds the rights to make such a challenge? Does the law provide a "shadow" for private contracting, does it inhibit it, does it matter at all? What does street-level regulation, which Prof. Kitamura (1997) has investigated in Japan, look like in practice?

e. Why national parks? National park management by itself is clearly an administrative way of constructing an environmental problem, and reflects the organizational structure of the Environment Agency. But what is the environmental purpose of national parks? National parks may serve to preserve ecosystems, species and scenery from mutilation and destruction that accompanies relatively unrestricted development. But are they the best way to serve those purposes? Is deforestation more serious in national parks than in the rest of the country?

8. Reaching the Limits

I will stop here, even though I feel I have not done full justice to the topic or to Prof. Kato's multifaceted but of necessity all too brief paper. I hope I have pointed to some areas that could be usefully expanded upon.

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Environmental Governance in Thailand

Somrudee Nicro and Christine Apikul

1. Introduction to Environmental Protection in Thailand

1.1 The History of Development Planning and Environmental Protection

Modern day development planning in Thailand dated back to the 1961 when the first economic and social national plan was promulgated. Although Thailand has never been colonized, it has adopted the practice of five-year plans, widely implemented by newly independent countries, since the post-war period. Until now, Thailand has experienced 7 five-year plans and is now implementing its Eighth National Plan (1997-2001).

Two processes characterise the development in Thailand throughout these national plans: industrialisation and urbanisation. Three main features of these processes can be identified. Firstly, throughout these decades, Thailand had correlated development with economic growth. Secondly, it had chosen industrialisation as the pivotal means for achieving economic growth. Thirdly, the planning process is top-down in its nature. The National Economic and Social Development Board (NESDB) was set up precisely to prepare the five-year plans.

The development planning process of Thailand, like other developing countries, is greatly influenced by the World Bank. As mentioned previously, Thailand has generally followed a top-down command-and-control approach, based on 'blueprint' plans in which economic growth is the predominant focus. However, in the past two or three decades, it is becoming increasingly clear to the world community and to Thailand that the economic growth-led economy has not eradicated poverty, but instead has increased inequalities between the rich and the poor; depleted natural resources; degraded the environment; promoted political unrest; and encouraged alienation and a loss of a sense of identity.

Visible environmental harm coupled with political pressure from social constituencies, experienced in most parts of the developing world, has triggered a paradigm shift with a new focus on sustainable development. The United Nations Stockholm (1972) and the Rio Environment Conferences (1992) are two international arenas where this new paradigm was manifested (Sandbrook, 1992). The Agenda 21 agreed upon by 157 United Nations member states, including Thailand, at the Rio Conference calls for these countries to help protect planet earth and make it sustainable for peoples of the next generations by the new millennium. Importantly, it should be noted that the Rio Conference has, at least in principle, lifted the status of the environment to that of development.

During the late 1970s, Thailand gradually recognised that its natural resources were at risk. Together with growing international pressure to solve the world's environmental problems, Thailand first showed a commitment to environmental protection in its 4th National Plan (1977-1981), after Thailand's participation at the Stockholm Conference. However, the Plan's priority was aimed at rehabilitating the economy, particularly since 1970s was a period of world recession.

Since the late 1980s and early 1990s, there has been a renewed interest and concern with environmental issues. Increasing enthusiasm to meet environmental challenges in Thailand has clearly been reflected and reinforced in the 7th and 8th National Plan which recognise environmental non-governmental organisations as important actors in environmental protection and has initiated the adoption of a bottom-up approach, focusing on the concept of "decentralisation".

Other equally important developments with respect to the environment include: the 1991 and 1994 Constitutions of the Kingdom of Thailand; and the enactment of the 1992 Enhancement and Conservation of National Environment Quality Act (hereafter the 1992 Environment Act), repealing the previous versions of the 1975, 1978 and 1979 Environment Acts, with the intent of improving the effectiveness of the enforcement of environmental law.

1.2 Environmental Legislation

The basis for environmental law in Thailand is found in the Constitution of the Kingdom of Thailand B.E. 2534 (1991). Article 74 states that "the State shall conserve the environment, balance the use of natural resources and their replacement, eliminate and prevent pollution, and plan for the use of land and water" (Baker & McKenzie, 1993). Based on the stated fundamental framework, the 1992 Environment Act was enacted.

Together with this Act, other environment-related laws were also amended or enacted in 1992, namely, the new Factory Act, the Hazardous Substances Act, the Energy Conservation Promotion Act, the new Public Health Act and the revised Cleanliness and Orderliness of the Country Act. In all, there is a total of approximately 70 to 80 regulations that are directly and indirectly related to environmental matters (TEI, 1997a).

The most significant and comprehensive is the 1992 Environment Act. New features that are different from the previous Environment Acts include (TEI, 1995: 1-2):

- Empowering the National Environment Board (NEB) to make decisions regarding national environmental issues, such as, the prescription of

environmental quality standards and sanctions.

The NEB was originally created under the 1975 legislation, but whose authority was limited to an advisory one. In this new framework, the NEB is a ministerial-level Board chaired by the Prime Minister with the Permanent Secretary of the Ministry of Science, Technology and Environment (MOSTE) as secretary to the NEB (TEI, 1997a).

- Restructuring the governmental offices in charge of environmental protection by replacing the Office of the National Environment Board (ONEB) with the Office of Environmental Policy and Planning (OEPP), the Pollution Control Department (PCD) and the Department of Environmental Quality Promotion (DEQP). MOSTE delegates each department with specific responsibilities and functions.
- Delegating the environmental protection authority from the above three departments on the national level to the provincial level.
- Designating certain areas to become Environmental Protection Zones (EPZ) and/or Pollution Controlled Zones (PCZ).
- Requiring the provinces with EPZ to submit an Action Plan for Provincial Environment Protection. Other provinces may also submit an Action Plan if they so desire.
- Establishing an Environmental Fund chaired by the Permanent Secretary of MOSTE.
- Increasing the type of projects or activities requiring an Environmental Impact Assessment (EIA) (Nicro, *et. al.*, 1997).
- Recognising the importance of public participation. Section six of the 1992 Environment Act stated that individual persons have the rights and duties to:

“...petition or lodge a complaint against the violator, where the petitioner is a witness to any act committed in violation or infringement of the laws relating to pollution control or conservation of natural resources.

To cooperate and assist government officials in the performance of duties relating to the enhancement and conservation of environmental quality.” (The 1992 Environment Act, 1992)

1.3 The Process of Institutionalising Environmental Protection

Increased public interest on environmental issues and the environmental movement led by civil society in Thailand emerged in the late 1970s, partly

following the environmental movement in the 'industrialised' countries and the 1972 Stockholm Conference, and partly as an interrelated political movement for democracy, calling for changes in the overall ruling system.

In consequences, the environmental movement in the 1970s and 1980s was about "the people versus the bureaucratic/military power elite". The scandal around April 1973 involved military using publicly-owned guns and helicopters for illegal poaching in Thung Yai Naresuwan Wildlife Sanctuary, an area protected under the Wildlife Conservation Law.

This and other similar incidents - the campaign against the Union Carbide-dominated Thailand Exploration and Mining Corporation (TEMCO) from 1974-1975; and against construction of Nam Choan Dam that lasted from 1982 to 1988 - were initiated by students and non-governmental organisations fighting against authoritarian rule, by using the environment as a discourse to highlight abuses of power by government officials to build popular support.

At around the same time, there were also isolated cases of community grassroots organisations directly affected by environmental degradation, contributing to the environmental movement. Disputes are often either over the rights to utilise and manage natural resources, such as the campaigns to oppose corporate deforestation, or over the degradation of the rural environment which community groups depend on in their daily livelihood, such as large dam construction, logging, eucalyptus planting, mining, industrial and tourist developments.

However, negotiations between civil society and the government were extremely tense, and in some instances, leaders of the environmental movement were severely punished or even killed. Monk Phracak, who fought against the planting of the fast-growing eucalyptuses, had to face numerous threats. He was later arrested and deprived of his priestly rank.

Many authors such as Funatsu (1997) observed significant changes with the government's standpoint on environmental issues in the 1990s, partly in response to increasingly organised activism around environmental issues. The international calls for a turnabout in the attitude toward environmental problems, particularly from the United Nations 1992 Rio Summit, cannot be neglected as key external factors that catalysed this change. In fact, Thailand has seen rapid improvements in legislative and other institutional changes related to environmental protection at the government's initiative in the first half of the 1990s.

In particular, the first and second cabinets of Prime Minister Anand Panyarachun in 1991-1992 took a series of steps, such as the revision of the 1979 Environment Act and subsequent changes that empower environmental institutional and administrative structures, in line with the new environmental law, as described above. These developments can be seen to represent the government's domestic

responses to environmental problems that were becoming increasingly serious as a result of unsustainable economic development.

The Thai environmental movements were helped by the global environmental movements since the 1970s. Global linkages provided both a framework to challenge mainstream development processes and some financial resources for Thailand's new environmental organisations to tackle the country's environmental deterioration.

At the national level, the Thai monarchy is a key factor in prompting Thailand's commitment to environmental protection. Royal projects have had an environmental profile for some time, particularly King Bhumibol Adulyadej's highland development projects among highland ethnic minorities. An important speech delivered by the King on the 4th of December 1989, one day prior to his birthday, was in reference to November 1988's massive floods and landslides in Southern Thailand that left more than 700 people dead or missing. King Bhumibol declared the need for the whole nation to embark on a campaign to afforest and protect nature in order to prevent natural disasters.

Beginning the following year, the government designated the 4th of December as "National Environment Day," and it became an established custom to plant large numbers of trees on national holidays or commemorative ceremonies across the nation for the purpose of preserving forests.

With the Royal Family and the government, the two highest national authorities in Thailand, playing a part in the campaigns for environmental deterioration, in collaboration with the mass media, environmental problems in the 1990s transcended the confrontational concept of "government versus people" and turned into part of the national objectives in which people are expected to help each other in achieving. At the same time, the support base for environmental movements became broader, creating room for the participation of major corporations and a wide spectrum of urban residents.

Up until the 1980s, business and environmentalists were more often assumed structurally and strategically to be on opposite sides of the major environmental debates rather than in alliance. This was true globally and was reflected in Thailand in some of the early struggles, such as the TEMCO issue. More recently, business has been keen to, at least, be regarded as a partner in caring for the environment. Global initiatives such as the Business Council on Sustainable Development, which played an important role at the 1992 Rio Summit have been mirrored in Thailand (Hirsch, 1994). Thailand Environment Institute, a non-profit organization whose council of Trustee is chaired by former Prime Minister Anand Panyarachun, has initiated Thailand Business Council on Sustainable Development.

Recently, at the national level, a number of prominent business groups and

individuals have taken up environmentalists stands in one form or another. Among the best known and most widely respected as committed to making industrial practice compatible with sustainable environmental initiatives is Sophon Suphaphong, President of Bangchak Petroleum who was recently presented the Ramon Magsaysay Award.

Bangchak Petroleum is a key organiser of the 1994 Forum for Annual Reporting on the Environment (FARE), a collaboration of environmental NGOs nationwide. Mr. Sophon is widely known in Thailand as a public advocate for rural community development, democracy and self-sufficiency. According to an account on Mr. Sophon, “the key to building a self-sufficient economy lies in the partnership between business enterprises and communities whereby the business partner provides ‘an immunity’ for, and does not take advantage of, its community partner” (Bangkok Post, 27 July 1998).

It is based on this philosophy that Bangchak Petroleum manages its retail oil business. Community organisations and cooperatives have become Bangchak’s partners. They owned the company’s first 10 petrol stations and now run half of more than 1,000 Bangchak stations.

Other examples include Magic Eyes, an environmental organisation sponsored by the Sophonpanit conglomerate in 1984, famous for their anti-litter campaign, among others; and Think Earth, an environmental organisation founded by Pornthep Pornrapha, the President of Siam Motors.

As a result of the rapid industrialisation and urbanisation processes in Thailand, in recent years, there is a growing divide between rural and urban environmental problems. Massive in-migration from rural to urban areas and poor urban development planning have contributed to the cities’ high levels of water, air and waste pollution from both industrial and domestic sources. They are of priority concerns because of their tangible effects felt by residents of towns and cities. In the rural areas, natural resources reduction, shortage of farm land and deforestation are main areas of concern. These problems can be regarded as the origins of other complications in Thailand, but they are often considered secondary to urban difficulties (Pradubraj & Nicro, 1997).

With respect to Thailand’s attitudes towards regional and global environmental risks, the 1990s has seen an increased commitment by the Thai government, particularly in response to the 1992 Rio Summit which calls for global cooperation in protecting the environment. At the conference, Thailand signed a commitment to the United Nations Framework Convention on Climate Change (UNFCCC). To implement the agreement, the National Sub-Committee on Climate Change was established to coordinate research and policy strategies under the umbrella of the NEB. The committee also serves as a monitoring body to ensure that

institutional agencies follow the government's commitment to the Framework Convention.

2. Contextual Overview of Thailand

To place the challenges for effective environmental governance into context, it is helpful to understand the current economic and social situations in Thailand, particularly in the context of the Asian financial crisis.

2.1 Economic

For the past decade or so, since 1985, the economic miracle of the "Asian tigers" has been repeatedly hailed as a model for developing countries. Between 1985 and 1995, according to the World Bank, real average annual growth of Gross Domestic Product (GDP) for Thailand was 8.4 per cent (World Bank, 1997). However, in Thailand's rush to become a newly-industrializing economy, Thailand has aggressively pursued economic growth at the expense of cultural, environmental, political and social development.

In July 1997, Thailand witnessed a financial collapse with severe implications for Thailand's economic and social situations. The average annual GDP growth rate of Thailand is currently estimated at -0.4 per cent (Asiaweek, 21 Aug 98). The Gross National Product (GNP) per capita dropped from US\$2,740 in 1995 to US\$2,450 in 1998 (Asiaweek, 21 Aug 98). This can be compared with the United States with an average annual GDP growth rate of 1.4 per cent and per capita GNP of US\$29,950 (Asiaweek, 21 Aug 98) up from US\$26,980 in 1995 (World Bank, 1997).

2.2 Social

Thailand covers an area of 0.5 million square kilometres (about the size of France) and has a population of more than 60 million with an annual population growth rate of 0.9 per cent between 1990 and 1995 (World Bank, 1997). About 20 per cent of Thailand's population live in urban areas and the urban growth rate between 1980 and 1995 is estimated at 2.6 per cent per annum (World Bank, 1997). According to the World Bank (1997), in 1990, 64 per cent of Thailand's labour force work in the agricultural sector and 14 per cent in the industrial sector.

As Thailand strove for rapid economic growth, investments and subsidies were geared towards the urban industry and services; while the rural and agricultural sector of which the majority of the population were in was neglected. The income gap between the top ten per cent (mostly urban) and the bottom ten per cent (all rural) widened from 17 times in 1981 to 38 times in 1994. Half of all income gained during the economic boom period went to this top urban ten per cent (Ikemoto, 1994 cited in Phongpaichit & Baker, 1998: 285).

During this time of financial turmoil, a survey conducted by the National Statistics Office in May 1998 revealed that 1.6 million Thais were without jobs. The unemployment rate rose from 4.6 per cent in February to 5 per cent in May 1998 (Bangkok Post, 19 Aug 98).

With respect to consumption levels in Thailand, 1994 per capita electricity consumption levels is at 1,294 kilowatt-hours (compared with 12,711 kilowatt-hours in the United States) (UNDP, 1997). Although by world standards, Thailand is still a low per capita energy consumer, it is by far the dominant consumer in South East Asia, with per capita energy consumption in 1994 seven and twenty times that of Vietnam and Lao PDR (UNDP, 1997b). UNDP's Human Development Report (1997) also highlights the following consumption levels:

- * 1992 daily calorie intake per capita: 2,443
- * 1994 daily newspaper available per 100 people: 5
- * 1994 figure for the number of televisions available per 100 people: 25

2.3 The Asian Financial Crisis

The 1997-8 Asian financial crisis has generated numerous discussion and analysis on its causes, impacts and solutions. Like other points in history when certain approaches and issues rise to popularity in our attention cycles and our agendas, there is a convergence of ideas occurring in the context of the Asian financial crisis. Many mainstream economists and international market analysts pointed the cause of the problem directly at the individual country's poor governance.

"Although the causes of the crisis are varied and complex, many of the problems that lie at the heart of Asia's difficulties are bound up with poor governance."
(IMF, 1998: 3)

Many economists claim that the Asian crisis has demonstrated the effects of poor governance. A closed government-business relationship infested with corruption, particularly in the granting of privileges to friends and families; the lack of open channels of communications between stakeholders, therefore, undermining transparency about the economic and financial conditions; and the lack of accountable procedures and responsibilities in the decision-making process - all are believed to have contributed to market uncertainty and triggered large capital outflows that threatened macroeconomics stability (Bello, 1998; The Nation, 4 July 98; Saludo & Shameen, 1998; UNDP, 1997a; World Bank, 1997).

Thus, solutions are based on structural reform that encompasses good governance which includes, eliminating corruption, providing transparency and increasing accountability. These are promoted as necessary to bring back foreign investors and stabilise the economy (IMF, 1997).

The mainstream argument for the cause of the crisis echoes the views of the modernisation theory by implying that the crisis-ridden economies are corrupt, lax and backward in the way the economy and government is run. This justifies economic and political reform, suggested by the International Monetary Fund (IMF), as necessary for Asian countries to return on the path towards a capitalist ideal of development, particularly in the context of a globalised economy.

In their rides out of the economic crisis some Asian countries, including Thailand, seem to believe that they have no choice but to listen to, and be convinced by the international consensus on the importance of good governance which has become a precondition to the IMF bail-out package (Kulawat, 1997; *The Nation*, 27 May 98).

However, one year after the crisis hit Asia, the economy has fallen into recession, while environment problems, unemployment and political unrest persist and in some cases worsened. The impacts of the drought, riots and rising unemployment rates in crisis-ridden countries demonstrate clear evidence of the worsening situation. This has led many to question the reform based on good governance imposed by the IMF programme and rethink the Western ideal of growth and progress by having to adjust itself to the demands of the globalising world (Phongpaichit & Baker, 1998).

Academics in some countries, including Thailand, and critics of the IMF bail-out package, directed the cause of the crisis on the strong forces of globalisation that individual countries were incapable of controlling, such as capital flows. Moreover, some believe that one major result of the crisis is that Asia will be more open to the outside world. The financial sector, and a large part of big businesses are already sold, or on auction block. Following this trait of thought, it is concluded that transnational companies will make decisions beyond the control of national governments and it will be up to each community to safeguard its interests (*The Nation*, 22 May 98).

A number of civil society groups in Thailand, have been advocating self-reliance by “turning inwards” to rediscover the country’s special inheritance of culture and natural resources, and find the course of development that suits the individual locality and country (on the revival of Thailand’s rural sector in the name of self-reliance, see for example, *The Nation*, 16 July 98). However, the concept of “self-reliance”, like good governance, is not new but has merely been revitalised as a result of the Asian financial crisis.

3. Current state of Environmental Governance Mechanisms

This section explores the basic structure of the cultural and political system of Thailand as it pertains to environmental governance.

3.1 Governance Culture

Kindliness, sharing and peaceful togetherness are attitudes which are reflected in traditional Thai social behaviour. Until recently, the use of natural resources was seen as every person's right as long as resources were treated with respect. This attitude is changing with the infiltration of a range of ideas and materialistic lifestyles, with the result that an attitude of 'get what you can before someone else gets it' is slowly beginning to take hold in the realm of natural resources utilisation.

Thai people have been ruled by a distinguished elite group for centuries. With abundant resources and a large land base, the country easily accommodated the small population, hence, the ruling system was more lenient when it came to controlling agricultural areas, contrasting with feudal Europe. Local people had the right to manage their resources without governmental interference for a long time.

This resource autonomy led to the development of what might be termed "local wisdom." This knowledge is derived from daily experience which has been passed from generation to generation as a cultural heritage. Early Thais believed that life was part of nature, and that nature can reward or punish humans for improper behaviour. Some rural communities still respect this concept and live by it; for instance, they pay honour to the river before consuming its water and to the tree before cutting it for lumber.

In a globalising world, Western concepts such as government, economics and natural resources management have been adopted by the Thai government. In 1896, the Department of Royal Forestry was established and applied the concept that all forests in the country belonged to the government. Accordingly, in 1940, the government implemented the National Forest Act, which stated that all forests in the country belonged to the government. Anyone who wished to cut down trees must first obtain a government concession license. People were charged if they cut down a tree without a permit. The conflict in utilising natural resources is believed to have changed Thai attitudes from their practice of 'moral naturalism' to 'capitalism', leading to the abandonment of the traditional Thai lifestyle.

As a result of the concept that all natural resources belong to the government, natural resources management depends by and large on government decisions and policies. Distribution of resources in the form of concessions directly benefits private companies, while the government receives benefits in the form of taxes and concession fees. This management system has led to the rapid degradation and destruction of natural resources.

Government agencies and national budgets have become overwhelmed with the need to address a rapidly deteriorating resource base. Water is heavily

polluted from organic and factory wastes. Fisheries are badly in need of access and recovery management plans. Cities are seriously polluted from vehicle emissions and traffic dust.

In the present environmental administration, the government has long been criticised over its inability to control and prevent the depletion of the environment. The structural and functional overlaps among associated agencies; poor coordination and inefficient management are the main explanations for worsening circumstances.

One encouraging move by the government has been the passing of the 1992 Environment Act, which provides for environmental quality standards and establishes national authority to designate conservation and pollution control areas.

3.2 Government Structure

As a revision of the 1979 Environment Act, the 1992 Environment Act released one of the most meaningful outputs. There were three brand-new governmental departments, launched to replace the Office of the National Environment Board, previously a central body overseeing environmental affairs. The followings are their specific responsibilities and functions:

- The Office for Environment Policy and Planning (OEPP) was established to designate policies and plans for environmental control at the local level, and to ensure the Environment Fund and the process of Environmental Impact Assessment (EIA) Report. The OEPP also has the authority to set up regional offices in order to coordinate regional activities.
- The Pollution Control Department (PCD) is in charge of recommending standards and developing measurements concerning environmental control. In addition, it is empowered to investigate complaints of pollution.
- The Department of Environment Quality Promotion (DEQP) is responsible for disseminating information, raising public awareness, forging private sector and NGOs alliances as well as conducting training courses and research.

As evident, the government depends greatly on a command-and-control approach to administer its task. Despite the delegation of environmental authority from the above three departments on the national level to the provincial level, many policies remain top-down. The objectives of controlling and monitoring polluters are clearly seen in Articles 59 and 60 of the 1992 Environment Act. Within a Pollution Control Zone, environmental quality standards and pollution control measurements are set up to improve the state of the environment, implemented at the provincial level.

The accustomed governance structure for environmental management in Thailand is one in which powers and responsibilities are divided among a number of ministries and departments at the level of the central government, while lower levels of government have traditionally had rather limited powers. Despite the government's emphasis on an environmental legislation, the implementation of environmental law has proved to be more difficult.

Although much progress has been made since then, the departments are just newly-emerged organisations which need more experiences to succeed in their goals. Moreover, accompanying reorganisation of the national environmental management bureaucracy, the problems of multiple centers of responsibility and overlapping jurisdictions have not been adequately resolved (Phantumvanit, *et. al.*, 1994).

3.3 Public Participation

The recent Thailand's Eight National Economic and Social Development Plan (1997-2001) (hereafter, the Eighth National Plan) is the first national plan that calls for the participation of people in the decision-making process at the sub-district, district and provincial levels in Thailand. Recently, in June 1998, experts and members of the working group of the Eighth National Plan met to discuss ways of strengthening local communities as a way to resolve Thailand's economic crisis (The Nation, 6 February 98). The participation of civil society organizations (CSOs) is increasingly being recognised as crucial to the "balance of power" and the "strengthening of democracy", especially by holding the government and business sectors accountable (The Nation, 18 January 98).

The 1992 Environment Act recognises certain legal rights and duties of Thai citizens in relation to the protection of the environment. Such rights and duties are as follows (Section 6, 1992 Environment Act):

- Right to information on the environment
- Right to claim compensation from the state for damages resulting from pollution from state projects
- Right to make a complaint against polluters
- Duty to cooperate with environmental protection authorities
- Duty to comply with environmental laws and regulations

The 1992 Environment Act also allows non-governmental organisations (NGOs), Thai or foreign, that are directly engaged in environmental protection activities to register as an "Environmental NGO" (Section 7, 1992 Environment Act).

The DEQP is the registrar of the NGOs working in natural resources and

environmental conservation. At present, there are approximately 197 environment-related NGOs, but only 93 are registered with MOSTE. Registered NGOs are eligible to apply for financial support for development activities from the Environment Fund (MOSTE, 1997).

3.4 Civil Society

Civil society, through bottom-up lobbying, has been the motivator in putting environment on the development agenda. According to Prapat Pintopteng, lecturer at Kroek University, the number of protest demonstrations across the country reached 739 in 1993 and 754 in 1994, and the frequency is apparently on the rise. Nearly 40 per cent of these movements were triggered by such environment-related issues as resource management, garbage disposal or large-scale public works projects (Funatsu, 1997).

The civil society movement, in response to the persisting dissatisfaction of government's development planning; together with government's realisation that the current development model is unsustainable, has led to a shift in the development discourse. Development with a human face or sustainable human development has become the new international agenda around the early 1990s, acknowledging the values of people's rights and democracy.

At the policy level, governance has evolved until the present time to also incorporate the ideas of human rights and democracy. By placing people at the centre of development efforts, 'participation' is increasingly recognized by the international donor community and national governments as being crucial to good governance (Badshah, 1998).

Consequently, civil society has also adapted the term "governance" as entry strategies in their lobbying and action-taking, albeit from a different perspective, focusing on community empowerment and the right to civil society participation in the decision-making processes. In turn, this process is eased, to some extent, by support from mainstream development agencies and their collaboration with CSOs in development projects and programmes.

In Asia, the capitalist quest and neo-liberal economics may have overwhelmed civic virtues during the 1970s and 1980s; but, the financial turbulence seems to provide a catalyst for a re-emergence of the importance of civic virtue and self-reliance in some countries, including Thailand.

Participation in good governance is perceived as necessary to control corruption and mismanagement.

Coordination and interaction between NGOs and the Thai government have been established through official and unofficial channels. The National Council of Social Welfare of Thailand was set up as early as the 1960s to coordinate

development efforts of NGOs and the government sector. In the 1980s, a national level NGO-Coordinating Committee on Rural Development and NGO networks in different regions were formed to improve communications and coordination among NGOs and government agencies on rural matters (MOSTE, 1997).

In Thailand, NGOs have acted as a mobilising force for public and local community awareness and action at the grassroots level. Nationally, they have succeeded in influencing planning and policy implementation due to their specialised capabilities.

Public awareness of Thailand's environmental state has increased partly as a result of the media. The media has extensively cooperated with the NGOs in almost every environmental and developmental issue, to ensure that they reach the political agenda. Wide media coverage on environmental issues have created a huge impact on society, gaining official responses, the cooperation of associated sectors, as well as, public concern (Pradubraj & Nicro, 1997).

The frequency of environmental disputes has caused the government to gradually change its attitude toward local people's protest movements. In recent years, there have been some cases of protesters actually achieved changes to their favour. In 1988, the construction of Nam Choan Dam was suspended; in 1995, local communities received damage compensation after the construction of Pakmum Dam; and also in 1995, plan to build a garbage-burning electric power generation plant in Hangdong was withdrawn. These events received wide media coverage which may have encouraged greater number of disputes over environmental issues (Funatsu, 1997).

Environmental issues, written complaints and actions by individuals, organisations and the media can be institutionalised through the National Environment Board (NEB) or the Parliamentary Sub-Committee on the Environment. These actions can influence the NEB who are empowered to prescribe national environment policy and plan.

3.5 Governance Mechanisms

A 20-year Environmental Quality Promotion Policy has been approved in 1997, under which a 5-year Environmental Quality Promotion Action Plan is prepared to achieve the policy targets. At the provincial level, areas designated as Environmental Protection Zones (EPZs) or Pollution Control Zones (PCZs) are required to formulate and implement an annual Provincial Environmental Action Plan.

The new Environmental Quality Promotion Policy forms the core basis for the government to consider natural resources management and environmental protection issues in coordination with economic and social development policy. The policy has the following key targets (MOSTE, 1997: 35):

- To prevent further deterioration and to accelerate rehabilitation of degraded natural resources, to serve as the basic resources for the sustainable development in the future;
- To coordinate use of and reduce conflicts over natural resources, to minimise the impacts of resource use, ensure overall balance of the ecosystem; and
- To support the participation of all related parties, including local organisations, NGOs and the public at large, in natural resource management and administration for their sustainable use.

To achieve the above targets, the 5-year Environmental Quality Promotion Action Plan is implemented in parallel with the 5-year National Economic and Social Development Plan.

Government sector's environmental programmes are implemented by sectoral ministries in coordination with the NEB. To ensure that the programmes and projects implemented by both governmental and non-governmental agencies comply with the environmental policies and laws, a number of mechanisms are used. The most commonly used tool is the establishment of standards and sanctions. Other mechanisms that are being experimented with include the use of environmental impact assessment (EIA) as a part of project planning; the adoption of economic instruments based on the "polluter pays principle"; and the development of appropriate social and environmental development indicators at different levels to monitor progress towards sustainable development of the country.

However, many of these mechanisms imitate those advocated by international agencies such as the World Bank and the United Nations. They are often based on existing tools from "developed" countries with little regard of the differing cultural, economic, environmental, political and social contexts. Thailand is, more often than not, faced with non-implementation of environmental policy and programmes. This is because environmental organisations in Thailand generally lack power and resources to implement environmental programmes and to audit the environmental performance of sectoral institutions.

For example, the introduction of market-based instruments such as the polluter-pays-principle (PPP) in Thailand, as reflected in the Seventh and Eighth National Plan and the 1992 Environment Act, ideally, provides incentives which will encourage enterprises to adopt production processes and consumers to buy goods which cause less environmental damage. However, although at present, PPP has been accepted in government environment policy, there is as of yet no comprehensive system of pollution charges nor incentives for firms to reduce their pollution.

4. Case Studies

4.1.1 Water Pollution

The state of water quality in all major rivers of Thailand has been deteriorating for many years. In 1995, the measurements of water quality on the major rivers, namely, the Chao Phraya, Tha Chine, Mae Klong, Bangpakong and other rivers were below acceptable standards (MOSTE, 1996). The Chao Phraya River is Thailand's principal river, draining a large part of the Central Plain - the rice bowl of the Kingdom - and running through the heart of Bangkok and other densely populated adjacent provinces.

Both organic degradables and toxic substances pose serious pollution problems. Water quality in the Chao Phraya has been monitored for organic degradables by the ONEB since 1980 and for several heavy metals (cadmium, lead and mercury) since 1983. Data from early 1980s shows that low dissolved oxygen (DO) levels were already a problem in the lower Chao Phraya (0-100km. from the river mouth), especially during low flow months. DO levels fluctuate between 0.2 to 0.8 milligrams per litre (Tapvong, 1995). The situation has deteriorated markedly since then. As of 1990, for a 20km. stretch in the lower course of the Chao Phraya River, bathing/recreational values have vanished. In addition, high pollution loads are damaging nearshore coastal fisheries in the Upper Gulf of Thailand (Phantumvanit, *et. al.*, 1994).

Toxic waste pollution is also an increasingly serious problem in the Chao Phraya and in the Gulf area around the river mouth. The industrial development and changes in the types of industries have led to increasing production of toxic waste. At the end of the 1970s, less than 12 thousand factories generated toxic and hazardous wastes. By the end of the 1980s, this figure grew to more than 31 thousand establishments (MOSTE, 1997).

Thailand has imported a large quantity of organic and inorganic chemicals each year, mainly for spinning and dyeing factories, electroplating and metal industries as well as for pest control. Moreover, the shift in agriculture during the 1970s and the 1980s to commercial crop production has been followed by increased use of machinery and chemical fertilisers and pesticides. They are all major contributors to river pollution.

Toxic substances in the Chao Phraya pose two major health risks widely publicised in the media: first, as they enter the tap water supply in certain communities (*e.g.* in Pathum Thani) and, second, as they accumulate in coastal sediments where they can enter the aquatic food chain. Ultimately, they pose a serious threat to human health.

Many sections of the Tha Chine, Mae Klong and Bangpakong Rivers have also suffered from poor water quality, with pollution reaching critical levels

particularly during the dry season. Much of the water is only fit for transportation (class 5) and industrial use (class 4), being too polluted to serve agriculture, household or fisheries and animal conservation purposes (MOSTE, 1995).

The Thailand country report to the United Nations Conference on Environment and Development (UNCED) (Royal Thai Government, 1992) summarised that the major sources of pollution in Bangkok (measured in terms of total biochemical oxygen demand (BOD)), and their relative contributions are: domestic waste (40 per cent), business services (32 per cent) and industry (25 per cent).

The combination of rapid economic growth and inefficiency in the provision of public services has resulted in inefficient public drainage and waste treatment systems. Open waters have become sewers for domestic and industrial waste. The rapid and dispersed establishment of factories in Thailand has made the control of effluents a formidable task, thus, contributing to increasing water pollution of the major rivers in Thailand.

Out of the 100 municipalities and 60 sanitary districts recently surveyed in Thailand (excluding Bangkok and pollution control zones) only 12 are served with wastewater collection and treatment facilities, five of which are deemed inadequate to meet current needs (Kruger Consult, 1996).

In the Eighth National Plan and the 1992 Environment Act, there is a clear commitment to improving water quality standards, establishing wastewater treatment facilities in cooperation with the private sector, and promoting the waste minimisation concept and clean technology. The preparation of a new and more comprehensive Water Resource Law is also under process.

There are environmental quality standards for drinking water, effluent, coastal water and surface water. Effluent standards exist for industrial effluent, discharge into deep wells, domestic effluent, building effluent and for waste dumping into water courses.

Although factories, industrial estates and large commercial buildings, hotels, restaurants and large condominium projects are required by law to treat their wastes, most continue to release waste directly into receiving waters. Apparently, the annual cost of operating the system exceeds the annual capital costs of purchasing the equipment, so while most factories and industries comply to regulations to install treatment systems, many do not actually use them, discharging untreated or barely treated wastewater and increasing BOD loads to already overburdened surface waters (Kruger Consult, 1996).

According to the sea water quality measurement, MOSTE (1996) states that the quality of sea water along the west coast of the Gulf of Thailand, and the Andaman Sea has generally been in a fair condition, except in large communities, industries and sea ports, where the sea water quality is lower than the standard

level. These areas include the coastal zone and seashore from Chon Buri province to Rayong province.

Marine fishery resource has been deteriorating in Thai waters area due both to the high rate of fishery, exceeding the renewability of marine life; and the pollution from the fishing vessels themselves and from factories, the tourism industry and residents along the coast.

Oil spill is one of the major concerns in marine pollution. Since 1995, there have been 7 oil spills along the Chon Buri and Rayong coastal stretch (MOSTE, 1996). In reaction to these oil spills, the government has formulated two action plans. They include the 1995 action plan for preventing and combating of water pollution caused by oil, and the 1995 action plan for the protection and remediation by oil pollution.

Most fishery resources are mobile and are not visible except upon capture. The consequence has been that fishery resources have been regarded as common property. The common property characteristics of fishery resources have led to over-exploitation of the resources. The United Nations Third Conference on the Law of the Sea attempted to mitigate this common property problem by enabling coastal states to establish Exclusive Economic Zones (EEZs). However, the ambiguity of the international laws have caused conflict of water area intrusion.

With respect to marine pollution control, Thailand has recently completed the assessment of the establishment of pollution control at its sea port and ratified the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal. Considerations are also given to ratify the International Convention on the Prevention of Pollution from Ships to identify criteria and measures for controlling pollution from ships and marine vessels.

4.1.2 Water Pollution Agenda Setting

Water pollution usually emerges on the political agenda when the effects of river and sea contamination are severe and clearly evident, with serious implications on human health. Generally, it has been expected that government authorities would set standards on water quality and monitor the state of the environment. However, the recent deterioration of river and marine sources have led many to question how well these laws are actually observed and to what degree local environments are monitored.

The media is probably the major actor in placing water pollution issues on the political agenda. Water pollution where particular industries can be pinpointed as the culprit is frequently publicised in the media. More recently, there are increasing cases where local community groups have voiced their concern about the deterioration of their standard of living as a result of river and marine pollution. In May 1993, when the Phoenix Pulp and Paper factory was accused

by the nearby villagers of polluting Nampong River by discharging effluent that was not adequately treated, it was widely publicised in the media.

According to Prapertchob (1997), the river has experienced intermittent bouts of pollution, strong odours and death of river fish since the 1980s. However, the problems have been sporadic and have occurred on a limited scale; only local residents have perceived the problems. It is not until the 1990s when local community groups lobbied against the running of the Phoenix factory. This public uprising can be a result of rising consciousness on environmental quality among the public and the enactment of the 1992 Environment Act.

This incident brought affected villagers together into a group named the “People’s Committee for Nampong River Conservation.” It is comprised of villagers, school teachers, housewives and youngsters who are aware of the need for environmental protection. They have organised their own workshops and participated in seminars organised by government authorities, academic institutions and NGOs. During the same year, an NGO called “Conservation and Rehabilitation of Nampong River Project” was formed serving as a bridge between the people’s organisation, academics and government authorities (Prapertchob, 1997).

4.1.3 Water Pollution Implementation

In general, the Ministry of Agriculture and Cooperatives has the main responsibility for the protection of water resources (MOSTE, 1997). Agencies within the Ministry that play a role in water pollution include:

- the Royal Forest Department, responsible for all protected forest areas and coastal resources that are vital for water resources protection;
- the Royal Irrigation Department, responsible for fresh and sea water fisheries and aquaculture; and
- the Department of Land Development, responsible for land and soil conservation.

In addition, MOSTE, Ministry of Public Health and the Ministry of Interior house agencies that are responsible for monitoring and controlling water quality (MOSTE, 1997).

Specifically, in relations to industries, the Department of Industrial Works (DIW) under the Ministry of Industry retained its role in 1992 as the primary environmental enforcement agency. However, under the 1992 Environment Act, the PCD is empowered to intervene, if the DIW is considered not to be enforcing environmental regulations firmly enough.

A wide range of ministries and government agencies has jurisdiction over more than 70 environmental laws, which have developed since the 1920s. This overlapping of responsibilities has created cross-jurisdictional problems and inter-agency tensions in certain areas.

For example, one of the weaknesses of the monitoring system is the unclear water quality standard. For example, two different government agencies in Thailand implement two different regulations with respect to the BOD. OEPP indicates that the BOD should be no more than 60mg per litre. However, the DIW allows up to 100mg per litre of water discharged.

During the past decade, as many as forty central wastewater treatment plants have been constructed throughout the country largely by the government sector in cooperation with international agencies and the private corporations. However, only eleven wastewater treatment plants have been in operation; nine in the final stage of construction, and the rest in various stages of construction.

For those plants which are in operation, only a few can operate properly. Most plants are confronted with budgetary constraints; thus, cannot afford the operational and maintenance (O&M) costs. This is due to the fact that while the construction costs are financed by the central budget (including the Environmental Fund after the promulgation of the Environmental Act of 1992), O&M costs are the responsibility of local authorities. In order for wastewater treatment to be properly managed, it is important to improve the financial and human resources capacity of the authorities in charge of the treatment.

In order to provide central wastewater treatment system and collection facilities, and to operate and maintain existing wastewater treatment systems particularly in the Bangkok Metropolitan Region (BMR), by collecting fees from customers, the Wastewater Management Authority (WMA) was set up by the Royal Decree as a state-owned enterprise under MOSTE, in 1995.

To perform its duties efficiently, WMA participates with the private and public sectors and international organizations in investing in wastewater management, where they may hold shares not exceeding 30 per cent. For WMA and other agencies in charge of wastewater treatment, a right pricing corresponding to cost-recovery and consumer's acceptability has to be properly designed.

With respect to coastal and marine environmental management, Thailand has not only established requirements for EIA reports and promoted central treatment plants for organic and toxic wastes, but has also declared many coastal areas such as Phuket, Phi Phi island, Pattaya and Samut Prakarn as EPZs and PCZs.

Samut Prakarn, a major industrial province in Thailand located on the mouth of the Chao Phraya River, is also a PCZ. This entails the formulation of a Pollution Control Action Plan for the province as part of the country's Provincial Action

Plan for Environmental Quality Management.

The wastewater management component of Samut Prakarn's Pollution Control Action Plan proposes a central wastewater treatment system for the province which will treat water from both industrial and domestic sources. This project is managed by the Pollution Control Department (PCD) under MOSTE, and is financed by the government budget, the Environment Fund and a loan from the Asian Development Bank (ADB). Construction began at the beginning of 1998 and the scheme is expected to be fully operational by the year 2001. Once operational, it is expected that the WMA will be a responsible body for its O&M (PCD, 1997).

This wastewater management project involves a public-private partnership that includes the contracting of the design, construction, operational and maintenance processes to a range of companies. Once the project is operational, it is expected that industries will join the scheme because it will be cheaper to do so than to build and operate their own wastewater treatment plants (PCD, 1997).

In Samut Prakarn, a partnership between the provincial government and the business sector has been in existence and institutionalized at both the provincial and national levels. In every province in Thailand, the Joint Public Private Consultative Committee (JPPCC) has been established. The Committee is chaired by the provincial governor and made up of provincial level ministerial officials, provincial leaders of the Federation of Thai Industry and provincial members of the Chamber of Commerce. Moreover, the National Economic and Social Development Board (NESDB), the national planning agency, has a division that deals with JPPCC issues.

However, in the Samut Prakarn Wastewater Management Project or any other projects, stakeholders are not limited to the governmental, industrial and commercial sectors. Residents, workers and students are also affected by projects implemented by the government. In the meantime, the Eighth National Plan, mentioned in the previous section, has promoted a new form of governance in Thailand to include the participation of civil society.

At the same time, the persisting dissatisfaction of government's development planning process has triggered bottom-up lobbying. In 1997, for example, Samut Prakarn communities protested against plants in Bangphli, Samut Prakarn, for releasing hazardous waste into public area causing eye irritation and respiratory problems to nearby local residents. The Bangphli district and the provincial office negotiated with the plants in question and demanded the halt of the practice (Thairat, 15 August 1997).

4.2.1 Air Pollution

Concern about the acid rain problem in Thailand is greatly influenced by growing

concern of the country's development path and associated systems of energy consumption and production. The rapidly increasing use of fossil fuels whose combustion is ultimately responsible for the emission of sulphur dioxide and nitrogen oxides, leading to acid precipitation. A coal utilisation and development study by the World Bank estimated that total domestic demand for all types of coal in Thailand would increase from 7.6 million tonnes in 1988 to 38 million tons in the year 2000. This corresponds to an annual increase of 17 per cent (Chongpeerapien, *et. al.*, 1990).

The possibility that acid rain deposition can occur in Thailand has only recently begun to be addressed about two decades ago. It is known that acid deposition can damage freshwater ecosystems, terrestrial systems including crops and forests, building structures and human health. The effects of acid precipitation in Europe and North America have spurred much scientific research and many policies to mitigate against further damage. However, in Thailand, there is little information available on the monitoring and impact of acid rain.

However, this does not mean that acid rain is less of a problem in Thailand than in developed countries. The increasing demand for energy has resulted in a continuing increase of acidic gases from anthropocentric sources over the past decade. The tables below show that emissions of acidic gases are increasing at a rapid rate in Thailand in comparison with the United States and Japan where figures actually show a decrease in acidic gases emissions.

Table 1: Emission of Sulphur Dioxide from Anthropocentric Sources
(000 metric tonnes)

	1970	1975	1980	1985	1990	% change
United States	28,400	25,900	23,400	21,100	21,100	-10
Japan	-	2,570	1,600	1,180	1,140	-29
Thailand	-	224	420	507	612	46

Source: UNEP, 1993

Table 2: Emission of Nitrogen Dioxide from Anthropocentric Sources
(000 metric tonnes)

	1970	1975	1980	1985	1990	% change
United States	18,300	19,200	20,400	19,800	19,800	-3
Japan	-	2,330	2,130	1,950	1,940	-9
Thailand	-	182	255	327	384	51

Source: UNEP, 1993

With respect to sulphur dioxide emissions, specifically, electric power plants are responsible for approximately 45 per cent of the sulphur dioxide emissions, industry 26 per cent and transport 23 per cent. The annual growth of sulphur dioxide emissions between 1980 and 1990 was 3.0 per cent and 3.6 per cent in the electricity and industrial sectors respectively, 12.3 per cent in the transportation sector and zero in the residential/agricultural/commercial (RCA) sectors (Chongpeerapien, *et. al.*, 1990).

Emissions growth in the power generation sector reflects the increasing use of high-sulphur lignite in the Electricity Generating Authority of Thailand's (EGAT) Mae Moh power plant. Mae Moh plant emits 1,900 microgrammes of sulphur dioxide per cubic metre (ug/cu m) averaged over an hour, exceeding the acceptable standard of 1,300 ug/cu m (Bangkok Post, 24 July 1998).

In the transport sector, the sulphur dioxide growth is largely from high diesel consumption. The share of diesel in the total fuel use of the transportation section increased from 42 per cent in 1979 to an estimated 54 per cent in 2011 (Chongpeerapien, *et. al.*, 1990).

Since the 1970s, the growth of vehicle ownership in Thailand means that motor vehicles have become a major source of nitrogen oxides emissions. Other sources contributing to growing nitrogen oxides emissions include the industrial and agricultural sectors.

The impetus for controlling emissions of sulphur dioxide and nitrogen oxides over the past decade or so has stemmed not so much from the threat of acidic deposition on the national and regional environment but more as concerns for human health risks. Studies have shown that these health risks can include direct health impairment to sensitive populations (*i.e.* children and the elderly, and those with existing respiratory problems and bronchial illness), visibility impairment, skin inflammation and cancer.

There have been no direct policies enacted to tackle the problem of acid rain despite attempts made to reduce acidic gases emissions through international agreement (for example, the UN ECE Convention on Transboundary Air Pollution and its related Protocols). Acid rain issues have only been indirectly acted upon through isolated cases, often through villagers' and community groups protest against power plants and industries emissions of acidic gases.

Climate Change, on the other hand, has received greater national attention from the Thai public. In response to the global warming threat, Thailand, in 1990, has formed a National Sub-committee on Climate Change (NSCC) and a Climate Change Expert Committee (CCEC) at the ministerial level. Thailand has also advanced its studies on the inventory and mitigation of greenhouse gases (GHGs) as part of an obligation under the United Nations Framework Convention on Climate Change (UNFCCC) which Thailand ratified in December 1994. The

ratification took effect on 28 March 1995.

Equally significant is the inclusion of climate change concerns into its Eighth National Economic and Social Development Plan. In addition, an annual budget has been committed by the government to support studies and capacity building as well as promote Thailand's participation in international affairs related to climatic change.

Thailand has also conducted a preliminary vulnerability and adaptation study, which has revealed potential shifts in seasons, average temperature, precipitation, and forest patterns which may threaten the future development of Thailand. Specific projects and policies in Thailand related to climate change place special emphasis on the Kingdom's major GHG emitters in deforestation and land use change, energy production and consumption, industrialisation, transportation and agriculture.

The three most important greenhouse gases are carbon dioxide (CO₂), methane and nitrous oxide. In 1990, total CO₂ is 164 million tonnes, 0.63 per cent of global emission (TEI, 1997b). In 1992, Thailand is rated the 31st in industrial emissions of CO₂ (World Resources Institute, *et. al.*, 1996). Other GHGs emissions include methane, 58 million tonnes of CO₂ equivalent and nitrous oxide, 3 million tonnes of CO₂ equivalent (TEI, 1997b).

Table 3 shows that Thailand's emission of carbon dioxide has been growing at a very rapid rate, in comparison with the United States and Japan, and probably has the potential for even greater growth if a 'business-as-usual' scenario is adopted by Thailand.

Table 3: National Emission of Carbon Dioxide from Anthropocentric Sources, 1960-1990
(000 metric tonnes)

	1960	1970	1980	1990
United States	799,544	1,165,477	1,259,281	1,310,341
Japan	63,997	202,973	254, 881	289,288
Thailand	1,012	4,190	10,921	25,535

Source: UNEP, 1993

The top seven sub-sector contributors to the national warming effect in 1990, were (Boonpragob, 1996: xvii):

- Rice cultivation, 108 million tonnes (33 per cent)
- Utilisation of woody biomass, 90 million tonnes (27 per cent)
- Transport, 33 million tonnes (10 per cent)
- Power, 28 million tonnes (9 per cent)
- Industry, 12 million tonnes (4 per cent)
- Livestock, 12 million tonnes (4 per cent)

Other activities, including oil and natural gas, industrial process, combustion, agricultural soils, waste, wetland, field burning and solid fuel, contribute to 2 per cent of the warming effect.

TEI's study on Thailand's vulnerability and adaptation to climate change concluded that (Boonpragob, 1996):

- The changing climate scenarios simulated by various General Circulation Models, demonstrates that global climate change has the potential to affect the future distribution and health of forests in Thailand.
- It is likely that climate change will reduce the availability of water by 5-10 per cent, which will affect overall agricultural production.
- A rise in sea level caused by global warming may result in the slower drainage of rainwater from the low-lying central plains. This can lead to flooding of low-lying areas and salt water intrusion into the rivers which can severely damage crop production.
- Climate change has also been predicted to reduce coastal resources, including, the disappearance of narrow fringing beach; the reduction of mangrove ecosystems and salt marshes; and the submergence and erosion of lowlands. They, in turn, have severe socio-economic impacts relating to aquaculture agriculture, tourism and loss of coastal land.

4.2.2 Air Pollution Agenda Setting

The media occasionally discusses climate change (see for example, The Bangkok Post, 18 September 1996; 11 April 1997; 13 December 1997), providing the main forum in which the public gain information on the causes and consequences of global climate change and Thailand's responses to such issues in various conferences such as the 1992 Earth Summit in Rio de Janeiro and the 1997 Climate Change Convention Conference in Kyoto.

However, the primary actor in getting climate change on the agenda is the government sector as a commitment to the UNFCCC. Since the 1990s, studies

related to climate change impacts and greenhouse gas inventory have been conducted by various research and academic institutes such as TEI and the Thailand Development Research Institute (TDRI). They are often supported by the Thai government and by funds provided by developed countries and international organisations.

CCEC helps screen all information and provides information and opinions to support NSCC in recommending national policies on climate change issues. The NSCC is chaired by the Permanent Secretary of MOSTE, while the CCEC is headed by the General Secretary of OEPP.

Currently, government initiatives to tackle climate change initiatives are mostly top-down and are at the policy and planning stages. Policy options to reduce the emissions have been developed since the 7th National Plan. They include (MOSTE, 1997):

- switching from fossil fuels to gases
- improving mass transit systems in urban areas
- implementing demand-side management in power use
- accelerating reforestation of degraded forest lands
- protecting conservation forests and watershed areas
- carrying out public campaigns on global environment protection

Rounds of meetings between NSCC and CCEC have led to subsequent policies and projects. Initiatives include (TEI, 1998):

- An establishment of the National Energy Promotion Office (NEPO) which channels a 7 satang (cent) per litre of gasoline into the Oil Fund for research and development in energy-related technology. NEPO's work has been expanded to fund the private sector's implementation of energy saving projects with emphasis on renewable energy sources.
- A major step to reform curricula at the primary and secondary school levels to integrate energy and environment conservation elements into the curricula. This is a three-year project, a collaboration of efforts between a local NGO and the Ministry of Education, funded by NEPO.
- A new regulation to waive import duties of cleaner technology which protects the environment or abates environmental problems. The tax rate has been reduced radically from as high as 70-80 per cent to the minimum 5 per cent of import value.

Nonetheless, in practice, actions taken rarely aim to tackle global climate change

directly. Projects carried out are sectorally defined and may include the reduction of GHG emissions in their project rationale and objectives but local air quality improvement for the health and well-being of the people is probably the primary goal.

For example, with regard to the transport sector, Thailand has acknowledged that the improvement of traffic systems in urban areas, especially in Bangkok can reduce fuel consumption and improve fuel efficiency considerably, thus, reducing air pollution levels (MOSTE, 1997). Thailand is now constructing its first elevated train system. The expressway system allowing more rapid flow of vehicles, is already in its third stage of development. It is estimated by MOSTE (1997) that mass transit systems in Thailand have the potential to reduce CO₂ emissions by as much as 20 to 100 thousand tonnes per annum.

Similarly, in the case of acid rain, projects are sectoral, with emphasis on introducing clean technology. With regard to the energy production sector, Star Petroleum Refining Company (SPRC) claims to be the only refining firm in Thailand which has equipped its plant with sulphur-trapping technology, due to be effective in 1998. This investment in an environmentally-friendly production process is believed to reduce sulphur content in its diesel fuel to 0.05 per cent by weight compared to the official standard 0.25 per cent (Bangkok Post, 3 March 1997). Standard high-sulphur diesel is a well-known contributor to acid rain. However, the project's success will probably depend on consumer's awareness and choice of the fuel, and consumer's acceptance and willingness to use this new fuel.

The main concern about acid rain is the effect of sulphur dioxide and nitrogen oxides gases emission on people's health rather than on the damage of regional terrestrial and freshwater ecosystems or building structures.

In the case of the Mae Moh lignite-fired power plant in Lampang, the Electricity Generating Authority of Thailand (EGAT), the operator of the plant, has been accused by villagers in the area of emitting toxic sulphur dioxide gas causing respiratory problems, skin and eye irritation and other health problems. EGAT vows to install sulphur dioxide filters to minimise its emissions but they have yet to be completed and put in operation (Bangkok Post, 24 July 1998).

4.2.3 Air Pollution Implementation

As mentioned previously, acid rain and climate change initiatives remain at the policy and planning stages. A number of organisations, both governmental and non-governmental, sometimes in partnership with each other, have begun to devise implementation plans as the next phase in pursuing Thailand's commitment to air pollution problems.

The TEI has been entrusted by the Government of Thailand to undertaken most

climate change studies for Thailand. One of the studies is the Asia Least-Cost Greenhouse Gas Abatement Strategy (ALGAS), financed by the Global Environment Facility (GEF) through the United Nations Development Program (UNDP) and executed by the Asian Development Bank (ADB). This project has proposed an action plan for Thailand and a number of projects such as fuel switching in city buses; market development for the solar cell industry; and collaborative forest management.

The ALGAS study has also applied the economic least-cost principle to the analysis of options for reduction of greenhouse gases, making it easier for policymakers to gauge the magnitude of cost associated with their prescribed policy options.

The five-year demand-side management master plan, launched by the Electricity Generating Authority of Thailand (EGAT), is noted as a unique model to reduce electricity wastage by increasing end-use efficiency. The introduction of fluorescent straight-tube and refrigerator codes are expected to decrease electricity and fuel demands and ease global warming in the long run. However, studies have shown that what EGAT has initiated has not caught the interest of the general public as a means to curb global warming. Despite increased public awareness of the fluorescent straight-tube and refrigerator codes, the public remain oblivious to the effects of the GHGs. This can be seen as a weakness in government's educational and public relation programmes. Furthermore, it can be pointed out that there is little concern among the media, which seems to pay more attention to local problems related to dam construction, air pollution and natural resources management rather than global climate change (Pradubraj & Nicro, 1997).

As a joint implementation with forestry, Thailand is strengthening its forest policy to protect local environments as well as reduce GHGs in the atmosphere. Thailand is currently implementing a large scale public reforestation programme in degraded conservation forest areas. The project is to honour the 50th Anniversary of His Majesty the King's accession to the throne, targeting 5 million rai (952,380 hectares) for rehabilitation. This will be further discussed in the section below.

4.3.1 Deforestation

Forest area in Thailand has rapidly been reduced from 35.9 million hectares or about 70 per cent of the total land area of Thailand in 1910 to 13.6 million hectares in 1991 (RFD, 1993), about 25 per cent of the total land area of Thailand. With the continuation of the reduction in forest area by an estimated 0.25 to 0.5 million hectares each year, it is recently calculated that in 1996, there is only around 12.8 million hectares of forest left (MOSTE, 1997). This total forest area is the responsibility of the Royal Forestry Department (RFD) of the Ministry of Agriculture and Cooperatives.

According to Puntasen (1997) the most rapid rate of reduction in forest area in Thailand took place since 1961. In 1961, the forest in Thailand was found to be 53.3 per cent of total land area or about 27.4 million hectares. Within a period of three decades, in 1991, the forest area was reduced to 28.0 per cent of the total land area or about 14.4 million hectares, that is approximately half of the forest area available in 1961 (MOSTE, 1997).

Incidentally, the year 1961 marked the beginning of the first five-year National Economic and Social Development Plan (1961-1966). The first two National Plans emphasised investment in industries and infrastructure by using funds from agricultural and timber exports (Puntasen, 1997). Deforestation rate accelerated when the Thai government undertook the management of Thailand's forests for commercial purposes to serve the industrial needs of the developed industries.

The clearing of forest was also caused by the expansion of agricultural land. In 1967, while the forest area was reduced to 48 per cent of the total land area, agricultural land was increased to 28 per cent (Puntasen, 1997). High population growth, coupled with the inequitable distribution of productive agricultural lands, results in strong pressures to convert forests and occupy logged-over sites. Other causes of deforestation include conversion of forests to recreation areas and high demand for wood products, especially overseas, resulting in illegal logging.

Another factor contributing to forest destruction is land speculation. A growing urban middle class wishing to generate more of their economic wealth has turned to the accumulation of land, particularly in the rural areas. As a result, rural land has been transformed from merely a factor of production into a commodity or an asset for speculative purposes, rapidly raising land prices. Within a period of less than 30 years, land prices in many rural areas increased more than 100-fold. This great increase has generated very strong pressure for small farmers to sell their lands and illegally encroaching on forest areas safeguarded by the RFD causing conflict between government authorities and the local communities.

At a time when most world's unpopulated land areas were covered by forest, wood or timber was considered the only major product from forest. This traditional thinking still continues today in spite of the fact that many forest areas have already been eliminated and replaced by deserts, agricultural land and/or human settlements. Under such circumstances, the major forest products especially from tropical rain forests are no longer wood or timber. They are the assurance for a continual supply of water for farmers and city dwellers; their function as regulators of a steady flow of water supply all year round; providing continual natural fertilisers to the top soil of the forest; keeping the top soil from being eroded; absorbing carbon dioxide and simultaneously countering the adverse effects of global warming; releasing oxygen vital to all life on earth; and maintaining and generating biodiversity. Timber is perhaps the less significant

product in comparison with all the others mentioned above.

In the 4th National Plan period (1977-1981), a more comprehensive and extensive forest management plans were drawn up, and a National Forest Policy Committee was established under the 5th National Plan. A National Forest Policy was approved in 1985. Despite the policy guidelines, deforestation continued. It was argued that the failure to protect forest resources in the 6th National Plan period was due to a neglect in the importance of the economics of forest resources to local communities and a neglect of the role of communities and support from NGOs in managing forest resources. In a further effort to halt deforestation, prompted by a series of mud slides and floods killing many people in southern Thailand, the government announced a logging ban in 1989.

However, despite the 1989 logging ban as well as the intensification of reforestation and afforestation through economic incentives and public campaigns during the past decade, Thailand has continued to lose forest areas. Moreover, a ban on commercial logging has increased Thailand's reliance on imported timber, thus, contributing to deforestation in neighbouring countries. One of the main factors for deforestation can be pointed at ineffective enforcement of forest laws and policies.

The most recent statement on forest policy can be found in the Eighth National Plan which revises the 1985 national forest policy in relation to the 1989 logging ban. The Eighth National Plan's principle policy statement regarding forest policy is that:

Thailand aims to achieve a 40 per cent forest cover for the whole country with 25 per cent as protected forest.

Probably, the most comprehensive forest law is the Forest Act 1941. This has been amended a number of times, in 1948, 1982 and 1989. In 1964, the National Reserved Forest Act was enacted to reduce the rate of deforestation, by incorporating all forest areas into national Reserved Forest. To date, there are 1,221 forest reserves. Legal measures such as the notification of forest conservation zone to be National Parks or Wildlife Sanctuaries are also prescribed.

Thailand's forestry policy is partially influenced by global efforts towards tropical forest resources protection. In 1990, the International Tropical Timber Organisation (ITTO) established guiding principles for the sustainable management of natural tropical forests, and set the year 2000 as the target by which time all these forests should be managed sustainably (also known as The Year 2000 Objective of ITTO). Thailand is a member of ITTO and is, thus, nominally committed to the Year 2000 Objective.

Thailand is in the process of restructuring its forest management system from central control to more community-based forest management systems. It is

preparing a new community forest law. Once the differences between the concerned parties have been reconciled, the government will submit it to Parliament for approval. Under this new law, communities will have rights to forest resources and will be responsible for managing the forest resources in their jurisdiction. This new initiative in forest management, if successful, may become a model for the South East Asian region (MOSTE, 1997).

Furthermore, the RFD has established guidelines to overcome forest resource deterioration through promoting public participation in forest resource conservation, forest rehabilitation and career development for people in rural areas. Nonetheless, it remains to be seen whether the RFD will be willing to give up power to forest communities and allow them to manage forests and participate in decision-making processes that are related to their livelihood in forests.

4.3.2 Deforestation Agenda Setting

All forest lands and forest resources in Thailand are considered property of the state. To protect and manage the forests, the RFD was established in 1896 to manage and control all forest lands. Initially, the RFD was a department within the Ministry of Interior. Today, the RFD is part of the Ministry of Agriculture and Cooperatives. The financial resources of the RFD are derived solely from government contribution.

The initiation of a total logging ban in 1989 changed the forestry industry in Thailand. Not only did the organisational structure of the RFD changed from a forest industry to a conservation organisation, but at the same time, a large number of labourers were out of work. This logging ban was enacted even though the export of forest products was a major foreign currency earner for the Thai economy. Thus, this redundant workforce and the demand for timber created numerous problems which threatened the long term sustainability of forest management in Thailand.

As a result of the redirection of forest policy, the Thai Forestry Sector Master Plan was produced. This plan attempts to reorganise the management of Thai forest resources so that they are sustainably productive but also preserve the biological resources contained within. Although this valuable work was completed in 1991 with technical and financial assistance from the Government of Finland, the plan itself is now defunct.

The ideology of the RFD owes some of its roots to the Food and Agriculture Organisation's (FAO) "classical" analysis of deforestation. FAO establishes that the main reasons for tropical forests deforestation are population pressure of the poor in the South and slash and burn agricultural methods. This analysis of deforestation has been used as a basis for solutions by governments in many developing countries with the assistance of United Nations agencies, international

organisations and major development banks and financial institutions. Often, these efforts have led to the further erosion of the natural resource base and threatened the survival of rural communities.

This conventional analysis fails to consider the deforestation resulting from business groups and governments in both 'industrialised' and 'industrialising' economies. Moreover, solutions to problems of deforestation include rapid reforestation of large areas through "the participation of the local people". This includes participation of the local people in commercial tree plantation projects which have not only failed to bring any real social or environmental benefits, but have been faced with strong opposition from rural people in Thailand.

The increasing marginalisation of the people and the destruction of their survival resource base have in many instances led to protests and uprisings by rural communities. These instances contrast sharply with the conventional ideology which claims that local people are destroying the forests. In reality, these local people, especially in agricultural communities, are those who have shown the greatest initiative and enthusiasm in preserving their forests (Leungaramsri & Rajesh, 1992).

Local people's resistance to destruction of their forests has been cited since the mid-1970s. In 1975, 500 villages of Baan Luang sub-district, Nan province in the North of Thailand gathered to blockade the Khun See-Pun Forest, the watershed of the villages, to halt logging activities by outside business interests.

Political constituencies on deforestation issues at the community level rose in numbers in the late-1980s prior to and after the logging ban. In 1988, 5,000 villagers of Chiangmuan district, Phayao province in Northern Thailand occupied the local district office and protested for five days and nights demanding that the government revoke the logging concession in Huay Mae-Yad Forest which is a watershed area. The protest forced the government to suspend the concession.

In another case, from 1987 until the present, villagers in eight provinces in the Northeastern region have been resisting eucalyptus plantations promoted by the state and commercial reforestation companies, which have destroyed forests and fertile farming land. In some places, escalating tensions have resulted in villagers setting fire to eucalyptus nurseries in plantation projects.

In 1989, in what could be viewed as a culmination of previous protests to save their forests from being destroyed, villagers from all over the country united in demanding the government to immediately halt logging concessions in Thailand's forests. They were supported by students, the mass media, academics, NGOs and the general public. The strong opposition to commercial logging has been a great influence in forcing the government to declare a nation-wide logging ban.

Many of these events have been media-publicised, enabling a shift in public perception of local people and their relationships with natural resources. This has contributed to an increase in public awareness of the value of local knowledge in forest conservation. This increased awareness has also strengthened villagers' self-confidence in conservation efforts and their belief in the power of local forest management (Leungaramsri & Rajesh, 1992).

4.3.3 Deforestation Implementation

The major reforestation project currently in operation is the 50th year anniversary tree planting to honour His Majesty the King of Thailand's accession to the throne. Government authorities have prompted a 5 million rai (952,380 hectares) reforestation project nationwide within 5 years. This project started in 1994 and has now been extended until the year 2002. The total target for this project is to plant 800,000 hectares by the year 2002 of which 480,000 hectares occurs in conservation areas and the remaining area in degraded forest in national forest reserves.

However, this extremely ambitious target is unlikely to be met. In between 1996-1997, various companies and public groups expressed their willingness to reforest more than 2.5 million rai, but the actual area reforested came to less than 30 per cent of this amount, due to shortages of suitable sites for planting. Even this 30 per cent was planted under inappropriate conditions, with many of the saplings dying soon after they were planted (MOSTE, 1997).

An important secondary objective of this project is to include the business sector in the tree planting effort. The business sector are requested to select and sponsor tree planting areas, to provide financing to cover replanting costs and to provide adequate funds for management of the areas for post planting. Due to the current economic downturn, the areas being sponsored have rapidly decreased during the last year (McQuistan, 1998).

In addition, numerous non-governmental initiatives at local and international levels are attempting to use trade incentives to improve forest management. The most notable being the ISO14000 guidelines for sustainable forest management produced by the Canadian Standards Association and the Forest Stewardship Councils (FSC) forest certification scheme.

Nonetheless, the main challenge is the large human population occupying forest lands. An estimated 22 per cent of Thailand's villages are located in national forest reserves, with some 8 million people living and farming there (Sadoff, 1991 in McQuistan, 1998). Trees planting is a popular activity because it is neutral, in that it does not challenge the status quo. However, reforestation programmes fails to address the root causes of forest degradation in Thailand and until these issues are being tackled, deforestation will probably continue.

The Thailand Environment Institute (TEI) has initiated a pilot project which begins to facilitate cooperation between government officials and local communities in creating a balance between conservation and resource use in its 'Sustainable Forest Management through Collaborative Efforts' Project. Initiated in July 1994, this three year project in two protected areas of Thailand, is funded by the Government of the Netherlands through the International Tropical Timber Organisation (ITTO), in collaboration with the Society for the Conservation of National Treasure and the Environment (SCONTE).

The project has facilitated the planting of 660 hectares of trees and has secured the involvement from twenty two village communities. In addition, more than four hundred villagers have received formal training in areas focused on income generation, environmental education and forestry techniques. For example, three nurseries have now been built each with a capacity of 50,000 seedlings. These nurseries are managed and operated by villagers who have been trained by the project. Project activities have been focused on strengthening local communities and on ensuring that project activities are sustained in the long-term. Village organisations have been established and are active in implementing project activities in their locality. Moreover, environmental education camps have been undertaken and an active programme of raising public awareness is continuing.

Another project funded by the Petroleum Authority of Thailand (PTT) called the 'Sustainable Forest Management Action Research' project aims to coordinate sustainable environmental restoration within five recently replanted forest areas. In cooperation with the RFD and local communities, project activities have included trees planting, biodiversity measurements to determine the degree of ecological restoration achieved, and the provision of guidelines for other forest regeneration projects. Upon completion of this pilot project, recommendations will be presented to the Ministry of Agriculture and Cooperatives for consideration regarding future sustainable forest management policies and initiatives.

In a sense, the future of sustainable forest management in Thailand rests on the actions of the Royal Forest Department and therefore, ultimately upon government policy. Reforestation is an important component of forest management in Thailand, but planting targets must be set realistically and should reflect the capacity of public and private sector participants to ensure its sustainability.

Furthermore, the importance of the human-forest interface in Thai forestry is such that local populations must be involved in forest management and conservation. They certainly cannot be excluded, because to do so would not only be inequitable, but also short-sighted. Thailand does not have the resources or capability to maintain all forest lands under state management, and must at some time enroll the assistance of individuals, local communities and other

interest groups.

4.4 Policy Recommendations

After an introduction to environmental governance mechanisms in Thailand and a summary of the nature and development of environmental problems and policies in Thailand, this section endeavours to examine Thailand's environmental governance from a regional perspective in the agenda setting and implementation of environmental concerns.

The developing countries of the Asia-Pacific region suffer from a myriad of complex environmental problems which are incapable of resolution by the actions of individual nations alone. The government sector in most developing countries lacks the resources to implement even the most rudimentary of environmental management regimes. Further, as many of the environmental issues transcend national boundaries, it would be nonsensical for any state to unilaterally attempt to protect its environment. Therefore, it is through regional and international relations that environmental protection can be assured.

Environmental policies and law, in general, should facilitate the sharing of regional experiences, establish regional centres and networks for research and development of environmentally-friendly technology and for monitoring the environment; encourage flexible and region-wide support to develop national environmental programmes, promote regional briefings and training; and urge the carrying out of regional studies and trends. The exchange of information, scientific research and technical assistance that assist lawmakers and policymakers, are and will continue to be a critical aspect of environmental protection in the future.

In a globalising world, many developmental and environmental policies have been adopted from international organisations such as the World Bank and the United Nations; and applied to Thai policies with little regard for the different cultural, economic, political and social contexts.

Some may argue that these policies, in fact, exploit the resources of 'developing' countries, including Thailand, for the benefit of the 'developed' countries, and is a causal factor of the Asian financial crisis.

Some academics like Pasuk Phongpaichit and Chris Baker (1998), believed that this prolonged Asian crisis is a blessing in disguise. It will enable people in the affected countries to think more deeply and question the future path to 'development'; and rediscover and strengthen the resources and culture of one's own society. This is so that the country will not be consumed by globalisation, but instead, flourish within it.

The uprising of the South East Asian financial and economic crisis together with

the 'haze problems' originating in Indonesia, have demonstrated growing regional interdependence, thus, recognising the increased need for regional cooperation in accountable policymaking and implementation of projects and programmes, and in the monitoring of the environment.

Thailand is a part of many regional alliances. They include:

- the Association of South East Asian Nations (ASEAN), under which is the Asean Senior Officials on the Environment (ASOEN);
- the Asia-Pacific Economic Cooperation Forum (APEC);
- the Greater Mekong Subregion (GMS);
- the Bangladesh, India, Sri Lanka, Thailand - Economic Cooperation Forum (BIST-EC);
- the Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT); and
- The Asia-Europe Meeting (ASEM).

However, economic concerns predominate in these regional alliances. ASEAN, for example, is considering the establishment of the ASEAN Free Trade Area and the ASEAN Investment Area. APEC which joins Asia with the United States, Canada, Australia and Latin America countries, aims to create one vast free trade and investment zone by 2020. GMS recent projects include Route 9 in the Thailand-Laos-Vietnam East-West Transport Corridor and the Mukdahan Bridge Project over the Mekong River.

Trade policy, however, can be a powerful measure to accommodate implementation of climate change efforts. Trade has been used to control and mitigate negative environmental impacts. One such initiative is the Montreal Protocol to Protect the Ozone Layer (Jesdapipat, 1996). International standards and restrictions in trade policies have sometimes been accused of imposing trade barriers on 'developing' countries. However, at the regional level where economic, political and cultural characteristics are less diverse, trade policies that are environmentally sensitive may be an effective tool in environmental protection.

What is crucial with respect to regional environmental governance is the mainstreaming of the environment into the above regional development agendas of trade, tourism, industry and infrastructure development.

Protests of the actions carried out by these regional groups, by NGOs and community-based organisations (CBOs) have taken place but often only in parallel to and separate from the regional groupings' annual meetings and conferences (Kimura, 1997). Nevertheless, such gatherings can be seen as a way

to voice objects of economic regional cooperation and receive international media attention.

In November 1996, at APEC's annual leaders' meetings in Manila, many civil society groups lobbied their country's respective APEC delegations to push them to recognise environmental and human costs to trade, in addition to raising the issue of economic sustainability. Protesters demonstrated in the streets, marched to the official meeting venue and delivered a joint letter to APEC officials noting objections to the institution.

Regional initiatives to address environmental issues are often top-down with little local government and civil society participation, especially at the decision-making level. For example, in 1996, the GMS countries (Thailand, Myanmar, Cambodia, Lao PDR, Vietnam and Southern China), in cooperation with ADB agreed to rehabilitate the Tonlae Sap or Great Lake which is being threatened by deforestation in upstream countries. The project has set up objectives to stop traditional slash and burn cultivation by incorporating an estimated 60 million farmers into the market economy and providing them with basic necessities (Bangkok Post, 4 Aug 1996).

This is decided upon without the public participation of farmers and residents in the watershed area about what their needs and wants are, and what their capacity and constraints are. This may have severe implications upon the effectiveness and sustainability of the project in safeguarding the environment.

It has generally been found in Thailand and other countries that participation provides an effective mechanism for 'good environmental governance' that ensures the accountability, transparency and sustainability of a project, programme or policy. However, it is important to recognise that people's participation is not the panacea to environmental protection. As mentioned in the Thailand Environment Institute's 1995 Annual Conference:

"The majority is not always right, particularly in a case where technical expertise is involved. Nonetheless, people's participation is a mechanism by which the most accurate conditions of an environmental problem in each location can be reflected, as environmental problems are to a great degree contextual in time, space and taste of people." (Nicro, *et. al.*, 1995: 12)

By involving people's participation, decisions will more accurately be based on the better use of resources and the various actors' potential to implement the decision. The participation process can also increase accountability and minimise corruption.

What is required is the establishment of a public consultation process during the planning phase of any regional projects. They should include environmental and social impact assessments and the involvement of all stakeholders including

not only national governments and multinational corporations, but also local and provincial governments, small and independent businesses, NGOs, CBOs, academics and the media.

Critics of neo-classical economics claim that current regional cooperation forums, along with the North America Free Trade Agreement (NAFTA) and the World Trade Organisation (WTO) represents an unsustainable model of economic development based on neo-classical notions of unregulated free trade. This disregards the reality of the political economy, that governance and economics are inseparable (Kimura, 1997). Moreover, these organisations represent the supremacy of trade policy at the expense of environmental, labour and human rights issues.

To foster effective regional cooperation, good governance must first be practised at the national level. Following analysis of the case studies, common problems can be identified. In order to improve the agenda setting and implementation processes in Thailand, there needs to be institutional reform particularly in relations to the changing role of the state to enable and facilitate decentralisation, participation, capacity building and conflict management at all stages of development.

Facing an economic and financial crisis, environmental policies that present a cost to industry may be delayed. In addition, capital spending programmes for environmental programmes in Thailand and other crisis countries have been reduced as they rely heavily on imported technology and services for key components of their environmental projects, particularly in the promotion of clean technology.

The OEPP has cut the government's budget for environmental infrastructure in the wake of the crisis, by one third to 3 billion baht. Moreover, the collapse of the private-sector environmental market has led many environmental companies to refocus their business strategies towards aid-funded projects (Acid Rain Newsletter, June-July 1998).

However, the crisis can also mean that the projects to be implemented will be more selective. Furthermore, the efficiency, effectiveness and sustainability of the project becomes more crucial as resources are scarce. Priority setting is thus important in government policy and planning for environmental governance.

A cost-benefit analysis often excludes the personal value of the environment. Priorities are best set as the result of a process involving both technical and public inputs and taking into account scientific, economic and medical evidence as well as the intensity of public concern over risk (Brandon & Ramankutty, 1993).

Since the attempt to conserve the forest is believed by many to be more effective at the local level, the presence of strong and sustainable organisations formed

by people in the area is a prerequisite for such effort to be successful (Puntasen, 1997).

The incorporation of local communities into sustainable management may require changing the way they are viewed by forest authorities (McQuistan, 1998). Rather than being regarded as illegal encroachers, the farmers can be more usefully viewed as partners in forest conservation and management. This will mean direct responsibility for managing forests being transferred to individuals, communities and other interest groups. The expertise to initiate, support and guide local management of forest land is probably needed from the RFD, although this necessitate a reorientation in the role of the RFD from a 'command-and-control' approach to extension and facilitation. Any realignment of the RFD's traditional roles will entail the training and capacity-building of forestry officials to equip a greater number with social and environmental skills to work with local communities.

Members of the community should be encouraged and given as much support as possible from outside, such as from government officials and other related organisations, in order to assist them to function effectively. Their organisational strength, in turn, depends in part on some form of ownership over the property to be protected. In this case, the forest conserved by the community should be managed using the "common property" concept.

However, if the forest involved is a reserved forest, legally, it belongs to the government and the community has no right to ownership. Nevertheless, some forms of ownership should be given to the community in order to generate the incentive for the community to look after it (McQuistan, 1998; Puntasen, 1997). An acceptable form of ownership is for the community to be able to make rules and regulations for forest protection as well as to police those rules. Equally important is that the community must be able to collect and distribute benefits among its members generated through their sustainable conservation efforts. Such form of ownership is crucial to the organisational strength of the community that wishes to protect the forest for its long-term benefits.

A successful community forest management process requires strong support from government officials by, for example, formally recognising the group's efforts; legalising the groups' activities; providing financial, material and technical supports necessary for forest protecting activities; and taking decision measures against all groups of outsiders who try to make direct gain out of the forest protected (Puntasen, 1997).

At the policy level, it is important to design cost-effective policy instruments that minimise costs and economise on scarce administrative skills. Environmentally appropriate policies are not inconsistent with policies that foster growth and trade, but they do attempt to correct the bias of market and policy

failures that lead to overexploitation of non-priced and under-priced environmental resources (Brandon & Ramankutty, 1993).

Pricing reform, involving the removal of subsidies and the internalisation of externalities imposed by the resource use or pollution emitted, is an example of economic instruments to prevent and control environmental degradation. Taxes or tradeable permits levied on pollution and congestion are equivalent to raising the price on air, water and land resources. Tax-based policies will lead to some increase in financial flows to the “owner” of the resource - which is often the government. These revenues should be reinvested in the resources itself. In addition, both price increases and fiscal instruments can help stimulate technological adaptation that favours greater efficiency and reduced pollution.

Economic instruments are not entirely unfamiliar to Thailand. There are a few examples of how they are already being applied to specific problems. One is the differential excise tax on leaded versus unleaded gasoline designed to encourage drivers to choose the no-lead alternative. Another is the treatment charges levied on users of the Bangkhuntien hazardous waste treatment center.

However, application of these pollution charges has, in most cases, little incentive effect. In other words, they have not proven especially effective in inducing polluters to reduce their pollution loads, partially because the charges are usually set at a low rate and are insufficient even to recover the investments made. On the other hand, some believe that these pollution charges are served primarily as a revenue raising device. All in all, increased efforts and resources need to be focused on realistic standard setting and standard enforcement, as well as on environmental awareness raising. These processes could benefit from inviting broader stakeholder participation.

At the institutional level, it is important that Thailand has the institutional capacity to accomplish the important steps of priority setting and policy reform. Institutions can constrain the choice of policies. The policy mix must be weighed not only against an analysis of the efficiency of the approach but against a country's ability to implement (Brandon & Ramankutty, 1993).

The accustomed governance structure for environmental management in Thailand is one in which powers and responsibilities are divided among a number of ministries and departments at the level of the central government, while lower levels of government have traditionally had limited powers. Despite the enactment of the 1992 Environment Act and the accompanying reorganisation of the national environmental management bureaucracy, the problems of multiple centers of responsibility and overlapping jurisdictions have not been adequately resolved. For example, while, in theory, the PCD has overall responsibility of setting environmental standards, in practice, the Ministry of Industry sets point source standards for industry, while PCD is left to deal with all other point

sources. At the regional level, the differing national environmental standards need to be addressed in regional environmental governance, particularly in the monitoring of the regional environment.

The 1992 Environment Act has altered the national-local power balance to a degree but granting greater regulatory enforcement powers and environmental planning responsibilities to provincial and local governments. This is a positive development from the perspective of ensuring greater accountability of decision-makers to their constituents. Yet, there are serious problems in giving substance to this new commitment. Most provinces and municipalities lack both the professional competence and the financial resources to assume major responsibility for environmental management. In short, a partial transfer of power has occurred without a corresponding transfer of resources to the local level.

One way of strengthening local capabilities may be through a greater decentralisation of structure of government departments like the PCD, so that over time, PCD would come to have a presence in most provinces and municipalities so as to provide close technical support for local environmental management efforts (Phantumvanit, *et. al.*, 1994).

A coordinated effort to gather and analyse information about the environment for effective policymaking is lacking. In fact, contributions to environmental protection in Thailand and other Asia-Pacific countries have largely been independent of one another, or are often products of specific, isolated cases. There is a lack of any coordinated effort to develop effective regional policy strategies for long-term sustainable development.

Recently, at the policy coordination level, United Nations agencies such as the Economic and Social Commission for Asia and the Pacific (ESCAP) have already been performing a catalytic role, helping countries to cooperate on regional environmental programmes. More specific technical issues are already handled effectively by specialised international agencies such as the Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO), and by other regional bodies, including the International Board for Soil Research and Management (IBSRAM), which specialises in land resources, and the International Centre for Living Aquatic Resources management (ICLARM), for marine resources. In addition there are numerous regional projects on forest resources such as the ASEAN Institute of Forest Management and the ASEAN Timber Technology Centre.

What is lacking is a networked and integrated coordinating body with representatives from the wide ranging and inter-related environmental issues. Such a mechanism would facilitate the transfer of environmental information and policy strategy options among countries. It is not intended to be a funding organisation. Incorporated in this system, there should be a civil society network,

preferably initiated, operated and maintained from the bottom-up by civil society groups. This could be an arena in which civil society can voice their concern, collect and disseminate information and provide alternative means of development and environmental protection at the regional, national and local levels, to private and government sectors.

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Comments

Kimihiko Hyakumura

1. Introduction

Dr. Somrudee Nicro's report consists of 4 parts. The first section gives an overview of environmental protection in Thailand, and refers to its legal aspects. The second section gives a contextual overview of Thailand, and refers to the recent economic crisis. The third section analyses the current state of environmental governance mechanisms. The fourth section presents detailed case studies on water pollution, air pollution and deforestation.

2. The Economic Situation in Thailand

Thailand has been able to miraculously develop its economy since 1985. Thai people were dubbed "Asian Tigers" and the country has been enjoying a reputation as a model for neighboring developing countries. From the middle of 1997, however, the economical development of Thailand suffered a severe financial crisis.

Dr. Nicro points out characteristics of Thailand's economy. She thinks the drastic economic growth and investments made in Thailand were all focused around urban and service industries. Half of the total income produced during the era of economic expansion, she says, comes from these two industries.

Thai economists and experts on international markets blame weaknesses of governance in Asian countries including Thailand for the Asian Economic Crisis. Dr. Nicro further points out that the poor governance in Thailand was caused by privileged families, or their political and business connections.

Thailand accepted almost all the advice it received from the International Monetary Fund (IMF), unlike other South-East Asian countries including Malaysia.

As an economic recovery policy, the Thai Ministry of Finance and the Central Bank decided to reduce and combine finance companies and to nationalize small commercial banks.

In a movement towards the world standard, i.e. the western standard, it was said that the "best prescription for reforming banks is to get rid of bad loans". This advice given by the IMF to get rid of badly performing loans appeared to be quite a harsh policy to the Thai people, and some did not even support this governmental decision. Some were against the idea of using a western-style policy

to recover their country's economy. In addition, the revision of the law that controls foreign business in Thailand was approved by the congress on August 18 1998, which made it possible for greater investment and business invasion from foreign countries.

This series of actions is likely to bring about drastic changes in national economic policies in Thailand. It seems that if the concept of "Self-Reliance" in good governance which comes as the result of financial crises, will have yet more effects on this change.

3. The Current Situation of Environmental Governance

Regarding the current status of environmental governance in Thailand, Dr. Nicro states that local people have the right to manage natural resources without government intervention over a long period of time. According to her, such autonomy of resources has been termed "local wisdom".

This kind of concept is widely acknowledged as "commons". Japan also has a history of natural resource management by local people during the Edo era, such as Iriai-Rin (community forest) and Iriai-Umi (community sea). The difference in this case, however, is that local people had control of natural resources, that the Edo government had entrusted to them.

Dr. Nicro also points out that drastic destruction/degradation of natural resources began when the governmental management of natural resources was put into practice. This is particularly true with the destruction of forests, water pollution caused by factory waste, and air pollution caused by factory smoke and automobile exhaust fumes.

Under such circumstances, the Environment Act of 1992, a revision of the Environment Act of 1975, had a significant role in regulating pollution/destruction of the environment in Thailand. In addition, the 8th National Economic and Social Development Plan (1997-2001) encouraged participation of local people in decision-making processes at prefectural, district and sub-district levels. These arrangements are expected to enhance bottom-up planning which reflects local people's opinions. A number of environmental NGOs are also fairly active in Thailand.

It is worth noting that Dr. Nicro sees much significance in the development of a bottom-up decision-making process. It is highly likely that such participatory decision-making will become an indispensable part of environmental governance.

4. Case Studies

Dr. Nicro reported various cases of air pollution, water pollution and deforestation in detail. I was especially interested in the case studies on

deforestation, because in 1994 I worked as a Japanese volunteer for JICA in the Nakon Ratchasima Nursery Center of the Royal Forest Department which is located in North-East Thailand. Four years have passed since then, and her reports made me aware of forest-related economic and social changes in Thailand.

Since 1961, deforestation in Thailand has accelerated drastically. Forest areas of 27.4 million ha in 1961 (53.3% of total land use) have decreased to 14.4 million ha in 1991 (28 % of total land use). That is, the forest area has nearly halved in three decades. This low forest coverage of 28% is noteworthy even in comparison with Lao P.D.R.'s 47% in 1991, which is suffering from serious deforestation mainly triggered by slash and burn cultivation.

Dr. Nicro identifies the following three factors as major causes of deforestation. Firstly, the government favored logging and engaged in commercial forest management. Secondly, there was strong demand for the expansion of agricultural land due to population increase. Thirdly, the urban middle class exploited the forestland through investment.

The first factor, logging, has been carried out in various regions such as Northern, Southern and North-East Thailand, but was most common in North-Thailand. The target was useful timber trees, mainly teak (*Tectona grandis*). Most of the logging, including many cases of illegal logging, was for commercial purposes.

The second factor, expansion of agricultural land, has drastically accelerated since 1961. There seems to have been two reasons. One is population increase, as Dr. Nicro has indicated. Another is cultivation of forestland triggered by the introduction of commercial crops. The introduction of corn, kenaf and cassava was especially encouraged in North-East Thailand. In order to grow those commercial crops, a large area of forestland was converted into agricultural land, and thus forest coverage has rapidly decreased to 12% in North-East Thailand.

The third factor, investment in forestland, is a rather recent problem compared with the first two causes. It came about after the Thai middle class had emerged and could afford to invest in land, including forestland. Therefore, this phenomenon has drastically decelerated as Thailand started to suffer from the economic crisis.

As Dr. Nicro pointed out, forests do not exist only to provide timber and forest products. Forested areas also have functions such as supplying water for people in downstream regions, producing oxygen, absorbing CO₂, and sustaining biodiversity. These environmental aspects of forests are very important as well.

It was after the flood in the South in 1988 when deforestation started attracting considerable attention of the people in Thailand. There were many victims of this flood. King Bhumibol Adulyadej expressed sincere regret for it. There was also massive media coverage of this issue. Awareness of forest conservation has

increased since this incident, and many conservation plans have been put into practice so far.

In coping with this problem, the most drastic countermeasure is a logging ban enacted in 1989. On the other hand, there are also reforestation projects in process, represented by a project to mark the fiftieth year anniversary to honor His Majesty the King (so called "King Project"). In addition, there is a new effort by the government to establish a community forestry law, which transfers some forest management rights from the central government to local communities. The aim of this bill is sustainability of forest through management by the local people. It has some similarities with the land-forest allocation policy implemented in Lao P.D.R. and Vietnam.

However, there are some problems arising. The logging ban led to increased illegal logging. Timber manufacturers who observe the law are now dependent on neighboring countries such as Lao P.D.R., Myanmar and Cambodia for timber supply.

In reforestation projects as well, there are some problems such as shortage of suitable land. The five-year King Project is also suffering from this, and had to be prolonged to an eight-year plan.

The large population of inhabitants inside conservation forests is another serious obstacle in terms of forest conservation. There are reports of local people having been mistaken as illegal loggers, although they had lived in the 'conservation forest' before the implementation of the prohibition law.

Lastly, the economic crisis in Thailand is discouraging costly efforts of reforestation and sustainable forest management.

5. Conclusion

Dr. Nicro reported that environmental problems are not occurring independently in each country. In fact, many environmental issues are trans-boundary in nature. Considering this reality, it is not an issue that can be solved by Thailand (or other developing countries) alone. It has been suggested that it is necessary to address "good environmental governance" from a "globalism" point of view.

On the other hand, participation in environmental governance by the public, i.e. a scheme for "bottom-up" approaches, needs to be encouraged. In this case, of course, enough consideration by the administrative sector is also required.

I think the issues of environmental governance in Thailand will improve, having taken into account both "globalism" and "bottom-up" views.

Environmental Governance in India with Special Reference to Freshwater Demand and Quality Management Strategies

Jyoti Parikh, Tata L. Raghu Ram, and Kirit Parikh

1. Introduction

Environmental governance should extend to all environmental resources, namely, air, water, forests, biodiversity and so on. Environmental governance should include issues ranging from supply, demand and quality management and should encompass all stakeholders ranging from users, regulators, suppliers and so on at village, district, region, state and national levels. India has a long history of environmental conservation. The constitution of India contains a direct commitment to environmental protection. Article 48-A of Indian constitution stipulates that the “state shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country”. Under Article 51-A(g), citizens are requested to protect and improve the natural environment, including forests, lakes, rivers and wildlife. The directive principle under Article 49 and 51-A(f) also recognize the importance of protecting the sites of cultural heritage as part of the total environment. Thus, the Indian constitution provides the necessary support for framing and enforcement of environmental legislation.

Schedule VII of the constitution classifies the various legislative subjects into three categories, viz. union list, state list and concurrent list. The legislations in the union list are enacted by Indian parliament, while in case of the state list the state legislatures are empowered to enact the necessary legislation. The concurrent list specifies the subjects that are to be looked after jointly by the central and state governments. For example, while water supplies, irrigation and canal drainage are state subjects, the regulation and development of inter-state rivers and river valleys are central subjects. Examples of subjects in concurrent list are forests and protection of wild animals and birds.

The need to integrate environmental concerns into the process of economic development is voiced as far back as late sixties, i.e., during the formulation of the fourth five year plan (1969-1974), which stated “planning for harmonious development is possible only on the basis of a comprehensive appraisal of environmental issues”. Integrating the management of environmental resources with national economic planning started with the sixth five year plan. The seventh and eighth five year plans have recognized the issues of preservation of environmental resources and sustainability as important as many other developmental objectives. The policies enunciated in the “***National Conservation Strategy and Policy Statement on Environment and Development***, MOEF, GOI,

1992” and “**Policy Statement on Control of Pollution, 1992”**, are being pursued in the Ninth Five-year plan (1997-2002). The ninth five-year plan takes a comprehensive approach by integrating environmental and economic considerations into development planning.

The government has furthered the cause of environmental protection through institution building and strengthening, planning for environmental matters and enactment of many legislations and guidelines. So far more than 75 Acts relating to environment and pollution control have been promulgated under state and central enactment. The last two decades have witnessed a spate of governmental legislation creating environmental laws to protect environmental resources and the interests of the general public. The important environmental laws, regulatory and promotional measures enacted by Government of India are:

- **Water (Prevention and Control of Pollution) Act, 1974**

The Water Act (1974) has resulted in the creation of Central and State Pollution Control Boards (CPCB and SPCBs) with the aim of prevention, abatement and control of water pollution. The PCBs can demand information from any person or industry to guarantee compliance with the Act.

- **Water (Prevention and Control of pollution) Cess Act, 1977**

The Water Cess Act, 1977 as amended in 1992 provides for imposing a levy on water consumed by certain industries and by local authorities. The main aim of this levy is to increase the resources of the Central and State Pollution Control Boards for the prevention and control of water pollution.

- **Air (Control and Prevention of Pollution) Act, 1981**

CPCB and SPCBs have been empowered to deal with air pollution control also. No person is permitted without prior consent of a state board to establish or operate any industry in an air pollution control area.

- **Indian Forest Act, 1927; The Wildlife (Protection) Act, 1972 and The Forest Conservation Act, 1980**

These are the laws promulgated to deal with forests and biodiversity in India. Many wildlife sanctuaries and national parks are set up under these laws to conserve threatened species or ecosystems. Under the Forest (Conservation) Act, 1980 - rules and guidelines as amended in 1992, comprehensive afforestation is one of the most important conditions stipulated for screening proposals for diversion of forest land to non-forest use. Where non-forest land is available, compensatory afforestation to be done in equivalent area. Where non-forest land is not available, compensatory plantation to be done in degraded forest in twice the area.

- **Environment (Protection) Act, 1986**

Is an umbrella law that empowers central government to decide emission/effluent standards, restricting industrial sites, laying down procedures and safeguards for accident prevention and handling of hazardous waste, investigations and research on pollution issues, on-site inspection, establishment of laboratories and collection and dissemination of information.

- **Environmental Impact Assessment Notification, 1994**

In operation since early 1970s, but notified in 1994, it empowers central government to impose restrictions and prohibitions on the setting, expansion and/or modernisation of any activity or new project (covering 29 disciplines) unless an environmental clearance is granted. These include mining, hydro power, major irrigation and flood control projects, ports and harbours (excluding minor ports) and prospecting and exploration of major minerals in areas above 500 hectares. Projects must submit an EIA and an Environmental Management Plan. Depending on the type or size of the industry, MOEF or state governments have assessing jurisdiction.

- **Environmental Audits**

It is mandatory for all major polluting industries to submit annual environmental audits to the concerned pollution board. The basic aim is to make industries accountable and self-monitoring, thus, reducing burden on pollution boards.

- **Ambient Air and Water Quality Standards**

Set by the Central Pollution Control Board, standards are site and receptor specific (industrial, urban, residential, ecologically sensitive zones etc.). State boards can impose stricter standards.

- **Emission and Effluent Standards**

Sector specific and are dependent on best available pollution control technology.

- **The Public Liability Insurance Act, 1991**

The measure mandates that business owners operating with hazardous waste take out insurance policies, to compensate persons injured by accident.

2. Fiscal Incentives for Control of Pollution

The legal provisions in the various legislation listed above are mostly command and control type of regulatory measures. In additions to the legal provisions, the

government also provides fiscal incentives to the industries for pollution control. Some of the fiscal incentives currently available to the industry for pollution reduction are depreciation allowance, rebate in water cess, concessional custom and excise duties and soft loans from financial institutions (see Box 1).

Box 1: Fiscal Incentives Offered by Government for Pollution Prevention

- **Depreciation Allowance:** A depreciation of 100% is provided on devices and systems installed by manufacturing units to control pollution. Specific equipments have been notified by Government Of India for this purpose.
- **Water Cess:** There is a provision for a rebate of 70% in the water cess levied on water use if the industry concerned has installed equipment for treatment of sewage or effluent.
- **Concessional Custom Duty:** Custom duty at reduced rates of 35% + 5% auxillary charges levied on notified equipment and spares for pollution control.
- **Excise Duty :** Excise duty at reduced rate of 5% on manufactured goods that are used for pollution control. For example, in 1989 manufacture of fly ash bricks containing more than 50% of fly ash was completely exempted from excise duty.
- **Financial Institutions:** Financial institutions have the provision for extending soft loan facilities for installation of pollution control equipment. Financial assistance towards capital investment upto 25% or Rs. 5 million, whichever is less is given as subsidy to small scale industries for setting up of common effluent treatment facilities.

Source: Annual Report, Ministry of Environment and Forests, Govt. of India (1994-95).

Despite these efforts of the government the environment scenario in India has deteriorated considerably in recent times. This is because implementation of environmental laws is weak, partly due to ineffectiveness of pollution control boards and partly because most people find environmental standards expensive to implement. The main environmental problems in India are related to air and water pollution, degradation of common property land resources and threats to biodiversity due to forest degradation. India is a vast country with a wide range of environmental problems. Covering all the environmental problems in one paper may dilute the contents and may loose focus. For that reason, in this paper we discuss issues related to biodiversity and air pollution briefly and water pollution issues exhaustively.

3. Biodiversity

India has rich heritage of species and genetic strains of flora and fauna. Overall six percent of world's species are found in India. It is estimated that India is tenth among the plant rich countries in the world, eleventh in terms of number of endemic species of higher vertebrates and sixth among the centers of biodiversity and origin of agrobiodiversity. The total number of living species identified in India so far is 150,000. Out of the total twelve biodiversity hot spots in the world, India has two, one in the north-east and the other in the Western Ghats along the west coast of the country. However, the ecological balance of flora, fauna and forests is being drastically disturbed by the rapid increase in human population. India's population has increased from 370 million in 1947 to 880 million in 1994, constituting 18% of world population. India has 15% of world's livestock, but only 2% of geographical area, 1% of forest area and 0.5% of pasturelands.

India has a forest area of 64 million hectares, which is 19.5% of the country's total land area. Per capita availability of forests in India is 0.08 hectares which is much lower than the world average of 0.8 hectares. Even if no further net deforestation takes place, merely due to the population increase, the per capita forest availability will go down to 0.07 ha by the year 2000 (Govt. of India). Most of these forests is threatened by anthropogenic pressures leading to degradation. As per recent estimates (FSI, 1996), only 11% of the forest has crown cover of more than 40%. With increasing population of humans and livestock, Indian forests and along with them a rich biodiversity they support are under great pressure. Other threat to Indian forests is diversion of forest land for non forestry uses. Since promulgation of Forest Conservation Act in 1980, 11,804 km² of forest land has been diverted to non forestry purposes. The serious depletion of forests is attributed to a host of factors. These include ever increasing

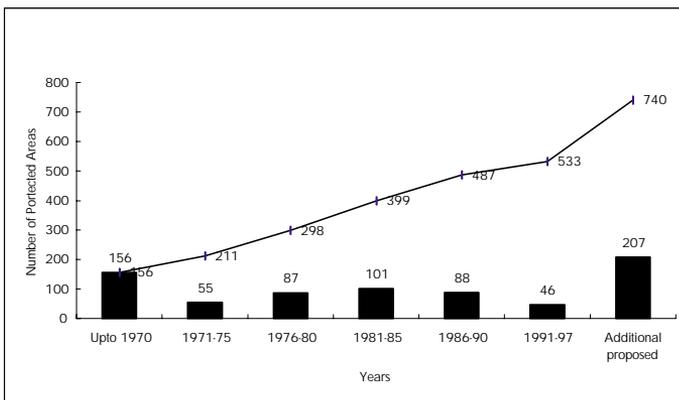


Figure 1 Establishment of Protected Area Network in India

demand for fuel wood, fodder and timber, population increase of both humans and livestock, inadequacy of protection measures, diversion of forest land for non-forest activities and tendency to look upon forests as revenue earning resource.

The main instruments for the biodiversity conservation in India are the Wildlife (Protection) Act, 1972; National Wildlife Action Plan, 1983 and the National Forest Policy, 1988. The Wildlife (Protection) Act, 1972 provides for creation of National Parks and Sanctuaries, aimed at total protection to the biodiversity. As of 1995, there are 441 wildlife sanctuaries and 80 national parks, covering an area of 148,849 km², which is about 4% of India's geographical areas. There are additional proposals to add another 207 protected areas to the network to raise geographical areas under protected areas to 5% of India's geographical areas (see Figure 1).

The overall biodiversity conservation program in India can be divided into three main areas viz. creation and management of protected areas, protection of biodiversity in managed forests (forests outside protected area network) and control and management of trade in biodiversity. While the control and management of trade in biodiversity is just a question of effective law enforcement, the first two involve, in addition to law enforcement, complex socio-economic and political issues. These issues arise from the conflict between biodiversity and human communities sharing their habitats. The conflict arises from the loss of access to the resources locked up inside the PAs and the damage caused by the wildlife to human property and lives.

The strategy of total protection and focused attention on national parks and sanctuaries have been the two main pillars of India's biodiversity conservation policy. Invariably, the forests included in the PAs also support local communities and economies, which are adversely impacted as a result of the mandatory acquisition of rights for creating a PA. A case study (Kothari *et al*, 1989) reported that most national parks (56%) and sanctuaries (72%) support human settlements inside. The legal process of creating a PA requires the extinction of all, or most, private rights and privileges over notified lands. This in essence means wholesale relocation of human settlements, which fall within the bounds of such areas. This is a highly unpopular, costly and consequently, politically inexpedient and slow process. As a consequence, it is reported that completion of legal process is achieved only in 40% of the national parks and 8% of the sanctuaries. The principles of reducing human dependence on natural resources, and winning their trust and participation through ecodevelopment in buffer zones of protected areas were incorporated in the National Wildlife Action Plan (1983). But still, the communities surrounding it perceive protected areas as a problem, rather than an asset, as the communities tend to lose their crops, cattle and lives due to depredation by wild animals. While the society at large enjoys the benefits of conservation, the rural communities bear all the costs.

We have to devise new strategies to resolve conflicts between local communities and PAs to attain the greater objective of biodiversity conservation. Relocation of human settlements from within the PAs alone does not ensure biodiversity conservation, as there are far more number of human settlements around the PAs which are dependent on the PA resources. The fact that biodiversity and humans can coexist harmoniously is to be acknowledged. The local communities need to be made party to the PA management with clearly spelt out responsibilities and accountability. Ecodevelopment, ecotourism and environment friendly economic activities should be encouraged not only in and around the PAs but also in the managed forests so as to ensure long term conservation of biodiversity in the country. Concerted, targeted awareness campaigns for all the concerned stakeholder groups and creation of conflict resolution fora at PA level can go a long way in assisting biodiversity conservation in the country rather than having ineffective conservation laws and policies.

4. Air Pollution

4.1 Urban Air Quality

India has 23 cities of over one million people, and ambient air pollution levels exceed WHO health standards in many of them. Urban air pollution is worsening due to upward trends in vehicle use, power consumption, industrialisation and household fuels. Six of the ten largest cities in India - Mumbai, Calcutta, Delhi, Ahmedabad, Kanpur and Nagpur - have severe air pollution problems, with annual average levels of suspended particulate matter (SPM) at least 3 times higher than the WHO standards. In Delhi, Calcutta and Kanpur annual average SPM values are over 5 times the standards. Nation wide, over 90% of the monitoring stations in urban areas for which annual mean concentrations are reported by the Central Pollution Control Board (CPCB), exceeded $75\mu\text{g}/\text{m}^3$ of particulates - the midpoint of the WHO recommended standard.

However, annual average concentrations of SO_2 and NO_x are generally low in relation to typical ambient standards. There does not appear to be any clear correlation between a city's population and air pollution, and many medium sized cities have air pollution levels as high or higher than the mega-cities.

4.2 Indoor Air Quality

In India high concentrations of indoor air pollution arise because unprocessed biofuels such as cow-dung, fuel-wood, and crop residues are burnt within the kitchen. Mineral coal also causes such pollution in a few Indian households. While majority of these fuels are used in rural areas, in urban areas also the use is substantial. Indoor air pollution - particularly in rural households has so far been neglected. It is recently estimated that 82% of SO_2 , 38% of NO_2 , 88% of

volatile organic compound and 96% of particulate matter emissions in the country come from household sector.

4.3 Impact of Air Pollution

Air pollution causes many health problems, impacts economic productivity - especially agricultural productivity, damages material property such as buildings and land and causes ecological changes that increase the risks of environmental disasters. The flight schedule of air lines get routinely disrupted in winter due to smog in Delhi that leads to shutdown of airport for want of visibility. In terms of health impacts, total suspended particulates and PM10 (particles less than 10 microns in diameter, which more easily penetrate the lung and therefore more relevant than total particulate matter for human health) have been associated with both premature mortality (death from respiratory illness and cardio-vascular diseases) and increased morbidity (increased prevalence of chronic obstructive lung disease, especially bronchitis, and to increased incidence of upper and lower respiratory tract infections). Ozone contributes to incidences of respiratory hospital admissions, restricted activity, asthma, eye irritation, and heart disease. Carbon monoxide (CO) reduces the amount of oxygen carried by the blood, but dissipate rapidly in the environment and effects are reversible. High levels of atmospheric lead contribute to both hypertension and neurological damage, including intelligence quotient (IQ) loss, in children (B.Ostro, 1994).

As per a World Bank study (Brandon and Homman, 1995), ambient air pollution levels (PM10, SO₂, lead and NO_x) exceeding WHO standards in 36 major Indian cities/towns account for 40,350 premature deaths, 19,805 thousand hospital admissions and sickness requiring medical treatment and 1,201 million incidence of minor sickness annually.

A case study by Kirit Parikh *et.al*, 1994, estimated cost of health damages due to air pollution in Mumbai for every 10 microgram per cubic meter increase in SO₂ concentration, the social costs could exceed Rs.100 million, which includes only dyspnea and mortality effects. The study also estimated cumulative loss in property value in Chembur for every 100 µg/cu.m increase in SPM concentration at Rs.2,000 million. Another case study (NEERI, 1998) estimated human health damages due to air pollution in National Capital territory, Delhi at Rs.1,168 million per year. It is evident from these case studies that the country is paying a heavy price due to air pollution.

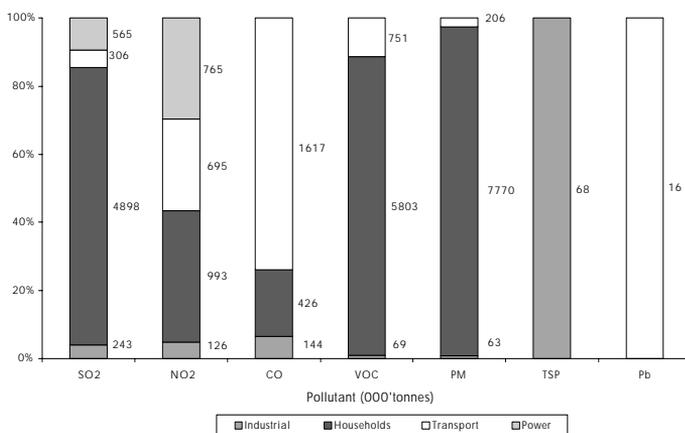
High exposure to indoor air pollutants have been shown to cause serious health problems like acute respiratory infections (ARI), chronic obstructive lung disease (COLD), lung cancer, and possibly tuberculosis (TB), blindness and heart disease (Mishra *et.al*, 1997; Smith, 1987). The silent sufferers are those who spend most time indoors viz., the women, children under 5 years of age, and senior citizens. They are regularly and severely exposed. Therefore, a major portion of India's

population is at risk. It is estimated that 0.41 to 0.57 million premature deaths per year are caused by indoor air pollution and for each death, there are about 6 years of illness in the population. Efforts are urgently needed to investigate this problem more thoroughly and to promote clean stoves and clean fuels.

4.4 Who Pollutes Air?

Activities that cause air pollution are many. They include the use of fossil fuels, industrial processes and burning of bio-fuels. Sectoral air pollution emission accounts for 1989/90 are estimated by IGIDR (Jyoti Parikh and Kirit Parikh, 1999) as presented in Figure 2. It is reported that emissions from household sector (indoor air pollution) contributed substantially (82% SO₂, 39% NO₂, 19% Nitrous Oxide, 88% Volatile Organic Compounds (VOC) and 97% of Particulate Matter) to the air pollution in the country. Transport sector contributed most of the pollution load (27% NO₂, 74% CO, 11% VOC and 100% lead) in urban areas of the country. India's vehicle population registered a phenomenal growth in the last two and half decades - from mere 2.1 million registered vehicles in 1973 to 25.2 million registered vehicles in 1993 (Ministry of Surface Transport, 1993). Vehicular emission loads in 1994 are estimated at 3,596.8 tonnes per day in 12 major Indian cities (Jyoti Parikh and Kirit Parikh, 1999).

Pollution load from industrial sector in 1995 contributed 2 million metric tonnes of pollutants (Down to Earth, 1999). Some of the most air polluting industries are industrial chemicals, rubber, textiles, iron and steel, non-metal products, food products, paper, printing-publishing, metal products and leather.



Source: Jyoti Parikh and Kirit Parikh, 1999.

Figure 2 Air Emission Accounts for 1989/90

5. Water Quality

5.1 Main Problems

5.1.1 Water Availability

In India, despite an estimated 2,228 m³ per capita per year freshwater availability (World Resources Institute, 1996), severe water shortages occur in many regions seasonally, particularly as a result of uneven distribution of water resources over time and space. Thus the main problem is inadequate availability of water where and when it is needed. Provision of clean drinking water to all is a major policy goal, which is yet to be realized. As in March 1993, 78% of rural and 85% of urban Indians had access to potable water. That still leaves some 200 million persons without safe drinking water. On the other hand, sanitation services are available only to 48% of the urban and about 3% of the rural population (Central Statistical Organization, 1997).

5.1.2 Water Quality

The other main concern is water quality. In recent times, water quality has deteriorated due to rapid industrialization, population growth and intensive agriculture as they generate increasing quantities of industrial wastewater, domestic wastewater and agricultural run-off respectively. Water quality in major rivers is shown in Table 1. Pathogenic water pollution due to domestic and human waste is the cause of many water borne diseases. Water quality degradation is increasingly becoming a source of conflict among upstream and downstream users.

Several diseases like diarrhea, hepatitis (jaundice), ascariasis (roundworm), hookworm infection, trachoma, and dracunculiasis (guinea worm) have been linked to human contact with polluted water. The World Bank and World Health Organization (World Bank, 1993) have estimated that in India, 21% of all communicable diseases (11.5% of all diseases) are water related. The specific diseases included in this number are diarrhea, trachoma, intestinal worms, hepatitis and the tropical cluster (schistosomiasis, leishmaniasis, lymphatic filariasis in India) of diseases. It is estimated that every year, 1.5 million children under five years die in India of water-related diseases and the country loses 1,800 million person hours (over 200 million man days) each year due to these diseases (Ministry of Rural Development, 1993). A quantitative measure that integrates premature deaths and temporary disability due to diseases is Disability Adjusted Life Years (DALYs). About 30.5 million DALYs are lost each year in India due to poor water quality, sanitation and hygiene as illustrated in Table 2.

Table 1 Status of Water Quality in Major Rivers

River	Designated best use category *	Quality category (1994)	Critical parameters
Baitarani	C	D	BOD
Brahmani	C/B	D	BOD
Brahmaputra	C	D	T.Coliforms
Cauvery	A/B/C	C/D	pH, T.Coliforms, DO, BOD
Ganga	A/B/C	C/D	T.Coliforms, BOD
Godavari	B/C	D	BOD
Tributaries of Indus Beas, Satluj, Ravi, Chenab, Jhelam, Tawi, Parwati & Largi	A/C/	B/C/D	T.Coliforms, BOD
Krishna	C	D	BOD
Mahi	A/C	B/C/D	BOD, T.Coliforms
Mahanadi	D/C	B/D	BOD
Narmada	A/B/C	D/C	BOD, T.Coliforms
Sabarmati	A/C/D	D/E/E	BOD, T.Coliforms
Tapi	A/C	B/D	BOD, T.Coliforms

Source: CPCB, 1996

* A=Drinking water source without conventional treatment but after disinfection; B=Outdoor bathing; C=Drinking water source with conventional treatment followed by disinfection; D=Propagation of wildlife, Fisheries; E=Irrigation, Industrial cooling, controlled Waste Disposal.

Table 2 Burden of Water related Diseases in India, 1990
(In millions of DALYs)

Disease	Female	Male	Total
Diarrheal Diseases	14.39	13.64	28.03
Intestinal Helminths	1.00	1.06	2.06
Trachoma	0.07	0.04	0.11
Hepatitis	0.17	0.14	0.31
Total water-related diseases	15.63	14.88	30.51

Source: World Development Report (World Bank, 1993), pp. 216-219.

Using the human capital approach, the statistical value of one DALY is equal to the annual average productivity of Indian workers (since one DALY implies one year in which a worker can not work due to either sickness or premature death). If we take merely the economic value of life year at the average per capita GDP of Rs. 12,000 per person, the annual loss of 30.5 million DALYs is worth Rs. 36,600 crores. Thus the country should be willing to spend that much annually to provide clean drinking water to all. Improvements in water supply and sanitation can substantially reduce the incidence and severity of these diseases, as well as the infant mortality associated with diarrhea as shown in Box 2.

Box 2

Reduction in morbidity from better water supply and sanitation is estimated to be 26% for diarrhea, 27% for trachoma, 29% for ascariasis, 77% for schistosomiasis, and 78% for dracunculiasis. Mean reduction in diarrhea-specific mortality can be 65%, while overall child mortality can be reduced by 55%.

Source: Esrey et al., 1991

5.1.3 Ground Water

In India an estimated 80% of the population use ground water for their domestic needs (UNICEF, 1998). India's total replenishable ground water resources are estimated at 431.8 km³ (Central Statistical Organization, 1997). The ground water availability is not uniform throughout the country varying from most potential aquifers of Indo-Gangetic-Brahmaputra alluvium to the comparatively low yielding hard rock formations of peninsular India. Ganga basin has the maximum utilizable ground water resource base, 39% of the country's total. Godavari basin is the next in terms of availability of utilizable ground water resources, accounting for 10% of the country's resources. Average level of groundwater development in India is 32%. Some states (e.g., Punjab 94%, Haryana 84%, Tamil Nadu 60%, Lakshadweep 64%, Rajasthan 51%) have exploited ground water resources to a greater extent than some other states (e.g. Gujarat 41%, UP 38%, Andhra Pradesh 24%, Bihar 19%,) (Central Statistical Organization, 1997). Irrigation is using 90% of the ground water abstracted whereas domestic needs use just 6% of the total volume pumped.

The third most important problem is the overexploitation of ground water in many parts of the country. There are 4.79 million electrical and 3.7 million diesel pumps in the minor irrigation sector withdrawing water from the groundwater aquifers in the country (CWC, 1993). This is reflected in the lowering of the water table. This is the result of too many private tube wells pumping water from the same aquifer. The depths of water table at which these tube wells draw water are increasing and bring inorganic pollutants such as fluoride and arsenic etc, which cause health hazards. One of the reasons for over exploitation is the system of "water rights" under common law in India, which effectively gives the ownership of groundwater to the landowner, despite the fact that ground water is a shared resource from a common pool of aquifers. An important policy issue here is how to manage ground water as a common property resource.

5.1.4 Land Degradation

The fourth important issue in water policy is that of land degradation due to inappropriate water use. The farmers at the head of the canal irrigate their crops intensively, use much more water than they are entitled to and required by crops, causing water logging and salinity. The electricity rates for most farmers are very low and most often are only imposed as a lump sum charge, so that their marginal cost of pumping water is zero. Irrigation water charges are also low, not reflecting the scarcity value of water. In some states water charges are lower than the operation and maintenance cost of the irrigation projects. The farmers thus overuse water leading to both lowering of ground water table and also water logging of soil.

Many regions of India have adequate water resources, but as the quality is deteriorating, the supply of water required for certain purposes with required quality is not available. Therefore, conflicts over water availability and water quality are growing. Taken for granted when supplies are plentiful, water is the focus of increasing controversy as supplies now appear to be inadequate to meet demands in many regions of the country. Incentives for wise and conservative use of the resource or for effecting an efficient allocation among competing demands are not there.

Table 3 Water Resources of Some Countries in 1995

Country	Annual internal renewable resources* (km ³)	Water per land area (m ³ per square km)	Water per capita (m ³)
Canada	2901	290944	98462
Brazil	6950	816494	42957
Russian Federation	4498	263426	30599
United States	2478	264659	9413
China	2812	292917	2292
India	2085	700840	2228
World	41022	301988	7176

Source: World Resources Institute, 1996; World Bank (1997)

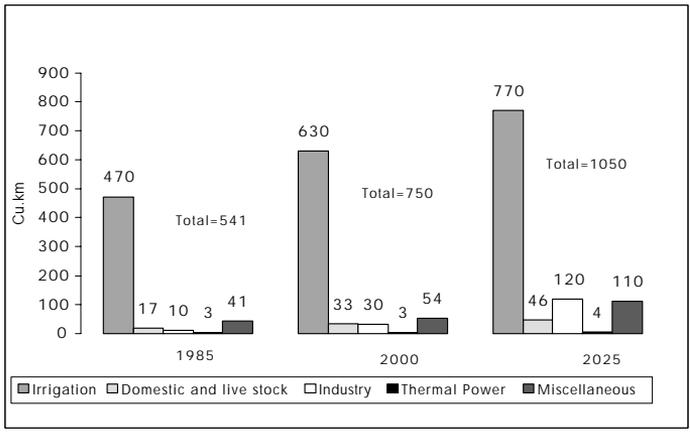
* Annual internal renewable water resources refer to the average annual flow of rivers and recharge of groundwater generated from endogenous precipitation.

5.1.5 Water Resources: Availability and Needs

India's water resources per square kilometer are large but on a per capita basis they are relatively small as shown in Table 3.

The average per person per year consumption of water for all uses (agriculture, household, industrial and civic) in India is estimated at 612 m³ as against the

average annual availability of 2,228 m³. As per projections for year 2000, the agriculture sector would require 630 km³ of water, which is 84% of the total water requirement in the country. 33 km³ of water is required for domestic sector (4.4%). Whereas, utilization in industrial sector (30 km³), thermal power (3 km³) and miscellaneous uses (54 km³) add up to the remaining 12% as illustrated in Figure 3. The total utilization amounts to 630 km³ of water. The demand for water is increasing. By the year 2025, demand for water in irrigation and industry is projected to reach 770 km³ and 110 km³ respectively (CWC, 1993).



Source: CWC (1993)

Figure 3 Sectoral Water Demand in India

5.1.6 What is Adequate Quantity?

Whether available water is adequate to meet the requirement or not depends on many factors. The distribution of rainfall or inflows over time and possibilities of storing water to carry it from periods of surplus to scarcity determines the amount of usable water. The requirement depends on population, irrigation requirement and its distribution over time, industrial demand and ecological needs.

It is claimed that between 1,000 and 1,700 m³ per person water availability, a region confronts water stress, where water shortages are more pervasive, and water management becomes more important (Falkenmark and Widstrand, 1992; UNEP, 1997). India is among the countries projected (UNEP, 1997) to fall into the water-stress category before 2025.

To meet growing demand for water, large investments would have to be made in water harvesting projects and also we would have to revive/revitalize some of the traditional water harvesting methods to augment water resources at local levels. Augmentation of supply at the local level through water harvesting, water

recharge and reduction of water losses in distribution and in agriculture, domestic and industrial sectors can be quite cost effective. Significant scope exists to reduce requirement of water through demand side management as shown in see Box 3.

The problems of management of surface irrigation and equitable distribution of water across farmers have been studied by many (Minhas *et.al.*,1972; Dhavan, 1988), and we do not deal with them here. Our purpose is to examine the problems and policies concerning water quality.

Box 3

- Water saving by sprinkler irrigation in comparison to gravity flow system is about 25% and increase in yield is about 15%.
- Drip irrigation can profitably be employed for orchards, vegetables, cotton and sugar cane. The saving in water is of the order of 25 to 50% and increases in yield ranges from 5 to 25%.
- Benefit-cost ratio of the needed investment can be very attractive. Incentives for such investment need to be provided as some of the benefits of water saved may accrue to other users.

Demand Management Programmes for Municipal Water Supply

In their efforts to limit the need for increased water supplies, many municipalities have employed demand management programmes.

- The city of Bogor, Indonesia was faced with high investment costs to developing additional water supplies. The municipal authorities decided to substantially cut the water consumption levels of domestic and commercial consumers. Water fees were increased initially by approximately 30%, resulting in an average decrease in consumption by 29%. This action was followed by a campaign to reduce water use further, particularly among consumers with monthly consumption of more than 100 m³. Consumers were given advice, as well as necessary devices, to reduce consumption. Three months after the campaign started, average monthly water use had decreased another 29%
- In its efforts to cut water use per capita by one-sixth, Mexico City has replaced 350,000 toilets with smaller six-liter models. This has saved enough water to meet the household needs of 250,000 residents.
- A new pricing system in Beijing links charges to the amount of water

used. New administrative regulations set quotas on consumption and authorize fines for excess use.

- The use of water-saving devices, leak detection and repair, and more efficient irrigation in its parks helped Jerusalem to reduce its use of water per capita by 14 %, between 1989 and 1991.
- A water conservation programme in Waterloo, Canada, included higher prices, education, and the distribution of water-saving devices. Volunteers distributed water conservation kits to nearly 50,000 homes. Water use per capita declined by nearly 10%.

Water Saving Potential through Demand Management

- Overall savings from efficient water management from various sectors can help to reduce future demands. Proper water management has the potential to save up to 63 km³ in agriculture sector, 2 km³ in domestic and 25 km³ in industrial sector by year 2025, from the projected demand of 800 km³ in agriculture, 52 km³ in domestic and 120 km³ in industrial sector respectively.

Source: Central Water Commission (1998); World Bank (1995); Z. Hasan and R.N.P. Singh (1997).

5.2 Water Pollution

5.2.1 Who Pollutes?

Freshwater quality is impacted directly by natural and human activities, such as land-use practices, erosion, and deforestation. Three major sources of water pollution are domestic wastewater, industrial wastewater and agricultural runoff.

Water pollution from domestic and human wastewater is the most problematic and the cause of many severe water borne diseases. In India, the organic loading of the water bodies is enormous due to gross inadequacy of domestic sewage treatment plants in rural as well as urban areas. Domestic and municipal effluents are estimated to constitute 75% of India's wastewater by volume (MOEF, 1992). As per Central Pollution Control Board (CPCB, 1988), out of 212 class I cities (population more than 100,000) only 48 cities (22.6%) have some wastewater collection, treatment (primary, secondary or partial primary, partial secondary) and disposal facilities. Of the 241 class II towns (population more than 50,000 but less than 100,000) only 19 towns have wastewater collection system, of which only 10 towns have some treatment facility. Class I cities generated 12,146 MLD of wastewater whereas class II towns contribution was 1,298 MLD. Bombay

(1,714 MLD) or Delhi (1,480 MLD) individually generated more wastewater in 1988 than 241 class II towns put together. 20% of all the wastewater generated in class I cities and only 2% of all wastewater generated in class II towns was treated. Estimates of wastewater generated in the rural sector are not available, where only 3.15% of the population had access to sanitation services in 1993 (Central Statistical Organization, 1997). Put together, the receiving water bodies are under great stress.

Indian industry has registered substantial growth in the past four decades. Of the 2,901 large water polluting industries discharging effluents into rivers and lakes, only 841 (29%) have adequate effluent treatment plants (ETP) and 2,026 industries (69.8%) do not have adequate treatment facilities and remaining 34 industries have been closed (MOEF, 1997).

The green revolution ushered by the development of high yielding varieties and associated development of water resources and application of agricultural chemicals has made India self sufficient in food grains. But the negative impacts of use of agricultural chemicals, often used indiscriminately, on water environment are being felt now. The fertilizer ($N+P_2O_5+K_2O$) consumption has increased from 7.7 million tonnes in 1984 to 13.9 million tonnes of nutrients in 1995-96. Use of technical grade pesticides has increased from 24,305 tonnes in 1971 to 85,030 tonnes in 1994-95 (Central Statistical Organisation, 1997). The fertilizer run off leads to nutrient enrichment in the receiving water bodies resulting in eutrophication. The pesticides get accumulated in the food chain, with increasing concentrations along the food chain (biomagnification). This in turn effects various species in the food chain, including man.

5.2.2 Why Water is not Treated Adequately?

In the domestic sector, which contributes 75% of effluents by volume, collection and treatment of wastewater is the responsibility of the municipal authority or the village panchayat. Absence of basic amenities like sewerage systems and sanitary services are the main reasons for non-treatment of domestic sewage. Non-implementation of legal stipulations, lack of financial resources to provide these amenities and in some cases lack of awareness also contributes to the problem.

In the industrial sector, polluting industries are generally not resistant to a one-time investment in setting up an Effluent Treatment Plant (ETP) especially if the investment is small relative to the revenue generated. However, operating costs can be high depending on the constituents of wastewater. Hence a firm may set up an ETP and not run it if the operating and maintenance cost is substantial. Non operation of ETPs is also encouraged by the fact that the monitoring agencies like central and state pollution control boards relay on “initial compliance”, *i.e.* verifying that pollution control devices are installed, rather than on their regular

operation. This is due to the fact that dynamic monitoring (continuous monitoring of ETP's effectiveness) demands adequate manpower and substantial financial resources, which may not be available with the monitoring agencies.

It is also interesting to note the pattern in the type of ownership of the non-complying industries. As shown in Figure 4, about 48% of the total non-complying units are in the state public or cooperative sector, and 9% are Central Public Sector Units. Thus, more than half (57%), of the non-complying units belong to the public sector, while remaining 43% are in the private sector (CPCB, 1995).

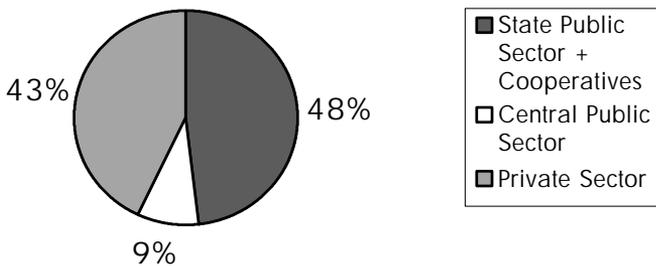


Figure 4 Ownership Regime of Water Polluting Industries
(2,026 industries with inadequate treatment facilities)

The large number of small-scale industrial facilities (including unorganized and household units) is not adequately addressed in the current pollution abatement policy. With regard to providing fiscal incentives, such as financial assistance for setting up Common Effluent Treatment Plant (CETP), or for the adoption of clean technologies, the main problem is the lack of an incentive mechanism to induce firms to take advantage of these schemes. In the absence of strict enforcement of discharge standards, there is no reason for polluting industries to voluntarily avail of the fiscal incentive schemes.

In the agricultural sector, so far there are no restrictions on the use of fertilizers and pesticides. Awareness campaigns among farmers to promote integrated pest management practices, and introduction of environment friendly farm practices (vermiculture, biomanures) should be the future direction.

5.2.3 What should be the Level of Treatment and at What Cost?

Currently, the effluent standards prescribed by CPCB are based on where the effluent is being released, after treatment. Even if all the industries comply with the standards, the ambient water quality may deteriorate if there are many industries. Further more there is no classification of pollutants based on their impact on the environment. Prescription of uniform compliance norms for all

industries is also not cost effective.

The cost of waste treatment depends on the waste characteristics (volume, concentration etc.), limiting standards for discharge and the treatment technologies adopted. The annualized costs of water pollution abatement in major water polluting industries in India range from 0.01 percent (in cement) to 3.9 percent (in chemical) of the annual turnover (Kirit Parikh *et al*, 1999).

With increasing understanding of the limited waste assimilation capacities of water bodies, the environmental standards are getting stricter. More stringent regulations imply that the waste treatment facilities have to become increasingly efficient. As a result the costs escalate steeply: an ETP of 99% efficiency can cost almost twice as much compared to one of 90% efficiency for certain critical pollutants such as colour or total dissolved solids (Prasad Modak, 1995). Industries in India, may have to spend around 2-5% of the capital investment of the industry for pollution control assuming satisfactory treatment and handling of effluents, emissions and solid wastes. The costs of operating the facilities are anywhere between 15-30% of the investment made on the treatment facilities, on an annual basis (Prasad Modak, 1995).

5.3 Water Resource Management Policies in India

Government initiatives for water resource management are outlined in ***National Water Policy, 1987; National Conservation Strategy and Policy Statement on Environment and Development, 1992; and Policy Statement for Abatement of Pollution, 1992.***

Box 4: Major Water Pollution Management Policy Statements of Government of India

Technological Measures

- Use of clean fuels and clean technologies, energy efficient devices and water pollution control systems
- Incentives for environmentally benign substitutes, technologies and energy conservation
- Internalizing the environmental safeguards as integral component of the total project cost

Zoning Strategy

- Setting up of source specific and area wise water quality standards and time bound plans to prevent and control pollution

- Proper location of projects to minimize the adverse impact on people and environment
- Priority to compatible industries so that, to the extent possible, wastes from one could be used as raw material for the other thus minimizing the net pollution
- Location of industries as per environmental guidelines for siting of industry

Fiscal Incentives & Economic Instruments

- Incentives for environmentally clean technologies, recycling and reuse of wastes and conservation of natural resources
- Operationalization of “polluter pays principle” by introducing effluent/emission tax, resource cess for industry and implementation of standards based on resource consumption and production capacity
- Public liability insurance against loss or injury to life or property
- Internalizing the environmental safeguards as integral component of the total project cost

Command and Control

- Enforcement of pollution control norms in various types of industrial units depending on their production processes/ technologies and pollution potential; particular attention to be paid to highly polluting industries
- Introduction of “Environmental Audit”
- Environmental Impact Assessment from the planning stage and selection of sites for location of industries
- Clearance by MOEF of all projects above certain size and in fragile areas.

Source: National Conservation Strategy and Policy Document on Environment and Development (1992). Ministry of Environment and Forests, Government of India, New Delhi.

6. How to Improve Air and Water Quality

The very poor quality of air and water in many parts of the country prove that these policies have not worked. The reasons for this failure are obvious. Legislation, which is not or can not be implemented, is ineffective. Over the last

two decades the pollution control boards have initiated thousands of cases against polluting industries but have obtained only a handful of convictions. For example in Rajasthan only 2 convictions have been obtained from nearly 7,000 cases. The pollution control boards are poorly staffed, lack technical facilities to measure and monitor, have meager financial resources and are also subjected to political pressures.

For pollution control in industrial sector, the present policy relies on industry specific emission/effluent standards, based on best available technology. Naturally, the industries do not reveal what is possible and manage to get a lax standard. In case of water pollution, the cess levied is on the volume of water and not on the concentration of pollutants in the effluent. This also does not give incentive to reduce pollutant concentrations. An appropriate policy would be to measure the quantities of pollutants and levy tax on it at a rate that rises with the quantity. This will provide industries incentives to do what they can to clean up their emissions/effluents. Such a simple economic solution is objected on the grounds that it requires effective measurement and monitoring. However, our experience has shown that in the absence of such monitoring even our present policy is ineffective, as the pollution control boards are unable to obtain many convictions in the courts. So we must have effective measurement and monitoring of all major polluting firms. Once we have it, we might as well use the economically more efficient pollution tax.

Experience in the industrialized countries has also shown that firms react to popular pressure. To generate such pressure, citizens should be given a right to information. Effluent quality measurements of all firms should be publicly available so that citizens could know who is damaging their air and water and by how much. Environmental quality management through social pressures have succeeded in countries like Indonesia (see Box 5).

To improve water quality in our rivers, besides taking care of pollution by large polluting firms, we need to take care of effluents by small polluting firms and municipal sewage often dumped untreated into our water bodies. Small firms will have to be relocated together where a common effluent treatment plant is required for them. Municipal sewage must be treated. There is no alternative. The cost of poor quality water on the population is so large that sewage treatment is economically justified. Municipalities and corporations must be required to do so.

**Box 5: Pollution Management through Social Pressures:
Indonesia's PROPER Program and Application to India**

In Indonesia, it was observed that environmental performance of a firm depends on where it is located and the socio-economic status of the region. BAPEPAL (Indonesian Environmental Impact Management Agency) came up with an innovative program called PROPER to encourage factories to reduce pollution. The PROPER program proposed a 5 colour rating system for grading firms. Compliance levels were subdivided into gold, green, blue, red and black ratings, the latter the non-compliance category in decreasing order of level of compliance, gold being the best among compliance and black being the worst. The ratings are published. The colour rating system met several objectives. First by collapsing complex data into a single rating, the system made it possible to compare the water pollution performance of very different firms. Secondly, the final ratings were simple and their implications easily understood. The idea behind the new program was simple: by providing information about pollution in a form that non-specialists could understand, the initiative sought to tap the growing power of the media and public opinion to promote cleaner industry.

The first partial announcement of results, in June 1995, was given a heavy media coverage. Five factories were awarded the green rating (no factories were rated gold). Of the remaining 182 plants, only the distribution of the color ratings was disclosed: 61 were blue, 115 were red, and 6 were black. BAPEDAL gave plants rated red or black until December 1995 to improve their performance before their names and ratings were publicly disclosed. Under the threat of public disclosure, ten factories managed to improve their rating to red or blue within six months. Conversations with plant owners and other evidences suggest that the primary force driving these improvements was concern about potentially strong negative responses from local communities and markets. In December 1995, full disclosure got under way. Disclosure included plants' color ratings, names and locations, managers and parent companies. A fresh round of ratings, announced in September 1996, revealed additional improvements.

The movement of firms from non-compliance to compliance was remarkable. In June 1995, 65% of the factories were rated red or black. By September 1996, non-compliant firms accounted for just 47% of the total. Moreover, number of firms in compliance increased by 50% in this period.

The new approach to pollution regulation in Indonesia showed that local communities, the media, and market forces could be powerful allies in

the struggle against industrial pollution. Encouraged by the results BAPEDAL is planning to rate 2,000 plants by the year 2000. Several other countries like Philippines, Colombia and Mexico have also launched similar programs. PROPER has mainly been applied to large enterprises. However it remains to be seen whether small and medium sized enterprises, which are not very well known to the public, can also be included in this program. Besides the environmental performance was much worse in poorer communities. Does this mean that PROPER was likely to work better in affluent and well educated parts of Indonesia? Also, will BAPEDAL be able to sustain PROPER's effectiveness once the program's novelty wears off and the media move on to other stories?

How can this idea be tried in India? Can we use financial markets to sustain long term interest in environmental performance by requiring that the firms report their environmental risks to their shareholders? After all, delay of a project and even closures on environmental grounds are definitely possible and affect a firm's profitability. This would require periodic environmental audits which may be done by chartered environmental auditors (CEA) (on the line of chartered accountants). Guidelines, manuals and training programmes will be needed for certified environmental auditors.

The colour rating agency and the Pollution Control Boards (PCBs) complement each other. PCB has the technical competence and administrative authority. Unfortunately, it is locked up in legal battles and does not work through by societal pressures as rating agencies can. The two agencies can serve as a watch dog on each other, giving competition and confirmation to their findings. Can we link the colour-rating scheme to environmental audits, which should be mandatory?

To reduce water pollution from agriculture, use of chemicals have to be curtailed. Appropriate pricing would encourage more effective use of chemicals. But new technologies have also a role to play here. Integrated pest management practices should be vigorously encouraged. Special markets can be created for eco-friendly farm products. To reduce fertilizer use and resultant nutrient run-off, environment friendly practices like vermiculture and use of biomanures should be encouraged. Fertilizers may be delivered through drip irrigation to minimize water use, fertilizer use and effective crop management.

Finally, special measures are needed to control vehicular emissions in the urban areas. It has been demonstrated that through proper interventions in transport sector, overall pollution levels can be substantially reduced. Some of the measures are needed urgently, to cut the pollution levels immediately and some are long

term measures as shown in Box 6.

Box 6: Vehicular Pollution Management Measures

Immediate Measures

- Phase out old vehicles from urban areas
- Introduce catalytic converters for vehicles
- Introduce unleaded petrol in all urban areas
- Tax diesel vehicles for fuel use as well as for pollution

Long Term Measures

- Introduce four stroke engines (for fuel efficiency and low emissions)
- Improve fuel quality
- Improve public transport systems in the urban areas
- Urban planning with proper traffic management

Air and water pollution impose an enormous burden on people's health. The costs of cleaning them up are comparatively small. Clean air and water are not a luxury they are a necessity. With sensible policies, right to information, citizen awareness and lot of investment we should and we must clean up our air and water.

7. Strategies for Water Quality Management

The extent to which water resources development contributes to economic productivity and social well being is not usually appreciated, although all social and economic activities rely heavily on the adequacy of the supply and quality of freshwater. In India, as populations and economic activities grow, many regions are rapidly reaching conditions of water scarcity or facing limits on economic development. Water demands are increasing rapidly, with an estimated 80-90% required for irrigation, less than 20% for industry and domestic consumption. The holistic management of freshwater as a finite and vulnerable resource, and the integration of sectoral water plans and programmes within the framework of national economic and social policy, are of paramount importance for action. The fragmentation of responsibilities for water resource development among sectoral agencies is proving to be an impediment to

promoting integrated water management. Effective implementation and coordination mechanisms are required for achieving truly integrated water resources management (UN-DTCD/IBRD/UNDP, 1991; UN-DTCD, 1991).

A prerequisite for the sustainable management of water as a scarce vulnerable resource is the need to acknowledge, in all planning and development, its full costs. Planning considerations should reflect on the one hand all types of benefits, both direct and indirect, and on the other all investment, environmental protection and operational costs, as well as the opportunity costs reflecting the most valuable alternative use of water (Jyoti Parikh *et.al*, 1998). In this chapter, strategies to manage freshwater quality are discussed. Demand management strategies are also discussed as reducing demands ultimately lead to future pollution load reduction. A multipronged approach comprising of command and control, technological interventions, fiscal and economic instruments are being suggested to achieve sustainable supply, demand and quality management here.

7.1 Industrial Pollution Management

Economic Instruments

- Reduce water use through pricing mechanisms
- Investment in treatment facilities
- Operationalize Polluter Pays Principle
 - Tax based on pollution load rather than on water consumption
 - Environmental externalities to be reflected in tax structure
 - Environmental externalities to be accounted in cost-benefit analysis, at EIA level
 - Make environmental audits binding on the industry to encourage self monitoring and to reduce burden on the monitoring agencies.
- Expand the scope of public liability insurance to cover 17 major water polluting industries
- Mandatory clean technologies, reuse, recycling in new industries
- Fiscal incentives for old industries to shift to clean technology
- Higher credit rating for green industries

7.2 Domestic and Agricultural Pollution Management

Typically, most attention goes to industrial use of water and the effluents but in

the urban areas, it is the domestic and commercial water use that is predominating. In rural areas it is the agricultural use that is very large. Agricultural run off, mixed with fertiliser and pesticides, can harm the human health. Health impacts and resultant economic losses due to poor water quality and inadequate sanitation are of major concern.

- Options for private sector entry/public-private partnerships in domestic water supply and sanitation and wastewater treatment in class I cities and class II towns should be vigorously debated and implemented in time bound programmes.
- As conventional treatment of wastewater is cost intensive, options for biological treatment of domestic effluents should be explored.
- While there is a framework in place to deal with industrial pollution, such as effluent standards and pollution control agencies, domestic and agriculture sectors do not have any such mechanisms. These non-point sources of pollution affect surface water and can also reach ground water aquifers. Standards should be prescribed for domestic sewage water.
- New institutional mechanisms should be explored to monitor and manage domestic and agricultural pollution. Responsibilities should be either vested with the central and state pollution control boards or existing institutions (PWD, municipalities and gram panchayats) should be empowered with exclusive charge to manage domestic and agricultural pollution.
- Integrated pest management practices should be vigorously encouraged. Special markets can be created for eco-friendly farm products.
- To reduce fertilizer use and resultant nutrient run-off, environment friendly practices like vermiculture and use of biomanures should be encouraged. Fertilizers may be delivered through drip irrigation to minimize water use, fertilizer use and effective crop management.

7.3 Stakeholders and Externalities

Different people are affected in different ways by water issues. Since water is so widely used in society, the list of stakeholders is long and diverse. Environmental economics can help study the impacts/costs each group incurs from decreases in water quantity or quality. This can help in mediating conflicts among different users. Involvement of local communities in conservation practices to achieve sustainability is now generally considered essential. It is the approach preferred by the NGOs, and it has been incorporated by the United Nations Conference on Environment and Development (UNCED) in the Rio declaration as one of the approaches to be considered for environment protection. Traditional water conservation practices were effective but failed due to increasing pressure on

resources due to increased population and its increased economic activities. Tinkering with the system, mostly through government intervention, that came in the form of regulations or economic activities have also sometimes contributed to their failure. In this light, involvement of local communities and local self-governments in decision making will greatly enhance the success rate of conservation efforts.

Most of the effects of water problems that the various stakeholders face are external to the water market. This means that the impacts are not reflected in the price of water, and that those stakeholders suffering consequences are not the ones causing the problems. The undesirable externalities include health damages, reduced agricultural output, and more costly industrial operations. Usually, the polluter affects some other party, and is not held accountable. This also leads to conflicts among various stakeholder groups. Quantifying and monetizing these effects, and then incorporating them into the decision making process is one way to resolve such problems.

7.3.1 Public Participation

- Communities and farmers associations' involvement is crucial for success of water quality management policies and programmes. This can be achieved through creation of water user forums at appropriate levels.
- Participation of all stakeholders in decision-making at local, regional, state and national levels needs to be ensured.

Water quality management through social pressure should be encouraged, as similar programmes have succeeded in countries like Indonesia.

7.3.2 Spreading Awareness

- Sustained targeted awareness campaigns can ensure public participation in water resource management. All citizens especially women, children, farmers and senior citizens need to be targeted.

7.4 Demand Management Strategies

Main issues in demand management are balancing between competing demands and resolving resultant conflicts and demand reduction through minimization of misuse. The strategies for demand management should use managerial, technological, conflict resolution and by application of pricing policies.

7.4.1 Managerial Strategies

- Rational physical resource allocation practices need to be inculcated in all

the concerned institutions - decisions should be based on optimizing benefits of allocation.

- Planning should be based on limitations put by water availability, whether in deciding cropping pattern / cropping intensity or in selecting industries suitable for the region.

7.4.2 Technological Interventions

- Major technological interventions are needed to reduce misuse or overuse of scarce water resource in all competing sectors - agriculture, industry and domestic
- In agricultural sector, farm channel layouts should be scientifically planned. Irrigation through drip and sprinkler technologies should be encouraged, particularly in regions poor in water resources. Drip and sprinkler irrigation also reduces farm water run-offs, reducing pollution loads on the receiving water bodies.
- In industrial sector, water efficient and clean technologies should be made mandatory, particularly in all new upcoming industries. All old industries should be given fiscal incentives to shift to water efficient technologies. Water reuse and recycling should be made mandatory for all water intensive industries initially and extended to all industries in a time bound programme.
- In domestic sector, water losses can be curtailed through proper maintenance and management of pipelines. Over use of water should be curtailed through less water consuming devices and awareness campaigns.
- As domestic sector contributes approximately 75% of effluents by volume, reuse and recycling for agricultural and industrial purposes should be vigorously pursued. This can be done by proper water allocation management - by swapping freshwater assigned for agriculture and industry to domestic sector and diverting recycled domestic effluents for agriculture and industrial use.

7.4.3 Pricing Mechanism

Pursuant to the recognition of water as a social and economic good, the various available options for charging water users have to be further evaluated. Proper pricing should be applied in all water use sectors - agriculture, industry and domestic, so as to reduce demand.

In all sectors, volumetric based water rates should be adopted. The water rates should reflect the scarcity value of the resource and should cover opportunity costs and environmental externalities.

8. Conclusions

The efforts similar to rural electrification are needed to cover all the towns with water supply, sanitation and sewage treatment plants.

Pollution control boards need to be strengthened technically, by well-equipped pollution measurement laboratories and mobile vans are needed to measure all-important pollutants. Systematic efforts to strengthen them are required.

- Financially, by supporting all the desired functions with modern equipment and skilled manpower.
- Managerially, by enabling them with training and promoting cooperative work culture with accountability.
- Legally, by giving them sufficient power to manage pollution within flexible guidelines.
- Streamlining multiplicity of data collection and monitoring responsibilities.

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Comments

Bishnu Bhandari

1. Some Observations

The paper co-authored by Professors Jyoti Parikh, Tata L. Raghu Ram and Kirit Parikh begins with the review of constitutional obligation of the Government of India in protecting its environmental system. As part of translating this obligation, the Government of India has promulgated over 75 legislation relating to environment and pollution, together with the establishment of institutions in carrying out environmental management and strategic planning. These laws range from mandatory insurance policies on hazardous accidents to biodiversity conservation. Also the government provides to industries such fiscal incentives as depreciation allowance on, and soft loans for, the installation of pollution control devices, reduction in custom and excise duties for notified equipment and spares for pollution control and rebate in water-cess to install equipment for treatment of sewage or effluents. The government, through its five-year plans, has been integrating environmental and economic concerns into the process of development planning. Despite this command and control type of measure, the conditions of environment is deteriorating across the country. Air and water pollution is rampantly growing in the cities; per capita availability of forest is going down and most of the forest is threatened by anthropogenic pressures and the forests that support rich megadiversity are under great threat. The growing depletion of forests is attributed to high demand of fuel wood, fodder and timber, increasing population of human as well as livestock, inadequacy of protection measures, conversion of forest lands into non-forest activities, weak implementation of environmental law, under-staffed implementing agencies and expensive environmental standards. The paper focuses on issues related to biodiversity conservation, air pollution and water pollution.

1) Biodiversity Conservation: Despite 441 wildlife sanctuaries and 80 national parks covering 5% of total land of India, the paper argues that the surrounding communities still perceive the protected areas (PAs) as the center of wildlife depredation. They argue that “while society at large enjoys the benefits of conservation, the rural surrounding communities bear all the costs”. However, recent development of eco-development, eco-tourism, park and people program and buffer zone management have been effective in changing local people’s attitudes towards protected areas and wildlife conservation.

2) Air Pollution: The problems of urban and indoor air pollution are of grave concern in India. Many of its cities have average suspended particulate matter (SPM) several times higher than the WHO standard. It has a direct impact on

health, economic activities, material damage and the increased risk of environmental disasters. Women and children are the silent sufferers of household pollution. The paper suggests the phasing out of old vehicles from urban areas, high credit to green industries, biological treatment of domestic effluents and so forth. However, political and economical implications of phasing out these vehicles without any alternatives may cause serious social problems because these vehicles have been the quickest means of transportation and livelihood for a large proportion of population.

3) Water Pollution: The availability of fresh water both in quantity and quality is a nationwide problem. The available water is also vulnerable to rapid industrialization, population growth and agricultural run-off. Excessive use of water has caused land degradation in many parts of the country. The paper suggests the use of drip and sprinkle irrigation, awareness campaign in water reduction, use of small toilets, setting quotas on consumption, sanctions for excess use and use of water saving devices. The negative impact of green revolution on water and food chain system is equally note-worthy. The paper suggests the promotion of eco-friendly practices and organic (eco) farming. Adopting eco-friendly farming practices is the best way for environment protection. However, we need to think about a poor farmer, for whom it would be extremely difficult to switch to drip and sprinkle irrigation systems without any external support. Another point I would like to mention is the capability of this technology to cater to the needs of the growing population and then common man's affordability to organically grown products.

The above scenarios on environmental situation of India give rise to three key questions, which I believe, are challenging to the sustainable utilization of resources. They are:

- How can community reduce the overuse of common resources such as underground water, forests, etc.?
- What would be the extent of damage caused by air pollution to other parts of region?
- Are the command and control system really effective in protecting the environment?

2. The Way Ahead

The authors have rightly pointed out that “environmental governance” is a broad term and should comprise the management of environmental resources such as earth, air, water, forests, energy, biodiversity and so forth. It should include issues ranging from supply and demand to quality management directed to users, regulators, suppliers, policy makers and so forth because environmental

governance deals with how environmental problems are managed by the society. Onchan (1999) argues that “governance encompasses the traditions, institutions and processes which define how power is exercised; how important decisions are made; and how various interests are accorded roles or voices in the decision making process.” Kato (nd) mentions that governance is concerned with the interactions of formal and informal institutions and includes actors as well as processes. Since environmental governance is complex and broad in scope, it needs to be promoted in a thoughtful way. My thoughts on promoting it are briefly undernoted and I believe that these points are the heartland of a successful environmental governance program.

- 1) Think “glocally”: The concept of glocalism is primarily derived from the popular expression “Think Globally, Act Locally”. It means global localization. Hempel (1996) opines

Global change in ecology and political economy (e.g. expanded cross-boarder trade and investment) are beginning to foster a devolution of power and authority away from the nation-state and toward greater reliance on supranational, regional and local level of governance. A new and environmentally oriented world order is likely to emerge as a result of either by design or by force of circumstances. Its political institutions will be “glocal” in character, this dual nature reflecting both global and grassroots implications of a biosphere in crisis and an economy that is straining to expand world market... Establishing a competent glocal political order is the central challenge of environmental governance of the 21st century.

When we talk of supranational power or authority, we need to think of a new framework of institutions that is capable of ensuring smooth functioning of environmental governance at the supranational level.

- 2) Promote environmental education: The contemporary environmental problems are the outcome of human intervention. We need to change or modify human behaviors to mitigate these problems. Environmental education plays a key role in bringing out desirable changes in human awareness, knowledge, attitudes, skill and participation in the society (Bhandari, 1999). So education should be the thrust in promoting environmental governance. The authors also have placed an emphasis on the importance of awareness and training to ameliorate environmental problems.
- 3) Forge partnership between government and civil societies: Since the environmental governance comprises actors as well as processes, it is crucially important to forge partnership between government and civil societies. They can compliment each other and avoid duplication and fragmentation of amelioration measures.
- 4) Encourage participatory management: Regular dialogue and interaction

among all affected elements of society are vitally important in promoting environmental governance. This will facilitate active and informed participation of stakeholders and help develop trust and confidence among themselves. Once the trust is developed, then the participation becomes inevitably spontaneous.

- **Show political will and determination:** A sound and sustainable environmental development can not be achieved without firm political will and determination, which is a key to the success of any program. The concerned agencies should show their political will and determination, not by words only but by deeds as well.

In the end, let me conclude this presentation by offering my congratulation to the authors for their articulate paper on environmental governance in India. I hope and trust that the deliberations of this workshop will provide a firm basis for the Environmental Governance Project to develop a sound and realistic framework of actions in the region.

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Summary of Discussion

The International Workshop on Environmental Governance in Asia was held on 18 March, 1999. Organized by the Institute for Global Environmental Strategies (IGES), the workshop presented country reports on environmental governance in China, Japan, Thailand, and India. Presentations were made by environmental experts from a number of countries: Prof. Kazu Kato, Nagoya University, Japan (chairperson); Dr. Miranda A. Schreurs, University of Maryland, USA; Ms. Xin Zhou, Policy Research Center for Environment and Economy of the State Environmental Protection Administration (PRCEE/SEPA), China; Dr. Mineo Kato, Yokohama National University, Japan; Ms. Phakatip Chunghivat, Thailand Environment Institute (TEI), Thailand; Prof. Jyoti Parikh, Indira Gandhi Institute of Development Research (IGIDR), India; Prof. Kenji Kamino, Nagoya University, Japan; Dr. James E. Nickum, University of Tokyo, Japan; Mr. Kimihiko Hyakumura, IGES, Japan; Dr. Bishnu Bhandari, IGES, Japan; Mr. Santosh K. Sharma, Development Alternatives, India; and Dr. Yohei Harashima, IGES, Japan.

Approximately 70 people attended the workshop, and joined in a lively discussion.

The conclusions from the discussion during the workshop on environmental governance in the four Asian countries can be summarized as follows:

- 1) In the four Asian countries, many positive trends can be found in environmental governance. Environmental laws have been strengthened, particularly in the 1970s and again in the 1990s. Many new environmental actors have emerged, and environmental awareness has grown at the local, national, and Asian regional levels.
- 2) In these countries, environmental policy formation and policy implementation still tends to be top-down. However, the role of local governments and civil society has been gradually expanding in each country, and we can observe the pluralization of environmental policy processes. It is increasingly recognized that informal, community based, NGO-driven solutions are needed for environmental protection, and that public participation in environmental policy processes should be enhanced in order to take local conditions adequately into account.
- 3) The four societies have been placing emphasis on the need for basic environmental information and its disclosure. In each country, the Environmental Impact Assessment (EIA) system has been adopted, and improvement of the EIA will contribute to environmental information disclosure. Moreover, environmental monitoring in the developing Asian countries remains limited, and has been a major problem for effective environmental policy implementation.

- 4) In the four Asian countries, environmental policy still tends to be separate from the economic planning process. Integrating environmental thinking into economic planning is necessary. The key issues for achieving this are how economic/fiscal instruments can be used for environmental purposes, and how inter-ministerial co-operation can be built in each country.
- 5) In these countries, the role of industries in environmental governance has been increasing. Small firms in particular have been large sources of environmental pollution. Serious attention should be paid to the problems of bringing small firms into compliance. In developing Asian countries, the adoption of clean technologies in small firms should also be promoted.

With regard to these conclusions, all workshop participants agreed that there is a necessity for more in-depth analysis of environmental governance mechanisms in Asian countries, and also recognized that such analysis will contribute to increasing regional/sub-regional environmental institutional capacity. This is important considering the extreme diversity of the Asian region and the many environmental problems that must be solved.

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中国の環境ガバナンス

周 新

1. 概観

1.1 中国の環境保護の歴史

先進工業国と同様に、多くの環境問題の発生そして人々の生活や健康に被害が生じると共に、中国の環境保護も進展してきた。環境問題の原因は、社会経済発展と強く関連している。

1950年代初頭に、中国は、重工業を中心とした工業化戦略として最初の5か年国家計画を実施している。大規模な工業団地がつくられるようになったときから、環境問題が発生するようになった。煙突が林立するようになったことが、現代化のシンボルとなっている。

1958年の大躍進期には、工業開発を拙速に推進するために、中国は鉄鋼業を中心とした発展戦略を実施した。無計画に旧式の製造施設と国産の溶鉱炉を設置した結果、深刻な生態破壊をもたらしたのであった。

1960年代、中国はさらに自給自足的な工業を確立していった。中国の中西部では、重工業を集中させた結果、さらに深刻な大気と水の汚染が発生している。1970年以後、多くの汚染事故が発生し、環境問題が激しくなった。1972年のストックホルム人間環境会議は中国政府の環境問題への意識を高めるものとなった。

1970年代後半、中国は改革開放路線を採用し、計画経済から社会主義市場経済への移行を始めた。20年間の急速な経済成長とともに、特に国有企業ではない郷鎮企業が成長し、都市部の大気汚染や主要河川の水汚染が悪化していった。深刻な環境悪化に対応するために、中国政府は一連の環境法、規制、基準を制定し、環境政策と制度を実施していった。中国の環境保護の歴史は、次のとおり3つの段階に分けることができる。

第一期: 創建(1972年—1982年8月)

1972年のストックホルム会議への中国代表団の参加から1973年8月に北京で開催された第一回全国環境保護会議までに、政府は、32文字の方針を提案した。これは、「全面的に企画し、合理的に配置し、総合的に利用し、害を利に変え、大衆に依拠し、全ての人が取り組んで、環境を保護し、人民に幸をもたらす」というもので、これは中国の環境保護工作が始まったことを示すものであった。

1) 理論的な知見

この段階では、環境保護と生態保護に注意を払ったのは政府であって、政府の考え方が新しい段階へと導いた。まず第1に、環境問題は単に「三廃」というだけでなく、中国の社会経済発展を阻害する重要な要因となっている。第2に、発展戦略のなかで環境と経済のディレンマに取り組むべきである。環境保護は、人口、資源、環境の調和を保つように経済成長のなかに統合すべきである。第3に、環境管理は、環境保護工作のなかで最も高い優先順位を与えられるべきである。

2) 政策と法制

中国政府は、環境管理を強化するために、次のような、一連の環境政策といくつかの環境法を制定している。

- 1979年9月13日、第5期全国人民代表大会第11回常務委員会は環境保護法(試行)を採択している。それ以来、国の環境保護は法律に基づいて執行されている。
- 環境影響評価制度は、「すべての企業と事業体の用地選定、設計、建設及び生産には、環境に対する汚染と破壊の防止に十分に注意しなければならない。新設、改築及び拡張工事を行うときは、環境影響評価書を提出して、環境保護部門や関連部門の審査と承認を得る」と、1979年環境保護法に明記されている。この制度の実施はエンド・オブ・パイプ・コントロールから汚染防治への移行を促している。
- 1982年5月2日、国務院は、排污收費制度の実施を求める法規を發布している。この法規は、排污收費の率、資金源、排污收費の活用についても規定している。これは、汚染防止にとっての効果的な経済的インセンティブを与えるものとなっている。

3) 対処能力の構築

1973年の第一回全国環境保護会議の後、1974年に国務院のなかに環境保護指導小組が設けられたが、国家計画委員会、建設部、工業部、農業部、運輸部、水利部、公衆衛生部など20の部や国家委員会のメンバーによって構成されていた。この主要な職務は、環境保護に関する方針や政策、行政法規の制定、国家環境計画の策定、各部門間の調整であった。

指導小組の創設は、中国の環境保護行政の始まりとなった。1979年の環境保護法は、地方の環境行政と職務分担についても規定していた。環境保護法に対応するために、省、自治区、市の地方政府は中央政府に従って地方環境保護局(EPB)を設けた。冶金部、化学工業部、軽工業部、繊維部、石油工業部なども部門別に環境保護組織を設けている。1982年の行政機構改革のなかで、国務院の環境保護指導小組は廃止され、城郷建設部に環境保護局が設置された。

第二期: 躍進(1982年9月－1989年4月)

第二回全国環境保護会議は中国の環境保護にとって画期的なものとなった。この会議ではいくつかの方針が決定されている。1) 環境保護は基本的な国策の一つであること。2) 中国が、「三同步」や「三効果」といった戦略方針をとること。これは、経済効果、社会効果、環境効果を統一的に実現するために、経済発展、城郷建設、環境保護とは同時に企画し、実施し、発展させることである。3) 集中的な環境管理が環境保護工作にとって重要なものであること。

1) 環境政策の枠組みと法制度の改善

この段階には、環境政策の枠組は3つから構成されている(図1を参照)。「基本的な国策」が最上位である。「三同步」と「三効果」が次のレベルである。第3のレベルは、3つの主要な環境政策であり、「防止を主とし、防止と制御を統合する」、「汚染者の負担」そして「環境管理の強化」が挙げられている。さらに、この枠組みには、環境経済政策、生態保護政策、技術政策も含まれている。

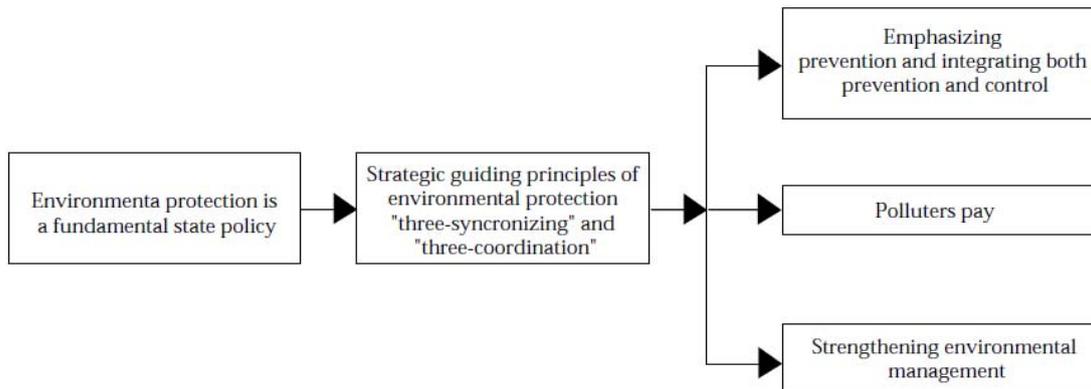


図1 中国の環境政策の枠組み

初期の法制度は、憲法、環境保護法、行政法規や地方法規があった(図2を参照)。

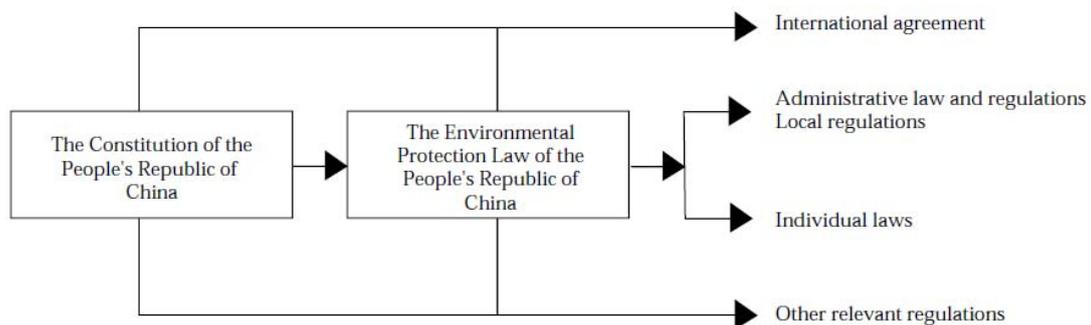


図2 中国の環境保護法制

2) マクロ環境管理制度の創設と展開

1984年5月、国務院は国家環境保護委員会の設立を決定している。1988年には、国務院のなかに国家環境保護局(NEPA)が設立された。各レベルの政府は地方のEPBを設置している。各級と各部署の総合的な環境管理メカニズムがこの期間に設置された(図3を参照)。

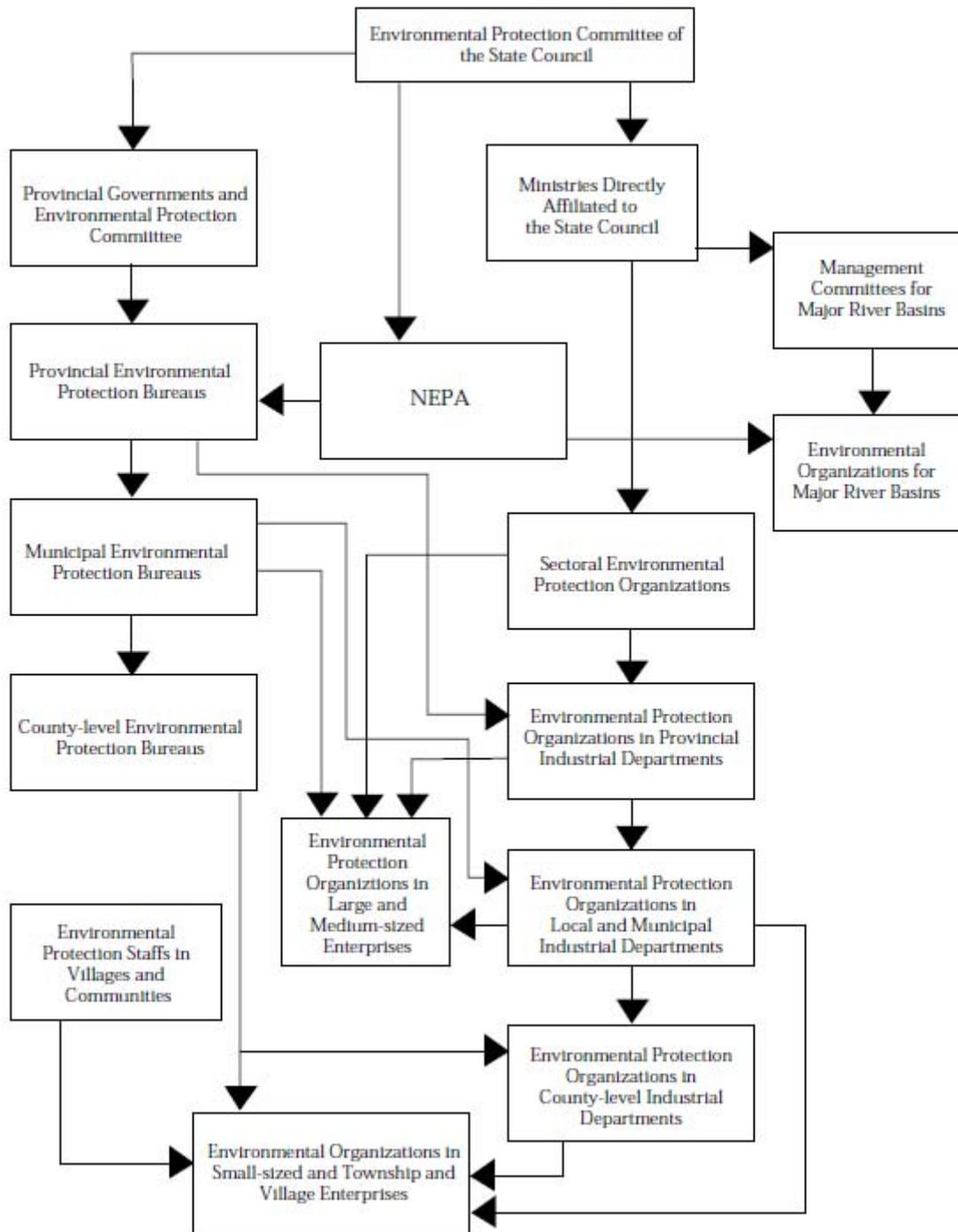


図3 中国の環境管理制度

第三期:改革と改善(1989年5月ー現在)

この段階には、環境問題は世界でもかなり重要な問題となっている。第三回全国環境保護会議は1989年4月に開催され、このとき、「中国は、中国特有の方法で、環境保護の道を探っていかなければならない」という提案がなされた。1992年のリオ地球サミットの後、持続可能な発展が共通の認識となっていった。1994年、中国政府は中国アジェンダ21ー21世紀に向けた人口、環境、発展に関する白書を公表している。第四回全国環境保護会議は1996年6月に開催され、2つの重要な行動が提唱されたのであった。例えば、21世紀に向けた第9次5か年全国環境計画のなかの主要な汚染物排出総量規制が挙げられる。1996年9月、国務院は、第9次5か年計画と環境保護2010年目標を批准している。

この段階には、環境管理は3つの移行を経験している。1) エンド・オブ・パイプ・コントロールからライフサイクル環境管理。2) 集中的な管理から総量の管理。3) 法律、規制、手続に依拠した環境保護の行政管理。

環境政策と環境法のレジームは改善されてきた。1989年12月、新しい環境保護法が採択された。現在、6つの環境法が制定されている。1) 環境保護法、2) 水污染防治法、3) 大気污染防治法、4) 騒音環境污染防治法、5) 固体廃物汚染環境防治法、6) 海洋環境保護法である。資源保護については9つの法律がある。刑法は、環境と資源の破壊を犯罪と規定するように改正された。28の環境行政法規、70の規則、375の基準がつくられている。900を超える環境に関する地方法規もある。

さらに、中国は、8つの環境管理制度を確立している。1) 環境影響評価制度、2) 三同時制度、3) 排污收費制度、4) 汚染物排出許可制度、5) 都市環境総合整備定量考査制度、6) 環境保護目標責任制度、7) 汚染集中管理制度、8) 期限を定めて治理させる制度である。

UNCEDの精神をもとに、中国は今世紀末と21世紀にむけて環境と開発への対応策を提供している。

- ・持続可能な発展のための戦略の実施
- ・工業汚染の汚治のための効果的な行動
- ・都市における大気汚染、水汚染、固体廃物、騒音を中心として、都市環境の総合管理の推進
- ・エネルギー効率の向上とエネルギー生産消費の構造改善
- ・生態農業、森林再生、生物多様性保護の推進
- ・研究開発の支援と環境産業の奨励
- ・経済的インセンティブの適用
- ・環境教育の推進と一般の環境意識の向上
- ・環境管理法制の強化と総合化
- ・行動計画の策定

1.2 中国における初期の環境問題

急速な開発によって経済成長が実現し、環境へ悪影響を与えるようになった。都市を中心とした環境汚染は効果的に制御されているとは言えない。いくつかの地域での生態破壊の影響を受ける地区が増えてきている。中国における初期の環境問題には次のようなものがある。

- ・工業地帯を中心に、河川、湖沼、貯水池の汚染がそれぞれ進んでいる。都市部の地下水の50%以上が汚染されている。

- ・海岸の汚染が効果的に制御されていない。
- ・いくつかの地域で砂漠化や森林破壊による土壌侵食は生態環境を脆弱としている。生物多様性の喪失は、稀少種に脅威を及ぼしている。
- ・中国経済は年間成長率は8%を維持することを期待されているが、これによって環境にプレッシャーがかかり、特に中西部の発展が遅れている地域ではこれが深刻となる。
- ・国民一人あたりのSO₂とCO₂の排出レベルは世界平均よりも低いですが、総排出量はきわめて多い。

現在、中国政府は3つの河川(淮河、海河、遼河)と3つの湖沼(太湖、巢湖、真池)の廃水処理、そして2つの防止地区(SO₂防止地区と酸性雨防止地区)と1つの市(北京)の大気汚染防止に対して厳しい措置をとっている。

1.3 地球環境問題への対応

地球環境の状況とその対応策は中国の持続可能で安定的な社会経済的な発展と密接に関係があるので、中国政府は地域的、国際的な環境問題に大きく関与するようになっている。中国は積極的に地球環境対策に参加しており、オゾン層保護のモントリオール議定書、国連気候変動枠組条約、生物多様性条約など18の国際条約に加盟している。中国アジェンダ21や中国生物多様性など、10のプログラムや規則が、国際条約を実施するために策定されている。

一方、中国は依然として発展途上国である。貧困が社会における優先課題であって、環境破壊の主要な原因となっている。不適切な発展が、数百万の人々を最低限の生活水準に追いやっている。彼らは、十分な食糧、住まい、医療、教育を受けられないので、中国では、経済発展を求めざるを得ない。環境を犠牲にすることなく経済成長を実現するためには、中国では、環境と経済発展との統合が提唱されている。中国の持続可能な発展は、地域的、地球規模の環境問題の解決に寄与するものとなる。

2. 中国の概要

1978年以来、中国の経済体制は中央集権の計画経済から社会主義市場経済へと根本的な改革を経験している。この20年間に数多くの変化があった。GNPは、1980年の4兆5,200万元から、1996年には67兆5,600万元に増加し、年間成長率は10.3%であった。1996年の国民一人あたりのGNPは5,453元である。中国は国際経済での位置づけを高めている。

急速な経済発展に伴って、所得増加、貧困撲滅、公衆衛生の改善といった意味で生活水準が上がっている。平均年間所得は、1980年の762元から1996年の6,210元に増加し、年間増加率は11%であった。1996年、農村部の平均の年間所得は2,807元であった。所得水準が急速に上がっているが、世界的な水準からみればまだ低い。さらに、地域ごと、都市と農村などで所得の分配が不平等となっている。都市部の所得水準は農村部よりも高く、沿岸部の人々の所得は中西部の発展が遅れている地域と比べるとかなり多い。全人口の70%は農村部に住んでいる。8,000万人の貧しい人々が中国の中西部の農山村部に住んでいる。貧困撲滅と社会的な富と資源の平等な分配が、中国政府にとっての重要な課題となっている。中国の経済成長そして改革開放の目的は、共通の福利を達成することにある。この目的のために、中国政府は経済成長を押し進めて、経済特区の人々が経済的に豊かになることで富を蓄積する一方で、豊かな地域が貧しい地域を支援することを促して貧困を撲滅しようとしている。

現在、消費レベルは劇的に改善している。人々は十分な食糧や衣料を得る余裕がもてるようになり、ますます豊かさを求めている。しかし、一般的に言って、主要な商品の消費レベルは先進国と比べてまだ低い。1996年、国民一人あたりのエネルギー消費量は石炭換算で1.13トン¹、国民一人あたりの食糧消費は265kg、100世帯あたりの冷蔵庫の保有台数は70台、100世帯あたりのテレビ保有台数は119台、100人あたりの電話保有台数は5.8台、1000人あたりの自家用車保有台数は2.4台である。

食糧消費が栽培によるものを上回っているという意味で、消費パターンは合理的とは言えない。一方、人口増加と資源の急速な枯渇との間の対立が深刻となってきた。清浄水、耕地、森林、鉱物資源など国民一人あたりの平均的な資源は世界レベルよりもかなり低く、中国の持続可能な発展を制約する「ボトルネック」となっている。中国では、消費レベルのさらなる改善が重要となっている。

中国は、汚染防止のための効果的な政策を導入してきており、顕著な成果を納めた。しかし、人口の多さ、低い教育水準、高齢化が中国にとって重要な人口問題となっている。1990年代に入って、中国は、1949年以来3番目の出生率のピークに達している。1996年末における全人口は12億2,000万人で、2000年には13億人になると予測されている。

3. 環境ガバナンスメカニズムの現状

3.1 政治制度

中国は、1949年に建国して以来、共産主義の連邦国家であって、民主集中制をとってきた。国家機構として、人民代表大会制度によって中央集権的に民主政治をつかさどっており、立法、行政、調達、司法、軍事によって構成されている。人民代表大会(各級の人民代表大会)は常務委員会とともに、憲法や法律に従って国家あるいは地方の管轄内で権力を行使する組織である。そのうちの主要なものとして、立法権限、主要な国家政策や緊急な社会経済問題についての意思決定、人員の配置と権限の委譲、行政組織や司法組織の監督権限がある。

全国人民代表大会(NPC)は、国権の最高機関である。各級の人民代表大会は相互に平等で独立している。一方、各級の人民代表大会はボトム・アップの構造になっており、上位レベルの代表が下位から監督される。反対に、各級の権限はトップダウンで、上位レベルが下位レベルを監督する。

行政組織には、国務院と地方人民政府(LPG)がある。国家環境保護総局(SEPA)は国務院に属しており、環境保護を所管している。地方の環境保護局はLPGのもとで地方の環境保護を所管する機関である。

3.2 立法組織

環境法制に関連して、NPCが、憲法、刑法、民法を所管している。全国人民代表大会常務委員会(SCNPC)が、環境法(基本法など)、特に資源保護や汚染防治に関する法律を制定する責任を負っている。

¹ 標準的な石炭は、 $29.31 * 10^9$ J。

国務院は、環境保護についての行政法規を制定する責任を負っている。各部や国家委員会は国務院に直接帰属しており、環境保護に関する規則を制定したり、指示命令を発する。規則は、そのレベルによって、NPCやSCNPCによる法律と抵触してはならない。

地方人民政府(LPC)とその常務委員会(SCLPC)は地方法規を担当している。LPGと地方の環境保護局が地方法規と地方の指示命令に責任を負っている。このレベルの規則は、上記の2つのレベルの法律や規則と抵触するものとなってはならない。

さまざまな立法組織の関係は次のとおりである。

- NPCとSCNPCが最上位の立法権限を持っている。
- 国務院とNPCやSCNPCとの関係は従属する関係であって、NPCやSCNPCが国務院によって発せられた規則、指示、命令を取り消すことができる一方で、国務院はNPCに動議を提出する権利を認められている。
- LPCやLPGの立法権限は、NPCや国務院よりも下位である。しかし、地方の立法機関は憲法や法律を実践のために解釈するという意味で重要な役割を果たしてきている。
- LPCやLPGとの関係は、NPCと国務院の関係と類似している。

3.3 行政構造

人民政府

中国の環境ガバナンスにおける意思決定のアクターは、各級の人民政府であり、環境法、規則、政策、基準の決定や実施による環境保護に介入している。それぞれの管轄のもとで、各地域の環境質について責任を負い、環境計画を社会経済開発計画と統合する責任をもっている。

環境行政組織

中国の環境保護は政府によるところが多いので、環境行政組織が環境ガバナンスにおいて重要な位置にある。

SEPA(Box1を参照)と各省の環境保護局は、政策決定、全体的な指導、部門間の調整、下位のレベルの監督を行う。郷鎮レベルの環境保護局は、国家政策、法律、規則、基準、汚染源の監視、汚染物排出の報告登録の監督、汚染物排出許可、汚染防止の調査と排污收費の徴収を行っている。これは、マクロレベルのものである。上位レベルへ報告の義務があり、提案を行う権限をもっている。市の環境行政は2つのレベルに分かれ、マクロとミクロの両方の機能がある。

Box1 SEPAの構造と機能

1998年3月の行政機構改革によって、従来のNEPAが大臣級に格上げされて、国家環境保護総局(SEPA)になり、中央政府に直接帰属することになった。その所管事項は次のとおりである。

- 国家の指導方針や政策の起草、環境保護についての行政規則の制定; 主要な国家的経済技術的な政策、開発計画、経済計画のための環境影響評価の実施; 国家環境保護計画の策定; 主要な地域や河川流域の汚染防止計画の策定の調整と実施の監督。
- 大気汚染、水汚染、土壌汚染、騒音、固体廃物、危険廃物、自動車公害の防治についての規則の制定と実施; 海洋環境保護の方針策定と調整。

- ・生態環境に影響を及ぼす自然資源の開発利用の監督;生態環境の形成と生態破壊の再生の監督;原生自然、景勝地、名勝地、森林公園の保護の監督指導;生物多様性、野生生物種の保護の監督指導、砂漠化の制御、国家天然貯水池の監督。
- ・主要な地域あるいは流域に横断的な環境問題に取り組むための方針の策定と地方政府や異なる部門の調整;主要な汚染事故及び生態破壊の調査;省際環境紛争の調整と法律と規則の実施の指導。
- ・国家的な環境質の規準や汚染物排出の基準の制定と公布;環境保護に関する地方計画の検証;国家環境質報告書の編纂;国家環境状況の発行と持続可能な発展についての国家戦略の方針の起草。
- ・環境管理制度の決定と実施;開発事業の環境影響評価書の検査と生態に関する事業や生態農業事業の実施についての指導。
- ・エコラベリング制度の監督と環境産業の推進。
- ・環境監視、統計、情報の管理と一般大衆やNGOの参加の推進。
- ・地球環境問題についての指導原則の起草;環境保護に関する国際協力;地球環境保護に関する活動への参加;中国における国際条約の実施の調整。
- ・原子力の安全管理など

SEPAにはこれらの所管事項に取り組むために10の部局がある。これらは、弁公室、計画財政室、政策法規室、人事管理室、科学技術基準室、公害防止室、自然資源保全・生態保護室、原子力安全・放射性物質管理室、指導管理室、国際協力室である。局長以下、4名の副局長と200名の職員がいる。

各級の行政機構の強化が、政策、法律、規則の実施を推進するものとなる。しかし、トップダウンによる政策決定には弱点が潜んでいる。まず第1に、中央政府とSEPAは政策担当者で、地方のEPBは政策実施の主体であるので、政策決定における下位レベルから上位レベルへのフィードバックメカニズムが欠落しており、政策や制度が実態を反映しないものとなったり、重要課題への取組みを誤るおそれがある。第2に、政策決定の過程で、政策担当者、企業、一般大衆、メディアの間のコミュニケーションのための適切なチャンネルがないため、企業が政策に対応するインセンティブが働かず、一般大衆も積極的に参加することができず、実効性に影響を及ぼすことがある。

その他の行政組織

SEPAのほかに、農業部、水利部、国家海洋機関などの国務院の諸機関が資源の保護を所管している。化学工業部、冶金部などの国務院の各部門の組織がそれぞれの部門における汚染防治を担当している。

垂直的な関係では、地方のEPBはSEPAの監督指導を受ける。水平的な関係では、同一目的で、国務院の諸組織はSEPAと同列であるが、前者はそれぞれの部門に限って環境保護仕事を所管するのに対して、後者は全国規模で環境と生態の保護を所管している。

LPGは国務院と同じ行政機構を備えている。下位レベルは上位レベルに従属する。

3. 4 工業

1984年の国务院の決定によれば、大中規模の企業には環境組織の設置、企業内での環境活動のための専任職員を置くことが義務づけられている。国及び地方の環境規則や基準を採り入れていくために、環境担当の常勤職員は、汚染源の調査と監視、環境質評価書の作成、汚染防止施設の運営を行う。

近年、大企業や輸出志向の企業では、製造過程、生産品、製品について国際的な環境基準を遵守するような対応が採られている。まず、生産効率を向上させるために技術革新とライフサイクルコントロールを実施することで、エネルギー節約や排出削減に寄与している。また、汚染防止設備にも投資を行うようになっている(表1を参照)。

表1 企業による汚染防治²

Pollution Prevention and Control	Rate
Complying with the standard for waste water discharge	61.8
Smoke prevention and dust control	90.4
Process gas control	79.4

Source: China Environment State Bulletin: 1997 (NEPA)

しかし、一般的に言って、ほとんどの企業は汚染防止には消極的である。企業における環境問題への意識は依然として低い。常に大企業は、中小規模の企業と比べて、より集中的に汚染防止に投資を行っている。営利を目的とした企業は、汚染によって被害を受ける者よりも、汚染防止に投資を行うことに適しているといえる。

国有の大中規模の企業だけが、環境監視、排污收費、制裁の対象となっているだけであり、小規模の企業には責任がかせられておらず、TVEは環境監視や排污收費の対象から除外されている。一部の企業だけが汚染防止に投資することで費用が増加していますので、不平等な法の執行は不公正な競争をもたらし、その結果として企業の汚染防止に対する消極的な姿勢をもたらしてしまう。

汚染防止設備を導入した企業でも、効率的な技術が入手可能となっていないこともあって、汚染物排出に関する基準を達成することができていない。また、多くの企業にとって、基準を満たすための限界除去費用が高いこともその原因となっている。汚染防治に対する投資への企業の熱意を妨げるものとなっている。

排污收費が汚染防止設備を運営する費用よりもかなり低く設定されている。例えば、製紙工場で、1トンの廃水処理を行う運営費用は1元であるが、1トンの廃水の排污收費はたったの0.1トンの過ぎない。そのため、企業は汚染物排出の権利を買うほうを選ぶ。

² 郷鎮企業は除く。

3. 5 住民参加

科学者や専門家が中国における政策決定にますます重要な役割を果たすようになってきている。環境汚染や生態破壊による損害を予測し、その原因を解明し、解決策を見つけるのは科学者である。技術研究開発、生態系保護、情報、環境経済学、政策研究などを行っている政府・非政府の研究機関が数多くある。

環境と開発の国際協力に関する中国委員会(CCIED)は、諸外国と中国によって主催されているが、この活動は特筆すべきであろう。1992年のリオ会議の影響を受けて、1992年に発足したCCIEDには、エネルギー戦略、資源勘定、持続可能な農業、運輸、環境と貿易、クリーン生産、汚染防止、生物多様性、環境経済など広範囲な分野についてのワーキング・グループが設けられている。温家宝国家副主席や次官など高いレベルの人々と国内外の科学者が合同して、CCIEDは政策決定と科学との間を結ぶチャンネルとなっている。国内外の科学者による研究協力と年一回の全体会合を通して、政府に対して数多くの提案がなされている。

メディアも環境分野での違反を追求し、情報を一般に提供し、汚染事故を報道することで重要な役割を果たしており、企業の対応や政府の決定に影響を及ぼすようになってきている。CCTVとNEPAによって共同で作成された1994年に国中に報告された文書である「環境保護の長期展望」は、環境の状況、環境に優しい企業や環境に望ましくない企業の対応、生態破壊について情報を提供している。もう一つの例が、1997年にNEPAによって推進され、数多くの都市で行われている都市の大気汚染についての週間報告で、これはメディアを通して行われている。

政治的な理由そして環境問題への意識が低いことから、中国では環境NGOはほとんどない。一般大衆やNGOが環境ガバナンスで果たしている役割は小さい。しかし、最近になって、汚染事故が頻繁に発生したり、公衆衛生に被害をもたらされることがあって、騒音、大気汚染、水汚染など生活や健康に密接に関係している環境保護についての関心が高まってきている。環境悪化に不満を持つ人々が、汚染物の排出について地方政府に申し入れをしたり、時には汚染者を訴えており、これらはかなり地方政府にとってプレッシャーとなっている。しかし、中国では市民組織活動は進んでいない。

住民参加は、憲法及び環境資源保護に関する法律によって保障されてきた。環境保護法第6条は、すべての組織と人民は環境を保護する責任があり、報告したり告発する権利を認めている。

ごく最近になって、1996年に改正された水污染防治法は、新規の建設事業について環境影響評価書には地方の住民や組織の意見を盛り込むように規定している。

しかし、一般大衆が十分に役割を果たす適切なメカニズムがない。国家環境保護プログラム(1998-2002年)では、EIAにおける一般向けの報告、公聴会、参加のメカニズムが規定され改善されている。

4. ケース・スタディ

ケース1:河川・海洋汚染

4. 1. 1 河川・海洋汚染の現状とその対策

中国の河川、湖沼、貯水池は、その悪化の傾向はさまざまであるが、かなり汚染されている。遼河、海河、淮河、黄河、松花江、珠江、長江といった7つの主要河川のうち、最も汚染が深刻となっているのは最初の3つである。都市部の河川のうち、87%はかなり汚染されており、そのうち16%は深刻な状態、11%は汚染、33%は軽い汚染、23%はまだ清浄となっている。主要な汚染物質は、石油、アンモニア窒素、揮発性フェノールである。ある場所では、総水銀による汚染が深刻となっている。湖沼の汚染も深刻である。リンや窒素がかなり発見されており、有機性の汚染や富栄養化が深刻な湖沼もある。いくつかの湖沼や貯水池では、重金属汚染も発見されている。太湖、真池、巢湖は最も汚染が深刻な湖沼である。河川や湖沼の汚染の主要な汚染源は、廃水である。1997年には、廃水量は420億トンに達しているが、そのうち230億トンは工業廃水で、190億トンは家庭廃水であった。

河川や海洋の汚染にはいくつかの要因がある。まず第1に、現在の環境監視や環境行政が国有企業だけを対象としており、TVEを除外していることである。1978年から1995年の間に、TVEによる工業生産高が35%も増加している。TVEによる廃水量も1995年には59億1,000万トンに達して、同じ年の総量の21%にあたる。

第2に、多くの都市や郡での環境問題への意識は依然として低く、それぞれの政府は環境を犠牲にして一面的な環境的な便益を求めている。

第3に、急速な経済成長のなかで、製紙、食糧、化学、皮革、電子基板など汚染の激しい部門が無計画に発展してきた。こうした不健全な産業構造は、水汚染など多くの汚染をもたらしてきた。1995年、製紙、食糧、化学の産業からのCODの排出量は、それぞれ、工業全体からのCODは排出量からの42%、28%、9%を占めていた。さらに、化学工業は、水銀、砒素、青酸カリ、揮発性フェノールの主要な汚染源であって、それぞれ、全体の42%、46%、42%、28%を占めていた。

第4に、地方のEPB、特に市レベルのEPBによる環境規制や基準が十分に実施されていない。1997年における工業廃水の処理率は78.9%で、工業廃水の排出基準を遵守しているのは54.4%であった。

汚染物の流出による地下水汚染も深刻で広まりつつある。地下水の50%が汚染されており、水資源不足をめぐる紛争を先鋭化させている。中国の水資源量は世界で第6位であるが、国民一人あたりのレベルは2,292m³で、世界の平均レベルの7,176m³の3分の1で(WRI, 1996)、世界で88番目である。

沖合いの海洋もさまざまに汚染されている。富栄養化も顕在化しており、赤潮もしばしば発生している。主要な汚染物質には、無機窒素、無機リン、鉱物油である。東海が最も汚染が深刻で、渤海もこれに続いている。海洋汚染の主要な原因は、沖合いにある企業が直接海洋に排水したり、汚染水が河川から海洋に流れ込むことにある。また船舶が油を海洋に流出することも原因となっている。

水汚染は、次のように、社会、経済、健康に多大な影響を及ぼしている。

- ・深刻な水汚染は、郷鎮の飲料水の安全性を脅かしている。人口の65%が安全な水を利用することができない。1994年から1995年の間に、淮河の主流で汚染事故が続いた。淮南、ブンプー市、ユンタイ市の数百万の住民は数週間にわたり飲料水を利用することができなかった。チアノーゼが太湖で頻繁に発生しており、無錫の上水場は20日間閉鎖した。
- ・水不足は工業と農業にかなりの経済的な損害を与える。いくつかの郷や市では、灌漑に廃水を利用せざるを得ず、生産が減少しただけでなく、食糧に危険物質が蓄積する原因となった。水汚染は漁業の捕獲にも悪影響を及ぼす。水汚染による経済的損害は、年間で330億元と見積もられている(NEPA, 1997)。
- ・水汚染は健康にも被害を及ぼす。健康の調査によれば、汚染地域での腸病、癌、先天的奇形児が、汚染されていない地域よりも多く発生している。
- ・地域を越えて頻繁に発生する水汚染事故は紛争の原因となっており、社会的な安定性を損なっている

4. 1. 2 政策課題の設定

頻繁に発生する水汚染事故は飲料水の不足と健康被害をもたらしている。工場では生産が停止し、農家は収穫を失う。これらは、犠牲者による地方政府への不満を増大させている。犠牲者と汚染者との間の地域を越えた紛争は地方政府の業務を難しくさせている。地方のEPBによる監視データの報告は、地方政府に警告を発している。地方政府はこうした状況を上位レベルへ報告するようになっている。

メディアも、テレビ、ラジオ、新聞を通して、海洋、河川、湖沼の汚染状況を報告することに大きな役割を果たしている。この影響は特定の地域だけでなく、国中に及んでおり、広い範囲で関心を集めている。

NEPAと中央政府の現地調査と省庁や科学者による討議の後、政府は水污染防治を政策課題として取り上げることを1994年に決定し、「3つの河川」と「3つの湖沼」を重点として水汚染を環境保護における最も優先順位の高い課題とした。

市民、地方政府、地方のEPB、科学者、メディア、NEPA、中央政府など多様なアクターの共同の取組みによって、水汚染は政治課題として取り上げられるようになった。しかし、広範で深刻な水汚染は健康を脅かしており、地域的な水危機や地域を越えた紛争をもたらし、地域の社会経済開発を制約している。

4. 1. 3 実施

中国では、数多くの部局が水資源管理と保護に関与している。水利部は、主要な河川流域開発、主要都市の上水計画、灌漑施設の建設、水土保持の実施、貯水池の建設管理など水資源保護の主要な責任を負っている。水利部のもとには7つの流域委員会があって、地域を越えた水保全の調整を行っている。各省、市、郡はそれぞれの管轄のなかで水保全のための独立した組織を設けている。

SEPAは、水汚染防止や水質保護のための規則や基準の策定を行っている。地方のEPBは、法律、規則、基準の執行と汚染源の監視と監督を行う。

さらに、建設部とそれに対応する地方組織は、上水、下水の収集処理を所管している。公衆衛生部は、飲料水の水質と関連する疾病事故の監視を行っている。

1984年以来、中国政府は水污染防治法その他11の特別法、規則と水污染防治政策、24の水質関連の基準を制定している。中国の環境保護についての3つの原則に基づいて、EIA、「三同步」、排污收費、汚染排出の報告と登録、集中管理が水污染防治のための導入されている。

1996年、40,896の排水処理施設が稼働し、386万トンのCODが減少している。1996年末には、160の国内下水プラントが建設されており、これは年間処理能力で14億m²に相当する。

Box2 淮河流域の水汚染管理

淮河の水污染防治はその実施面で好い事例となっている。淮河は、河南、安徽、山東、江蘇の4つの省を流れており、ユンハ河、ウハ河、ホンルハ河、シハ河など190の支流で構成されている。流域面積は270,000km²で、1億5,000万人が住んでいる。1990年代以来、淮河の水質が悪化し、主要な飲料水の水源も汚染されたため、工業、農業、健康にかなりの影響を及ぼすようになっている。中国政府にとっても深刻な事態となっている。1988年には、NEPA、水利部、4つの省で構成されている淮河水資源保護指導小組が設立された。1995年8月、国務院は淮河流域水污染防治に関する暫定規則を採択し実施に移しており、これが流域単位の環境規制の最初のものとなった。これは、水污染防治の目標、各部と省の責任とその対策措置を明確に規定している。一方で、この規則に従って、NEPAは国家計画委員会、水利部、4つの省と共同して、淮河流域の污染防治のための政策課題が策定されている。1996年6月、淮河流域污染防治の政策課題と第9次5か年計画が国務院によって承認されている。

- 政策課題は、淮河流域の汚染物質の総量規制を規定し、淮河沿岸の工業汚染源はその排出を1997年までに基準を遵守するよう義務づけている。
- 政策課題では、流域を7つ管理地区、82の管理箇所に分け、それぞれについて水質基準を決定している。特に、定期的な監視のための常設の組織をもうけるよう義務づけている。
- 2000年に川をきれいにするために、政策課題では2つの段階を設けている。1)1997年、工業汚染物の排出が目標を満たす。汚染防止が経済的に困難な小規模企業は閉鎖、生産停止、改造が義務づけられる。2)廃水処理プラントが建設される。政策課題では、303の事業が取り上げられており、170億元の投資が必要となっている。

政府は、淮河を重要視しており、地方政府も厳格に政策や法を実施しているので、4つ省で年間5,000の生産能力をもつ1,111の製紙工場や3,678の汚染排出が激しい小規模企業が閉鎖されたり、生産停止となった。これに対応するために、新聞、放送局やテレビ局がこの事実を報道している。市民もこれに参加して、報告を行っている。1997年末には、目標は基本的に達成されており、水污染防治の好例となっている。

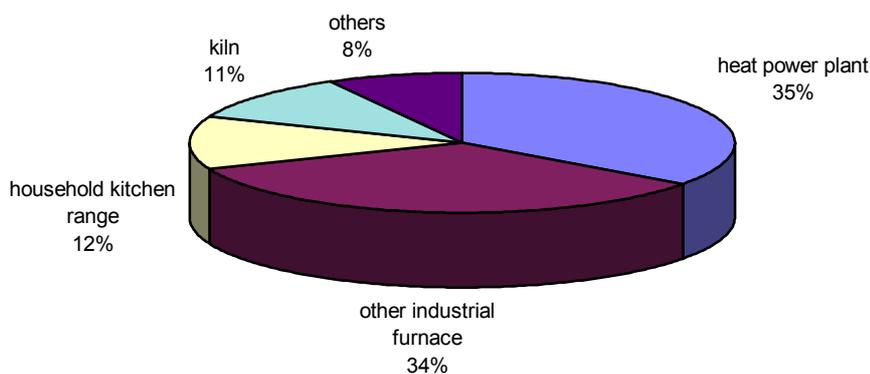
ケース2:大気汚染

4. 2. 1 大気汚染の現状とその対策

中国の大気汚染は煙と埃による汚染である。中国における主要な汚染物質は、一次エネルギーとしての石炭(75%)利用によるSO₂と煤煙である。

急速な経済成長と生活水準の改善によって、石炭の消費量は1990年の9億8,000万トンから1996年には13億9,000万トンに増加しており、年間成長率では5.8%であった。国民一人あたりの消費量は石炭換算で1トンで、工業国のレベルよりもかなり低い。

1997年には、SO₂の総排出量は2,400万トンで、その35%が火力発電、34%が工業用炉、11%が炉、12%が家事によるものであった(図4を参照)。TVEからのSO₂排出量は工業分野で26.4%であった(表2を参照)。



Source: Pollution Control Strategy, NEPA, 1997

図4 SO₂の排出源

表2 主要な汚染物の排出レベル

Pollutants	Total Emission Level (million tons)	Industrial Sources (%)	Household Source (%)	County-level or above-County Level Sources (%)	TVEs (%)
SO ₂	23.64	78.9	21.1	73.6	26.4
Smoke dust	18.73	82.6	17.4	43.8	56.2
Fine dust	15.05	100	0	36.4	63.6

Source: Pollution Control Strategy, NEPA, 1997

1997年には、煤煙の総排出量は1,500万トンであった。鉄やセメント部門が主要な排出源であって、それぞれ15%と70%であった。TVEによる粒子状の煤煙は、工業部門の排出量の63.6%を占めている。

1997年の調査によれば、SO₂濃度の年平均レベルが国家基準 III を超過しており、62.3%の都市で日平均レベルが国家基準III¹を超えている。さらに、SO₂排出による酸性雨も広がっている。広東省、広西省、四川省、貴州省といった南部や南西部、長沙市、南昌市といった中央部、アモイや上海の沿岸都市、そして青島を中心とした北部が酸性雨の被害の多い5つの地域である。

自動車産業の発展に伴って、自動車の保有数は1990年の630万台から1996年の1,100万台に増加しており、これは年間平均で9.7%の伸びである。特に、北京、広州、成都、上海といった大都市圏では、自動車の増加率は平均よりも高い。自動車によるNO_x、CO、CHの排出は年々増加している。人口が集中する大都市圏では輸送量の増大による被害や交通渋滞が激しくなっており、これも自動車排出ガスの増大をもたらしている。

主に煤煙による大気中の細微な物質(直径10 μ m以下のもの)と超細微な物質(直径2.5 μ m以下のもの)は、健康に最も危険な物質である。科学者は、中国で、呼吸器系疾患をもたらしている大きな原因は大気汚染であることを明らかにしている。死亡原因のうち、呼吸器系疾患が農村部で第一位に、都市部で第三位となっている。

鉛製品は児童の知育に不可逆的な悪影響を及ぼす。自動車の有鉛ガソリン利用は自動車増加に伴って鉛汚染の主要な汚染源となっている。福川市での2つ研究では、自動車排気ガスは児童の血液中の鉛の含有率を増大させている(Li *et al.*, 1992 and 1993)。

SO₂の長距離移動は酸性雨を広げており、農業、生態系、建造物への被害という問題を地域的な問題として惹起させている。酸性雨による経済的な被害は、1995年の推計によれば1,160万元であり、GNPの2%に達している。さらに、ODSとGHGは地球温暖化やオゾン層破壊という地球環境問題に寄与している。

大気汚染の主要な原因は、次のとおりである。

- ・経済政策、工業政策、都市建設開発計画の策定の過程で、大気環境保護への配慮なしに短期的で部分的な経済開発の需要だけを重視していること。無計画な生産規模の拡大や旧式な技術は深刻な大気汚染の原因となっている。
- ・エネルギー効率が低いこと。
- ・大気汚染防治への投資が不十分であること。
- ・セントラルヒーティングの基盤が不適切であること。
- ・排污收費の率が低いこと。企業は排出削減に投資するよりも排污收費を支払うほうを選ぶ。
- ・大気汚染防治についての法律や規則はあるが、実施が効果的ではないこと。
- ・大気汚染防治について、経済的、技術的に効率のよい技術が入手可能となっていないこと。

4.2.2 政策課題の設定

大気汚染は直接的に公衆衛生に影響を及ぼすので(例えば、暖房のための冬季には北部では石炭消費が増え、呼吸器系疾患も増える)、深刻な大気汚染による一般大衆からの苦情が地方

¹ 基準IIのSO₂の年平均の濃度は0.06mg/m³で、健康被害をもたらさない長期的な暴露のベースラインである。基準IIIによる日平均のSO₂の濃度は0.25mg/m³で、健康被害をもたらさない短期的な暴露のベースラインとなっている。

政府に寄せられる。

一方、国内の科学者は海外の専門家とともに、大気汚染とその污染防治対策による損失についての広範な研究を行っている。

しかし、政策課題の設定において重要な役割を果たしてきたのは政府である。政府は、大気汚染による健康被害や経済的な損失を認識してきた。一方で、大気汚染は越境問題であって、地域環境や地球環境にも影響を及ぼす。UNFCCCやモントリオール議定書に従って、中国政府は大気汚染対策を採っている。

大気汚染についての政策課題設定の障害となっている政治的要素はもう一つある。国民一人あたりでは低いレベルであるが、中国のODSの総生産量は第一位で、CO₂の最大の排出国となるであろう。中国政府は、国際社会からかなりのプレッシャーを受けている。中国からのSO₂排出も酸性雨をもたらしていると隣国で問題視されている。

4. 2. 3 実施

SO₂と酸性雨防止

国務院は酸性雨とSO₂汚染について関心を払っている。1995年8月にSCNPCを通過した大気污染防治法では、SO₂や酸性雨を防止するために酸性雨防止地区とSO₂管理地区の指定を義務づけている。

1984年の国務院による環境保護に関する決議や環境保護に関する第9次5か年計画と2010年目標によれば、「2種類の防止地区」におけるSO₂排出と酸性雨の防止目標が掲げられ、次のような2つの段階が示されている。

2000年までの目標として、1) 工業分野からのSO₂排出が基準を遵守する、2) 「2種類の防止地区」の総排出量を政府が設定したレベル以内に止める、3) 「2種類の防止地区」における主要都市の大気質を国家環境質基準に適合させる、4) 酸性雨防止地区における酸性雨の状況を緩和させる、ことが挙げられている。

2010年までの目標としては、1) SO₂排出を2000年レベルに抑える、2) 各都市の「2種類の防止地区」での大気中のSO₂濃度を国家環境質基準に適合させる、3) pH4. 5以下の酸性雨を大幅に減少させる、ことが挙げられている。

政府は、「2種類の防止地区」におけるSO₂排出抑制の目標を実現するための対策を採るよう各部門を奨励している。他の部門でそれぞれ排出削減に取り組んでいるが、SO₂と酸性雨の防止はSEPAの所管となっている。

LPGと工業部門が地方別、部門別のSO₂防止と総量規制の計画を策定し、地方の社会経済開発計画に統合する責任を負う。

石炭部と建設部は、硫黄分の多い石炭の消費を制限するための措置を採っている。現在、硫黄分の多い石炭(硫黄含有率3%以上)の年間生産高は900万トンで、中国の総生産の7%に過ぎない。最も硫黄分の高い石炭鉱山がある地域では酸性雨による被害が激しい。硫黄分の高い石

炭鉱山の新規開発は禁止されている。既存の硫黄分の高い鉱山は、生産が停止され、閉鎖されている。新規あるいは再利用の石炭鉱山(硫黄含有率1.5%以上)では、洗炭や選別の設備を設置することが義務づけられている。

計画部門と運輸部門では、石炭の硫黄分が高い地域で低硫黄石炭の利用や洗炭を採り入れるよう対策をとっている。2000年までに、家庭用ボイラーや台所レンジには洗炭処理された石炭を利用することを義務づけている。

1995年現在で、中国の火力発電能力は160MWである。火力発電からのSO₂排出量は全体の35%を占めている。2000年には発電能力は220MWに達し、SO₂排出量は全体の半分を占めるようになるであろう。そのため、火力発電におけるSO₂対策がSO₂削減の成功の鍵を握っている。

この分野でのSO₂排出対策を所管しているのが、電力部である。現在では、新規の発電所について、硫黄分が1%を超えているときには、脱硫装置の設置が義務づけられている。既存の発電所でもSO₂対策が義務づけられており、2010年までに脱硫装置その他の効果的な装置を設置することが義務づけられている。ある研究によれば、既存のプラントへの脱硫投資が20%–50%多くなる一方で、新規のプラントへの脱硫投資が全体の15%を占めるようになるという。これは、新規のプラントへの投資のほうがより費用効果的であることを示している。

化学、冶金、セメントの各産業でもSO₂が排出されている。これらは、国家レベルの20%を占めている。大気污染防治法に基づいて、これらの分野では企業に対して生産工程をアップ・ツー・デイトさせることを義務づける行政措置を採っている。

地方のEPBは実施面で大きな役割を果たしているが、汚染源の監視と指導、SO₂排污收費の徴収を所管している。一定の期間において、企業の排出が目標に達しない場合には、EPBは企業閉鎖の行政措置を行う。

CO₂排出対策

中国におけるCO₂の主要な排出源は化石燃料の消費である。中国はCO₂の排出削減を約束していないが、政府ではCO₂削減のための省エネルギーや産業の再構築に注意を払った自主的な対策を行っている。

1990年から1996年のGNPの年間成長率は11.2%であった。中国の経済成長はエネルギーに依存しており、同じ期間の年間平均のエネルギー消費量増加率は5.8%に過ぎず、経済成長率よりも低かった。これは、中国は、経済発展にともなう「ビジネス・アズ・ユージュラル」の悲劇に向かっていることを裏付けている。

エネルギー強度(GDP単位あたりの一次エネルギー消費量)は1980年以来50%減少しており、年間では4.5%の減少となる(World Bank, 1997)。成熟経済とは言えないが、もし中国が現在と同じエネルギー強度の減少率を維持しながら急速な工業化を実現するとしたら、それは先例のないことである。

CO₂排出削減に寄与するような、産業の再構築やエネルギー効率の向上のための多くの政策

が採られているが、特筆すべきものとして次の3つの政策がある。

- ・経済改革政策。1979年以来、中国は計画経済から市場経済への移行や全体的な経済成長から集中的な経済成長へと変化してきた。これによって、先端技術や生産工程への投資、高付加価値でエネルギー集約の低い製品へと産業を再構築することを促されている。サービス分野のシェアが経済構造のなかで増加している。
- ・省エネルギー政策。1980年以来、中国は省エネルギーについての国家的行動を順調に開始しており、エネルギー強度の減少をもたらしている。
- ・エネルギー価格政策。石炭価格、石油価格、電力価格の上昇はエネルギー消費者へ省エネルギーやエネルギー利用効率の向上のインセンティブを与えている。

その他にも、政府は省エネルギー技術や脱硫技術を導入しており、SO₂排出削減の制度を実施してきている。1997年、NEPAは都市大気質の週間報告制度を推進している。1997年4月までに、35都市でメディアを通じて大気質報告書が発表されており、各市の政府の関心を高め、一般の注目を集め、企業の環境意識を向上させている。

ケース3:森林破壊

4.3.1 森林破壊の現状とその対策

中国には歴史的に豊富な森林資源があり、森林被覆率は49%まで達したことがあり、清朝には26%であった。しかし、短期間のなかで経済的便益をもとめ、森林保護の意識が欠落したため、天然林が破壊されてきた。現在、森林地帯は1億3,000万 hm^2 で、その被覆率は13.93%であり、不均等に分布しており、北東部と南西部に集中している。国民一人あたりの森林は、0.114 hm^2 に過ぎず、世界第6位の水準である。

1998年の夏、中国では長江、ネンチャン河、松花江の大規模な洪水が2か月にわたって発生した。洪水による経済的損失は、2,500–3,000万元にのぼり、GNPの3%–4%に相当した。長江上流での天然林の破壊がその原因の一つとなっており、土壌侵食–土砂の蓄積–河床の上昇–洪水制御能力の減少–生態環境のアンバランスをもたらしている。森林破壊率は上昇している。歴史的に三峡沿いには森林が豊富であったが、現在では被覆率は7.5%–13.6%に過ぎない。黒龍江省では、1949年に53.4%であった森林被覆が1993年には35.55%に減少した。1956年に90万 hm^2 であった熱帯雨林も現在では24万 hm^2 となっている。天然林も26%から7.2%に減少している。

森林部(1998年3月の機構改革で国家森林局に改組)が、中国の森林資源の伐採、植林、保護を所管している。森林破壊による生態系の損失が認識されておらず、森林部門はその指導原則に従って森林再生よりも森林伐採に重きを置いている。木材に価格制度がないので、森林資源の枯渇は経済的に償われておらず、森林再生の資金も不十分である。長期的に森林伐採率が回復率を上回っている。現在、成熟した樹木は、森林全体の29%である。

森林破壊のもう一つの要因は、農地の拡大である。海南省では、焼畑による森林地帯の侵食が年間で10,000 hm^2 に上った。同様な現象は、雲南省や黒龍江省で見られる。

森林法に基づいて森林伐採が政府によって管理されているにもかかわらず、法律の執行が難しい行政区域の境界近くなどで違法伐採が横行している。違法伐採は、合法的伐採の2倍にのぼっている。

計画経済から市場経済への移行に伴って、森林分野は地方政府からの財政的な支援を受けられなくなっている。大勢の職員のための行政費用を支援するために、行政職員は森林から得られる長期的な生態学あるいは社会的な価値に関心を払わずに短期的な経済的利益を追求してしまう。農家でも燃料用木材がなくなれば、その代わりに樹木を伐採している。燃料として利用するための森林の年間枯渇は全消費量の30%にも相当している。

森林火災も森林破壊の原因となっている。森林火災にはさまざまな原因があるが、その90%が不適切な人間の活動によるものである。1987年の大興安嶺の森林火災は大きな災害で、経済的な損失も大きかった。

4. 3. 2 政策課題の設定

森林分野のエコロジストや科学者は、森林の生態学的、社会的な価値はその経済的な価値よりも大きいと認識している(約8対1)。科学者は、森林資源勘定についての研究を行っており、適切な価格設定などの多くの提案が政府になされている。

深刻な森林破壊は、生態系破壊、生物多様性の喪失、砂漠化、洪水の頻発などをもたらす。生態系破壊は、山間地帯や洪水地帯での貧困にとっての原因の一つとなっている。犠牲者は森林部門を告発するようになっている。

これらは政府の関心を呼ぶものとなっている。特に、長江やネンチャン河での深刻な洪水の後、国務院は、森林破壊に対処するために森林、環境保護、農業の各担当者を召集している。8月5日には、国務院は、森林資源保護に関する決定を發布しており、これによって、長江上流での森林伐採が禁止され、伐採よりも森林部門による森林再生に力を入れるように定められている。科学者は、政策課題を設定する上で積極的な役割を果たしている。

4. 3. 3 実施

1979年、SCNPCは3月12日を国家植林デーとした。1997年、自主的に25億本の樹木が植えられた。1985年1月1日には、SCNPCは森林法を公布しており、ここでは、森林再生の指導原則が規定され、森林減少を緩和するために、年間の伐採率は森林の成長率を上回らないように義務づけられている。この法律では、違法伐採に対する行政的、刑事的な制裁について規定されている。

地方政府は、森林地とその資源を管理するための特別組織を設置している。地方の森林行政官は担当地区での森林政策を所管し、違法伐採について監督する。各森林地区で調査事務所が設けられて、森林伐採を監督している。

1970年代後半に、森林部は「5つの森林再生プロジェクト」を推進するようになった。例えば、サンピイ保護林、長江中下流の保護林、沿岸の保護林、平野地の森林再生、太行山脈の森林再生などである。地方の森林部門はこうした建設事業で重要な役割を果たしている。1997年には、森林再生の面積は、207hm²に達している。

4.4 政策提言

中国の急速な経済成長を押し進めてきたのは工業部門²であり、なかでもTVEの貢献は見逃せない。最近では、全体の工業生産のなかでのTVEによる年間工業生産高が占める割合は27%に達している。しかし、TVEによる汚染が多く環境問題を助長している。1997年のNEPAによるTVEの汚染源調査によれば、1995年にはTVEの廃水は総廃水排出量の21%を占めていた。表2も、TVEによる大気汚染への寄与が大きいことを示している。1989年のレベルと比較すると、TVEによる廃水排出、SO₂排出、煤煙、ほこりが増加しており、それぞれ120%、22.6%、56.5%、182%となっている。

TVEは、監視制度や排污收費制度の対象外となっており、これが深刻な汚染問題の原因となっている。そのため、TVEに対する環境分野の指導を強化することが、中国の環境保護にとって重要な課題となっている。

閉鎖や大気汚染や水汚染の防止措置の期限設定などの行政措置がTVEの汚染防止にとって短期的には効果的であることが分かっている。しかし、長期的には、汚染集約型からクリーンでハイテク部門へのTVEの構造改革が検討されなければならない。

中国では、経済的インセンティブを与えるものとして排污收費制度が1979年以来導入されている。1986年には12億元であった排污收費が1993年には27億元となった。発展途上国のなかでは最も完全な制度ではあるが、中国の排污收費は市場の状況において経済発展と適合したものとはなっていない。防止施設の運営と比べて低い割合の排污收費が、汚染防止にとっての効果的な対策とはなり得ない。一方、排污收費は地方のEPBにとっての行政支出の資金源となっている。EPBと企業との間の排污收費のバーゲンは制度の実施を脆弱なものとしている。

中国では、排污收費制度の改革が重要視されている。どの程度の率を上げるべきか、どのように排污收費を汚染防止の投資にあてるべきかなど多くの研究が行われている。こうした研究の代表例は、世界銀行と中国環境科学研究院によって実施されたものである。

中国の環境ガバナンスメカニズムは巨大で複雑なものなので、対処能力と環境意識において各級のスタッフの間に格差が大きい。郷鎮レベルの対処能力は一般的に低く、政策の実効性に影響を及ぼしている。郷鎮レベルのEPBの対処能力の強化が必要となっている。

中国の環境ガバナンスはコマンド・アンド・コントロールに依存している。計画経済から市場経済への移行の間に、経済的な手法が適用できるようになるであろう。例えば、水や電力の価格は政府によって管理されているが、資源価値を内部化するには低すぎる。公共財である資源や環境についての政策の失敗や市場の失敗は、資源の枯渇や環境破壊をもたらす。そのため、企業に対して生産性の向上や資源やエネルギーの節約を促すためには、経済的な手法を政策決定の過程で考慮に入れるべきである。

中国の水環境管理の特徴として、SEPAが監督と調整を所管し、各組織が独自の職責を担っている点にある。こうしたメカニズムは、各部門での取り組みでも採用されている。しかし、多様な部門

² 1996年における中国の経済構造における農業、工業、サービスの各部門のシェアは、20%、49%、31%である。

を調整することは困難で、全体的な監督において失敗することがある。省際の紛争を容易に解決することができない。主要な河川流域については、河川管理についての強力な組織が設置されるべきであろう。

長期的には、中国政府は汚染防止に重点を置いており、生態系の保護建設を疎かにしている。ごく最近になって、政府は、汚染防止と生態系保護の双方を政策課題として取り上げている。一方で、森林製品の価格が高く、資源の価格が低く、環境に価格づけが行われていないという価格の歪みによって、森林資源の生態的な価値が適切に反映されていない。さらに、森林保護のための完全な管理メカニズムが形成されておらず、森林保護の総合計画が策定されていない。

森林保護の法制化と実施を強化しなければならない。生態系補償賦課金や生態税などの経済的な手法が消費の態様やパターンの変革のために活用されなければならない。

多くの国々で住民参加は環境保護についての政策決定とその実施について積極的な役割を果たすことが証明されてきた。多くの都市で市民による報告の頻度が汚染事故の頻度とぴつたりと一致し、地方のEPBによって収集される排污收費とも符合している。しかし、中国では住民参加に限界がある。一般の意識の向上と住民参加メカニズムの確立が重要である。

多くの環境問題について、経済開発計画のなかで取り込まれていない。不適切な経済政策による環境破壊は不可逆的で解決することはできない。それゆえ、主要な経済政策や長期にわたる国家的、地域的な開発計画についてはEIAを実施する必要がある。費用便益分析や費用効果性分析などのツールが最適な政策の選択のために活用されるべきであろう。

工業国での経験は、汚染防止の先進技術や集中的な投資が環境問題の解決には不可欠である。多くの発展途上国では、効率的な技術が入手可能となっていない。酸性雨やGHG排出といった地域環境問題や地球環境問題に対処するためには、クリーン技術のための効果的な移転のメカニズムが必要である。汚染防止についての先進国による財政的な支援も重要である。

中国のモデル都市事業は、中国政府と日本政府の共同で行われているが、返済期間40年、金利1.3%（汚染防止については0.75%）という日本からの円借款によるものである。大気汚染に焦点をあてた総合的な汚染防止事業は、第1段階として貴陽、重慶、大連といった都市で環境質の改善を目的として行われている。こうした協力はクリーン技術移転と財政的支援にとっての好い事例となる。

環境意識の向上を目的とした環境教育も重要となっている。中国の政府機関では、幹部向けの訓練コースが設けられている。企業や一般向けを中心とした環境教育のコミュニケーションや協力がアジア諸国で推進されるべきであろう。

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コメント

紙野健二

1. 中国における環境保全政策の課題

周新氏の報告は四つの部分からなっており、第一部では、1950年代からこんにちまでの環境保全政策の展開を概観する。これは、中国における環境ガバナンスの枠組みのプロセスを示したものと見える。第二部では、各区分についての検討がなされている。第三部では、中国における環境ガバナンスのメカニズムについての現状分析をおこない、第四部では、これらをふまえた事例研究を試みている。

第一部で試みられている時期区分では、1972年以降こんにちまでの展開が三つに区分され、ガバナンス分析の素材が提供されている。すでに多くの論者が指摘しているように、78年の改革・開放路線への転換以来、中国における政治と経済は、大きな改革を経験してきた。とくに、90年代になって、そのテンポはいっそう急速になってきており、周新氏はこれを第三期と呼んでいる。こんにち、中国の環境問題は、きわめて多面的で多次元的な問題を、同時に抱えている。よくいわれるように、中国は、日本が大戦後30年か40年ほどかけて取り組んできた困難を、それでも他の先進資本主義国と比べると短い、せいぜいこの10年の間に、ほとんどすべて直面しているといえる。問題を整理すると、第一に、急な工業化による環境被害や急速に進行した都市化の弊害である。しかし同時に第二には、中国特有といつてよい災害や食料・人口問題がなお残存している。さいごに、酸性雨、廃棄物の国内流入、及び進出外国企業による環境汚染への対処のようなあらたな問題にも直面している。このような錯綜した問題への対応を求められる国家もまた、この間大きな変革を遂げてきたところであるが、これらの環境問題に対処するために、中国政府は、国際化に対応した政策転換と法整備を積極的に行ってきたと評価できる。ただ、それらの試みはなお断片的なものであって、仕組みとして実際に期待された機能を果たすためには、なお多くの課題があるように思われる。

2. 市場化と環境ガバナンス

周新氏は第二部において、中国における社会主義的市場化の推進による経済発展が、環境保全の課題にどのような影響を与えているかの分析を試みている。ここでは、まず経済の市場化と環境ガバナンスとの関わりを考えてみたい。市場化にともなう生産力の発展と都市化が、環境ガバナンスに対して与えている影響についても興味ある問題であるが、時間の関係で省略し、以下の2点に絞って述べる。

2.1 公的部門から民間部門へ

あらためていうまでもなく、中国における経済の市場化は、かつては公的部門が行ってきた経済活動を、新たに作り出された民間部門に委ねる、それに向けた改革をするということである。経済活動から生じる社会的影響の一つである環境汚染のあり方や、この防止策も、市場化による影響を受ける。公的部門から民間部門への移行は、経済活動そのもののみならず、それが及ぼすさまざまな影響をどのようにコントロールするのかという新しい問題を生じさせる。それらは、公的部門

に対して、従来用いてきたような内部的な命令と服従の仕組みに限られず、法による規律、さらには経済的インセンティブを含む新しい方法をも意味する。ガバナンス理論にとって、コントロール手段が外部化し、社会のコントロールの方法が法化することが重要であろう。もっとも、環境問題は経済活動が公的部門によって行われた時代には発生しなかったということではない。むしろその時代には、汚染に関する知識が乏しかっただけであろう。

2.2 非公的部門の役割

周新氏も述べているように、市場化によって、企業をはじめとする非国家組織がガバナンスにおいてどのような役割を果たすかも重要な問題である。中国ではこれまで、民間企業、住民、NGOといった部門の役割を期待できる社会的仕組みにはなっていない。周新氏も新しい状況を指摘しているが、中国がこのようなアクターに対してどのような認識を持ち、どのように評価して環境保全の課題に取り組むのか否かは注目しうる。若干理論的にいえば、公共的な判断を行い、これを実施するのが、唯一公的な部門である国家または政党であると考えられてきたこの国において、そのような多元的な正当性の考え方を導入し、これを利用するメカニズムを立てることは、そう容易ではない。環境問題においては、対応策が全て一元的に決定され、実施され、評価されることによって解決困難である。ここでは、それぞれのセクターが公的部門も非公的部門も、協力連携をすることが不可欠である。そのような場合には、どのような役割を非国家的部門が担うのであろうか。

中国において環境ガバナンスを考える際に、地方自治体と同様、私企業、住民、NGOの役割を吟味することが重要な要素の一つになろう。このことは経済の市場化の推進と不可分であると思われる。分権や自治という語について、社会主義的市場において理論的な意義が認められなければならない。というのは、これらの現象は、経済の市場化の不可避的な帰結であるからである。

3. 法の執行体制と環境ガバナンス

以上のような民間のあらたな役割の重要性にも関わらず、この国の環境ガバナンスのアクターとして、中央政府がなお大きな位置づけが与えられることは、あらためて指摘するまでもない。統治の仕組みとして法治を確立することは、この国の重要な課題であったし、これまで多数の法律や規則を定め、整備が進んでいることについても報告がなされた。しかし、多くの法律の制定が法の支配をただちに意味するわけではない。法整備が一定レベルに達したとき、その執行体制を強化することによって、法と国民の現実生活との乖離を架橋でき、国民の法への信頼が増し、さいごに法を遵守する意識もさらに強まるのである。周新氏の報告で興味深かったのは、政府や企業の決定過程におけるボトムアップシステムの欠如が、これらの決定の妥当性または合理性を喪失させていることの問題指摘である。環境ガバナンスの質を高めるためには、同一組織内であれひんばんな情報交換や、公開への要請へと発展し、公共目的が多様なチャンネルを通じて実現する仕組みが求められよう。そのことを通じて、より効率的な環境保全社会の実現が可能となると思われる。

周新氏は、この国の環境ガバナンスについての現状の明瞭に指摘しており、この報告から多くを知りえた。感謝する次第である。

日本の環境ガバナンス

加藤峰夫

本稿の目的は、日本の環境対策を、政府と地方自治体、企業及び産業界、そして市民・NGO等、環境問題に携わるそれぞれの関係者による取組の状況とその特徴という観点から整理することにより、日本における環境ガバナンスの現状と問題点を浮き彫りにすることにある。

まず第1章においては、1960年代から現在に至るまでの、日本の環境対策の歴史と現状を概観する。次に第2章では、ごく簡単に、日本の国土や自然環境の姿と、産業経済活動及び国民生活の状況を示す。

第3章は本稿の中心的な部分である。ここでは環境ガバナンスの現状として、日本における環境対策の立案と実施に重要な役割を果たしている各主体ごとに、それぞれの役割を紹介する。さらに第4章では、ケース・スタディとして、現在日本において最も重要かつ困難な環境問題だと認識されている地球温暖化問題を対象に、各主体による取組の状況と問題点及び課題を指摘した上で、対策効果を改善するための政策提案を行う。

1. 日本の環境対策の歴史と現状

本章においては、1960年代の深刻な公害問題への対応から始まり、公害防止から自然環境や生態系の保全へ、そしてさらに温暖化問題等の地球規模の環境問題への取組に至る日本の環境対策の歴史と現状を概観する。

1.1 公害型環境問題の歴史と現状

1.1.1 公害被害者の救済から環境汚染の事前防止へ

日本の公害対策は、1960年代の深刻な汚染と、それを原因とする悲惨な健康被害(公害病)への対策から本格的に開始された。最初に注目されたのは、公害で健康被害を受けた人々に対する救済措置であった。一連の公害訴訟(不法行為を理由とする民事損害賠償請求訴訟)を経て、民事上は汚染企業の賠償責任が確立された。また、これらの民事責任を踏まえた、より迅速な行政的健康被害救済措置も設けられた。

1970年に開催された、いわゆる「公害国会」では、深刻化する公害に対処するために、公害対策基本法が制定され、関係の法律が整備される等、あわせて14の公害関係法の制定あるいは改正が行われた。しかし、人の健康の保護は厚生省の管轄であり、一方、事業者に対する公害の規制は通産省が行うというように、公害対策はいくつもの省庁に分断されていた。このような縦割り行政の下では総合的で予防的な公害対策を推進することは困難である。そこで1971年には、総合的な公害行政の推進のために環境庁が設置され、公害の規制と、環境に関わる関係省庁の相互調整を担うこととなった。

これらの公害関係法による公害対策の中心は、環境基準の設定と排出規制、そしてその規制基準達成を支援するための公的な補助措置である。対策の実施により、現在ではかつてのような顕

著な大気汚染地域はほぼ解消し、また深刻な公害病につながるような水質の汚染はみられなくなった。

しかし公害型の環境問題が完全に克服されたわけではない。大気汚染に関しては、工場等の、いわゆる固定発生源からの汚染ではなく、移動発生源となる自動車からの汚染が問題となっており、多くの大都市では環境基準を達成できていない。また汚染物質も、コントロールしやすい硫黄酸化物(SO_x)ではなく、対応が難しい窒素酸化物(NO_x)が問題となっている。また水質についても、公害病に直接的につながる特定の汚染物質は見られなくなったものの、水質の全般的な改善はなかなか進まない。また最近では、廃棄物処理施設から浸出する物質が、河川や土壌を汚染するという問題も注目されている。

このような状況の中、環境汚染の事前防止に向けた、新たな環境対策が求められている。環境影響評価(アセスメント)やPRTR(**Pollutant Release and Transfer Report**: 汚染物質の排出・移動登録制度)は、その効果が注目されている手法である。

1. 1. 2 個別の損害賠償請求訴訟と公害健康被害補償制度の整備

1950年代の中頃から石油化学・重化学工業化の産業政策を採った日本は、1960年代、深刻な大気と水質の汚染、そしてそれを原因とする健康被害の多発に見まわれた。石油化学コンビナートの周辺や、工場が集中する地域での大気汚染による気管支系疾患(四日市喘息、等)、化学工場からの排水中の有機水銀による中枢神経系疾患(水俣病)、あるいは鉱業排水中のカドミウムによる骨疾患(イタイイタイ病)はその代表的なものである。

しかし、これらの公害病によって健康被害を受けた人々に対しては、一部の地方自治体が医療救済を実施した以外は、賠償や補償はまったくなされなかった。そこで被害を受けた人々は、原因となる汚染行為を行った企業に対して、通常の民事訴訟で、不法行為に基づく損害賠償を請求せざるをえなかった。1971年以降の、これらの一連の公害裁判(いわゆる4大公害訴訟)では原告側が勝訴し、公害健康被害に対しては汚染者がその責任を負うという判例理論(いわゆるP PP(Polluter Pays Principle: 汚染者負担原則))が明らかにされた。

しかし民事裁判では、たとえ勝訴できるとしても、そこに至るまでに長い時間と多額の費用がかかり、公害被害に苦しむ原告にとって必ずしも適切な救済策とはならない。そこで、より迅速かつ効果的な救済を行うために、裁判によるのではない、行政的な救済措置が必要とされた。

1973年に成立した公害健康被害補償法は、このような行政的救済措置を定める制度である。これは特定公害の原因となる汚染行為を行っている事業所から、当該汚染物質の排出量に応じて賦課金を徴収し、その財源をもとに、健康被害を受けた者に対して被害補償を行うものである。当初はこの制度は、公害による健康被害のみを目的とし、治療費の給付を限定的に行うものであったが、その後幾度かの改正を経て、社会保険とのバランスを取った医療給付と生活補償を内容とするものとなっている。

1. 1. 3 汚染行為の規制と、改善対策への経済的支援

大気汚染や水質汚濁等の、いわゆる公害型環境問題に対応するために用いられた手法は、汚染行為を直接的に規制するとともに、汚染行為の改善対策に努める企業等に対しては、公害対

策に要する費用に対して補助金を支給し、あるいは優遇的な税制を認めるという経済的支援対策であった。

たとえば大気汚染対策としては、望ましい大気質についての基準である大気環境基準とは別に、個々の汚染源に適用される排出基準(濃度規制)が設定され、これに基づく検査と規制が行われた。しかし汚染源となる施設が多数集中している地域では、いくら個々の施設が排出基準を遵守しても、大気環境基準は達成できない。そのような地域では、総量規制という対策が取られた。これは、特定の地域全体の汚染削減量を定め、それを達成するために、当該地域内の工場に対し、排出基準に付加的に、総量規制基準を上乗せするものである。

このような規制を行う一方、公害対策基本法にも、また大気汚染防止法や水質汚濁防止法といった個々の汚染防止法規にも、企業活動を規制に適合させるための公害防止措置として、事業者が公害対策に要する費用の一部を国が補助するという対策が規定されていた。このような経済的支援対策は、公害対策基本法の主要な内容を受け継ぎ、現在の日本の環境対策の基礎を定める環境基本法にも盛り込まれている¹。

事業者に対する公害対策費用への補助は、産業政策としての公害対策としては大きな効果があったと評価されている。しかし経済的支援という対策は、汚染者負担の原則という観点からすれば、問題がないとはいえない。同じく経済的な措置であっても、補助とは逆に、企業が環境を汚染する限りは、環境税等の手法により経済的負担を課すべきだという考え方もあるのだが、このような手法は、公害対策としては、日本ではこれまでほとんど採用されていない²。

1. 1. 4 環境計画とアセスメントによる汚染の事前防止

汚染問題の事前防止には、いわゆる計画的対応が有効である。また、単なる公害対策だけではなく、総合的な環境対策を推進するためにも、計画的対応は欠かせない。計画的対応の中心は、環境計画の策定と、個々の事業計画に対する環境アセスメントである。

環境計画については、これまでもいくつかの地方自治体で、環境保全という面を重視した地域計画が策定されてきた。しかし1993年に成立した環境基本法は、国に対し、環境基本計画を策定することを義務づけた³。これに基づき1994年に国レベルの環境基本計画が策定されている。この環境基本計画の基本方針は、循環、共生、参加、国際的取組、の4つである。現在、都道府県を始めとして、各地方自治体でも、それぞれの地域の環境基本計画を策定中である。

一方、環境アセスメントの方は、1983年に提出された環境影響評価法案が廃案になって以来、国レベルの制度の導入が遅れていた。その結果、国のレベルで行われていたのは、一部の大規模な事業に対する、閣議決定に基づく要綱行政としてのアセスメント(閣議アセス)に限られていた。しかし多くの地方自治体では、条例や要綱により独自のアセスメント制度を導入・実施しており、社会的にはアセスメントという手法は、それなりに定着していたといつてよい。

¹ 環境基本法22条1項参照。

² ただし環境基本法22条2項は、このような対策の有効性と可能性についても述べることとなった。

³ 環境基本法15条。

1997年に成立した環境影響評価法は、ようやく全国レベルで、アセスメントの基本的な考え方や手続きを統一することになった。また、代替案の公表と検討等、これまでの閣議アセスには欠けていた点も、不十分ではあるが盛り込まれた。この環境影響評価法に基づくアセスメントが本格的に実施されるのは1999年からだが、どこまで環境問題の事前防止に役立てていくことができるか、注目される。

1. 1. 5 環境リスクと情報公開

PRTR (Pollutant Release and Transfer Report: 汚染物質の排出・移動登録制度) は、OECDがその採用を呼びかけている制度である。これは、人体や環境に影響を与えるおそれ(環境リスク)のある化学物質等について、それぞれの物質が産業活動においてどのように使用されているのか、また使用後はどのように処分されているのかについての情報を収集・整理し、その情報をもとに、有害物質の適正な管理と処分を確保しようとするものである。

このPRTRという手法は、有害ではあるがその使用が現在の産業活動に不可欠であるような物質、あるいは産業活動の副産物として不可避免的に生じる物質による環境汚染を未然に防止するために有効だと思われる。しかし、このような物質の使用や処分に関する情報を公開するという点については、製造過程等に関する企業秘密の保持に問題があるとの意見もある。また、有害物質を取り扱っているという情報を広く公開することは、企業イメージにとってマイナスになるのではないかと不安を抱く企業も多いということもあって、まだ積極的な展開には至っていない。

1. 2 自然保護の歴史と現状

1. 2. 1 自然環境に対する認識と変化

日本では、多様ではあるが、比較的温暖な気温や適度な降水量等の点において恵まれた自然環境の中で、長い間、地域の環境特性に応じた営みが続けられてきた。各地の営みにおいて共通していたのは、自然の脅威を畏敬しつつも、その自然の摂理をよく研究し、自然に逆らうことなく、その力を上手に利用して生活するという態度であった。

しかし第二次世界大戦後の高度成長期以降、国民の生活と自然環境の関係は急速に希薄化した。人々の大部分が大都市で生活するようになり⁴、また産業構造の中心が農林水産業から重化学工業や都市での商業・サービス業に移行して行く⁵につれて、生活の場から自然の姿は失われることとなった。また経済成長は、物質的な豊かさの達成という点では大きな成功をあげたが、自然と人間との関係を人々の意識から遠ざけていった。さらに風水害等の自然災害を人工的な手段により克服する技術の進歩は、人々がかって自然に対して抱いていた畏敬や恐怖の念を薄めた。こうして希薄化した、人々と自然との関係は、新たな開発によって、さらに自然環境が失われていくという事態を促進することとなった。

しかし近年、自然環境に対する人々の認識は、また強まりつつある。それは、温暖化等の地球規模の環境問題に対する危機感の高まりや、アウトドア・レクリエーションへの人気、そして都市生

4 1995年には、国土の総面積の10%に満たない3大都市圏に、全人口の40%以上が居住している。

5 第一次産業への就業者は、戦後まもなくの頃は全就業者数の約半数を占めていたが、現在は約6%までに減少している。

活にも身近な自然を求めるといった傾向として現われてきている。

1. 2. 2 野生生物保護:狩猟規制から種の保存へ

日本の野生生物保護は多くの国と同様、狩猟規制から始まった。1918年に制定された「鳥獣保護及び狩猟に關スル法律」(鳥獣保護法)は、狩猟を免許制とし、国内に生存する鳥獣の全種類を対象として、狩猟場所や狩猟方法について定めるものであるが、現在でもこの鳥獣保護法が、野生生物保護の基本となっている。しかし要求される野生生物の保護が、単に狩猟の対象となる鳥獣だけではなく、魚類や爬虫類、昆虫、植物等々に拡大されるに従い、鳥獣保護法だけでは対応できない状況が生じてきた。

天然記念物制度(文化財保護法)によって特定の動植物やその生息地を保護することも可能である。1998年現在、191件の動物と533件の植物が国の天然記念物として指定されている。また地方自治体も、条例の定めるところにより、独自の指定を行うことができる。しかし特定の動植物や、ごく限られた範囲の生息地を保護するという対策では、効果的な保全とならないことが多い。

1993年より施行されることとなった「絶滅のおそれのある野生動植物の種の保全に関する法律」(種の保存法)は、種の多様性と生態系の保全という観点から、国内外の、絶滅のおそれのある野生動植物種の保存を図る、体系的な制度を整備しようとするものである。種の保存法では、単に動植物の採取や損傷を与える行為を規制するだけでなく、生息地の保護や、人為的な増殖事業も定められており、1997年現在、51種類の動植物が保護対象とされている。しかし生息地の保護は、土地所有権や使用権等の調整から困難であり、現在までに4生物種について5地域が指定されているのみである。

また「生物の多様性に関する国連条約」(生物多様性条約)を受けて、1995年には「生物多様性国家戦略」が策定された。この計画では、以下の2つが長期目標として定められている。

- ① 現存する生物多様性の保全、及び持続可能な利用
- ② 生物間の多様な相互関係の保全、及び生物の再生産・繁殖の場としての保護地域の保全。

1. 2. 3 保護地域の発展と拡大

あまり知られていないことだが、日本の国土の14.1%は自然公園(国立公園、国定公園、及び都道府県立自然公園)に指定されている。この他にも、自然環境保全地域制度や鳥獣保護区制度(鳥獣保護法)、天然記念物制度(文化財保護法)、生息地等保護区制度(種の保存法)あるいは国有林野の保護・保存林制度等々、自然地域を保全するための制度は数多く設けられている。

しかしながらこれらの保護地域は、そのほとんどが地域指定と規制によって設けられており、管理に際しては土地所有者や使用者等の関係者との利害調整が必要となるため、土地所有権に基づく強力な管理権限が認められている営造物型の保護地域⁶とは異なり、自然保護という観点からは十分な管理が行われていない。

そのような状況の中で、国有林野の中に設けられている各種の保護地域は、土地自体も林野庁

⁶ 営造物型の保護地域の典型的な例は、アメリカやカナダの国立公園である。

の所管であるため、強力な管理権限に基づく効果的な環境保護を実施できる可能性がある。また国有林野は、これまではその主たる目的を木材の生産としてきたが、輸入木材との価格競争による国内産木材の生産と販売の不振や、国有林野経営が生み出した巨額の赤字への対処、そして森林を中心とする国土と環境保全の要求の高まりの中で、森林環境の保全を国有林野の主要な管理目的としつつある。こうした動きの中で、拡大されている森林生態系保護地域は、今後、森林を中心とする自然環境の保護に大きな役割を果たすことが期待される。ただし森林生態系保護地域等の保護林制度は、法律に基づくものではなく、林野庁の所管する森林管理計画の中で設けられているものであるから、林野庁の政策の変化によっては容易に廃止される可能性もあり、その点には不安が残る。

1. 2. 4 今後の課題

自然保護を、生態系保全するという観点から促進しようとする場合に欠かせないのは、動植物の生息と繁殖を可能にする地域の確保である。さらに、特定の地域を保護地域として保全するだけでなく、そこに流入する河川や湖沼、海水の水質を保全し、周囲の大気中の汚染物質を減少させ、さらにはその地域に影響を与える騒音、振動、あるいは人工的な光 等々の規制も必要となる。

しかし限られた面積の保護地域を設定するという点だけに限定しても、その土地の所有権や使用权との調整等々、困難な問題が多いうえに、その地域に影響を与える水質や大気を望ましい状態にコントロールするためには、さらに複雑な権利関係を調整するという、実に困難な作業が必要となる。

生物多様性国家戦略は、生態系保全のために必要とされる適切な目標を掲げてはいる。しかしどうすればその目標を実現できるのか、そのためにはどのような行政的・社会的手法が必要とされるのかという点について、必ずしも具体化あるいは明確化されていない点に、問題が残る。

1. 3 地球規模の環境問題へ対応

1. 3. 1 温暖化問題

国連環境開発会議 (United Nations Conference on Environment and Development: UNCED、1992年、リオデジャネイロ) と、その場における気候変動枠組条約 (United Nations Framework Convention on Climate Change: UNFCCC) の採択に先立って、日本は1990年に、地球温暖化防止行動計画を策定し、温暖化対策への取組を開始した。また1997年には、気候変動枠組条約の第3回会合 (いわゆるCOP3) のホスト国となり、京都議定書の採択に至った。

現在は、国のレベルでは、京都議定書によって定められた温室効果ガスの排出削減目標の達成に向けて、エネルギー関係諸法の改正や、新たな温暖化対策関係法の制定が行われている。

この温暖化問題に対しては、日本ではそれまであまり活動が活発とはいえなかったNGOが、国際的な枠組のありかたや国内的な対策について積極的な発言を行い、政府の意思決定にも影響を与えるようになってきた。また企業や産業界の対応も素早く、事業活動における省エネ、製品・機器のエネルギー効率の改善、太陽光発電の推進、あるいは海外での積極的な植林事業等々、様々な動きが見られる。

1. 3. 2 熱帯林保護

熱帯産木材の大量輸入国である一方、国際熱帯木材機関 (International Tropical Timber Organization: ITTO、本部は横浜) の本部のホスト国でもある日本は、世界の森林、特に熱帯林の保護について、関心と責任を有する立場にある。

現在、政府としては、カナダ、アメリカ等とともに、非欧州諸国で組織する持続可能な森林経営に向けた基準及び指標のありかたに関する作業部会に参加するとともに、森林・林業分野の技術協力を、東南アジア諸国やオセアニア、中南米諸国を対象とした二国間協力として行っている。また多国間協力では、ITTOに対し、加盟国中で最大の資金拠出を行っている。

しかし国内的な関心は、必ずしも高いとはいえない。これは日本国内では、国内材が価格的に輸入材に太刀打ちできなくなった結果、皮肉にも国内の森林の伐採が停滞し、世界的には森林が大幅に焼失しているという事態を実感しにくいというためでもある。また木材が、最終消費者である一般の市民の手に、そのままの形で渡ることは少なく、建物の建築段階での資材として使用されるか、紙や木材製品に加工されて消費されることがほとんどであるため、たとえ市民が熱帯林保護に関心を持っていても、具体的な活動を起こしがたいという点も指摘できる。

しかし、一部の商社は木材の輸入に際して、環境面への配慮を強めている。建設や製紙関連の企業にも、木材使用量を減らそうとしたり、木材の生産地の環境配慮の状況に関心をはらう企業が出てきている。こういった企業の間では、持続的な森林経営に対する森林認証制度及び木材・木材製品へのラベリングの動向が注目されている。

また、一部のNGOは熱帯林の保護や再生に参加しており、このようなNGOへの支援を通じて、熱帯林の保護に関心を持つ人々も増えてきている。

2. 日本の国土と国民生活及び産業経済活動

本章では、代表的な統計資料等のデータをもとに、ごく簡単に、日本の国土と自然環境の特徴や、そこにおける国民生活の現状と産業構造や経済活動の状況等の概略を示す。

2. 1 国土と自然環境

日本は、アジア大陸東縁のモンスーン地帯に位置しており、国土面積は377, 836平方メートルである。国土の3分の2以上を山地が占め、平野はわずか13%に過ぎない。その気象の特徴は、年間の気温差が大きいこと、雨量が多いことである。しかも、地形が複雑なため、どの季節も地域差が大きい。

2. 2 人口、年齢構成、居住地域

日本の人口は、1995年現在で1億2, 557万人で、世界で第七位である。現在、日本の人口は世界に類をみない早さで高齢化が進行しており、社会に深刻な影響を及ぼしている。1970年代には65歳以上の人口が総人口に占める割合は7%に過ぎなかったが、1995年には14%に達している。また、戦後の経済成長に伴って、都市の人口が集中するようになり、都市人口の割合は70%を越えている。特に、日本人の40%以上が東京、大阪、名古屋の3大都市の近郊に住んで

いる。

2.3 産業経済活動の状況

2.3.1 経済規模

日本経済の規模は世界第二位の位置を占め、1995年の国内総生産(GDP)は、ほぼ5兆億ドルである。同年の国民一人あたりの国民所得は30,000ドルを越えている。これは、主に1950年中頃から60年代の年率10%前後という高度経済成長によって実現したものであった。1986年から1991年にかけてのバブル経済が崩壊すると成長は鈍化しており、現在も不景気を脱していない。

2.3.2 産業構造

日本の産業構造は、大きく変化してきた。その重点が、農業や軽工業から、重工業そしてサービス業に移ってきた。1950年代でも、第一次産業の生産高比重24%、就業人口比重37%に対して、第二次産業の生産高比重は24%、就業人口比重は19%であった。1995年の就業人口比重は第一次産業6%、第二次産業33%、第三次産業61%となっている。

2.3.3 エネルギーの消費量と利用効率

エネルギーに対する需要も1960年代中頃から1970年代初頭にかけて年間平均で10%も伸び、この間にエネルギー資源は石炭から石油に転換されたのであった。エネルギーの輸入依存度も年々高くなり、90%を越えた。1970年代の石油危機に直面して、日本では省エネルギー技術が大幅に進み、企業が積極的に省エネルギー技術の開発を行った結果、日本は世界で最もエネルギー利用効率が高い国となっている。1995年の国民一人あたりのエネルギー消費量は、3,573キログラムで、米国の半分以下である。

3. 環境ガバナンスの現状 -- 環境対策の関係者とその役割 --

本章では、日本における環境ガバナンスの現状を、環境対策の立案と実施に重要な役割を果たしている各主体とその役割という観点からまとめる。対象とする環境問題としては、「公害型環境問題」(水と大気の汚染)と、「自然保護」(自然環境及び生態系の保全)、そして「地球規模の環境問題」(温暖化問題等)、という3つの分野をとりあげる。

3.1 中央政府

3.1.1 環境対策における国の役割

国家レベルでの環境対策は、環境関連立法の制定と、全国レベルで検討されるべき環境行政の策定、及び主要な施策の実施である。その基本的な方針は、1993年に制定された環境基本法によって表明されている。

国の環境行政の中心となるのは環境庁であり(環境庁設置法第3条:「環境庁は、公害の防止、自然環境の保護及び整備その他環境の保全を図り、国民の健康で文化的な生活の確保に寄与するため、環境の保全に関する行政を総合的に推進すること」。このため、環境庁の主要な役割は、環境に影響を与える他省庁の事務の総合調整となるが、環境庁の権限は必ずしも強力では

ないため、環境の保全に十分な効果があげられない場合も少なくない。

3. 1. 2 公害型環境問題への取組み

典型的な公害型の環境問題については、国は、大気汚染防止法、水質汚濁防止法、振動規制法、騒音規制法、悪臭防止法、土壌汚染防止法等々の法律による対策を行っている。公害対策の基本を定めていたのは公害対策基本法(1967年制定)であったが、同法は環境基本法の制定にともない廃止され、その主要内容は環境基本法のなかに引き継がれることとなった。

これらの公害対策で採用されている中心的な手法は、環境基準の制定、個々の汚染源に対する排出基準や騒音基準等とこれに基づく直接的な規制、及び基準達成を援助するための経済的助成措置(補助金、優遇税制)である。これらの活動は国の事務であるが、大気汚染防止法や水質汚濁防止法等に基づく規制措置は、機関委任事務として地方自治体に委任されている。しかし機関委任事務一般について、現在のありかたには批判があり、今後の地方分権化に際しての重要な論点のひとつとなっている。

また(1-1-2)でも述べたように、公害で健康上の被害を受けた人々に対して、適切な治療を提供し生活面を援助するための、公害健康被害補償制度の整備とその運用も、公害型環境問題に対する国の取組の重要な要素であった。激甚な環境汚染の減少にともない、被害補償の重要性も薄れつつあるように思われるが、今後新たな公害被害が生じた場合に、これに適切に対応できる被害補償制度を用意しておくことは、やはり必要であろう。

近年の新たな汚染問題として注目され、対策が急がれているのは、健康や環境に被害を与える恐れのある、各種の化学物質の管理である。この問題に対しては、OECDがその実施を呼びかけているPRTR(Pollutant Release and Transfer Report:汚染物質の排出・移動登録制度)への関心が高まっているが、国は現在、制度導入の前提となるパイロット・プロジェクトを実施している。

3. 1. 3 自然保護への取組

野生動植物の保護や自然地域の保全については、環境庁が、自然環境保全法、自然公園法、温泉法、鳥獣保護法、種の保存法に基づく事務を行うとともに、その他にも、必ずしも特定の法律には基づかない、各種の対策を実施している。しかし環境庁は、自然保護のために必要となる土地自体はほとんど所管せず、自然環境保全地域や自然公園(国立公園・国定公園、都道府県立自然公園)、あるいは種の保存法に基づく生息地等保護区の設置は、基本的には地域指定と規制による管理とならざるを得ないため、生態系保全という観点からすると、十分な保護が行われていないのが現状である。なお、貴重な野生動植物や、学問的あるいは社会的に評価の高い自然景観は、天然記念物としても保護の対象とされている(文化財保護法、文化庁所管)。しかし、個々の動植物種や特定の景観を保護するというこの対策では、やはり生態系保全の効果が弱い。

一方、国土全体を見ると、日本を代表する自然環境の多くは、林野庁の管理する国有林野の中に残されている。それらの地域は、自然環境保全地域や自然公園、あるいは天然記念物に指定されていることも多いが、林野庁自体も、近年、国有林野の管理目的をそれまでの木材生産中心から環境と国土の保全へと大きく方針転換し、また国有林野内に森林生態系保護地域を設け、森林を中心とする自然環境の保全を進めている。

また1995年に策定された「生物多様性国家戦略」は、現存する生物多様性の保全と、それを可能にする保護地域の保全を主要な柱として打ち出している。しかしその目標を実現するための具体的な活動は、著しいとはいえない。

なお、自然保護を、国内的な観点からだけではなく、国際的な観点から推進しようという動きも生じている。世界遺産条約(自然地域)やラムサール条約地域への登録はその例である。

3. 1. 4 地球規模の環境問題への取組

温暖化やオゾン層の保護、世界的なレベルでの生物多様性の保全等といった地球規模の環境問題に対する取組は、近年積極的に進められている。

国際的には、国際条約への積極的な加盟(オゾン層保護条約(1985年)及び同条約のモントリオール議定書(1987年)、気候変動枠組条約(1992年)、生物多様性条約(1992年)、環境保護に関する南極条約議定書(1997年)等々)あるいは国際的な対策の一層の推進(気候変動枠組条約のCOP3「京都会議」の開催と京都議定書の採択)に、その傾向を見ることができよう。

国内的には、これらの条約に対応する国内法の整備が進められている。たとえばオゾン層の保護に関しては、特定物質の規制等によるオゾン層の保護に関する法律(オゾン層保護法)により、特定フロン製造・使用が規制されている。また温暖化では、京都議定書によって定められた温室効果ガスの排出削減目標(1990年レベルから6%の削減)を受けて、エネルギーの使用の合理化に関する法律(省エネ法)が、温暖化対策にも対応できるように改正された(1998年)。その後、地球温暖化対策の推進に関する法律(温暖化対策推進法)も成立し(1998年)、温暖化対策に対する国の基本方針を定めることとなった。もっとも温暖化に対しては、具体的な対策の実施はこれから始められるということになる。

3. 1. 5 注目すべき傾向と課題

国レベルでの環境対策を見た場合の、注目すべき傾向は、誰が(どの省庁が)環境対策の立案やその実施において中心的な役割を果たすべきかという問題であろう。

かつては建設省や通産省、あるいは農水省といった、開発や産業関連の事務を管掌する省庁に対して、環境庁が環境保全面から意見を述べるという図式が一般的であった。現在でもこの基調は変わっていないが、しかし一部の環境問題では、事情が変わりつつあるようにも見える。

代表的なのは温暖化対策である。京都会議以降、国内では温暖化対策のための法制度の整備が検討されてきたが、省エネという観点から対策を実施しようとする通産省と、総合的な温暖化対策を推進しようとする環境庁の間で、相当の駆け引きが行われたようである。

自然環境保護の分野でもこういった傾向はみられる。国立公園や自然環境保全地域内の公有地の大部分は国有林野が占めているため、かつては伐採重視の林野庁と環境保全の環境庁が対立するという図式だったのが、国有林野を管理する林野庁が環境重視の態度を明らかにするにつれ、環境庁と林野庁の対立は、どちらが自然保護のイニシアティブを取るかという面でも見られるようになった。河川についても、河川法の改正で環境配慮が盛り込まれた結果、河川を管理する建設省は、環境問題も河川行政の一部であると考えられるようになってきた。

もちろん、環境問題についての主導権争いも、重要な社会問題に関わる行政権限をめぐる官庁間の争いのひとつにはかならないのであり、その意味では不思議でも何ともないといえよう。そしてこのような傾向は、環境問題についての、より整合的かつ合理的な政策的統合への中間過程と見ることもでき、その意味では積極的に評価するべきであろう。また、各省庁間で競争的に環境関連の施策が実施される結果、日本全体としての環境行政の質が高まるという可能性もあろう。しかし他方では、環境行政がいくつもの省庁の活動に分断され、不合理かつ非効率なものになるおそれもある。いずれにせよ環境問題が、多くの省庁が重視する政策課題として浮上してきたということは、注目に値しよう。

3.2 地方自治体

3.2.1 公害型環境問題への取組

深刻な大気汚染や水質汚濁が発生し、しかも国レベルでの公害対策関係法規が十分でなかった時代においては、地方自治体が公害防止に果たした役割は大きかった。地方自治体の相違工夫から広まった、新たな環境対策も多い。たとえば大気汚染や水質汚濁の防止に際して採用されている総量規制という考え方を国に先駆けて実施したのも、四日市市や大阪府、神奈川県といった、大気汚染対策に苦慮する地方自治体であった。

地方自治体による公害問題への取組として特記されるべきは、何といたっても公害防止協定であろう。これは、公害を防止するために、企業と行政が結ぶ契約である。協定の内容は、基本的には企業の義務を一方的に定めるものであり、煤煙の規制、排水の規制、騒音や振動の規制、悪臭規制等々の汚染規制のほか、行政による立入検査や協定違反の場合の操業停止等の規定も見られる。

こういった手法が広まったのには、まず消極的理由として、地方自治体、特に市町村には、十分な公害規制権限が与えられていなかったことがあげられよう。公権力に基づく規制が困難であるが、住民の健康への影響を放置しておくことができなかつたため、規制権限がなくとも可能である、企業との合意による公害防止という手法を採用せざるを得なかつたのである。一方、積極的な理由として、は協定という手法の柔軟性があげられる。たとえ規制権限が与えられていたとしても、法令による規制は画一的になりがちであるが、協定という手法であれば実情に即した柔軟な対応が可能であり、地域的な公害の防止には、より効果的だと考えられたのである。

しかし公害型環境問題に対する自治体の取組、特に条例による汚染規制という対策に際しては、国の法律との関係が難しい。自治体の条例制定権について、国の法律が定めていない事項、あるいは、国の法律が定めていても、その法律の規制とは異なる観点からの規制(いわゆる「横出し」規制)は原則として認められているが、法律が規制している事項について、国の規制よりも、より厳しい規制(いわゆる「上乘せ」規制)を行うことができるか否かが問題となるからである。

大気汚染と水質汚濁については、大気汚染防止法と水質汚濁防止法の改正(1970年)により、都道府県レベルまでは条例による上乘せができることとされたため、これらの分野に限っては問題は解決された。しかし環境対策、特に環境汚染問題をめぐる国と地方自治体の権限のありかたについては、より合理的な原則が必要である。「上乘せ」や「横出し」規制は、地方自治体が、それぞれの地域の環境(汚染状況)や社会的状況を考慮した上で必要であると判断した結果であるから、よほど不合理なものでない限り規制を有効なものとするという方向が検討されるべきであろう。

同様の問題はアセスメント制度についても浮上してきている。1997年の環境影響評価法制定によって、ようやく国レベルでのアセスメント制度が設けられたわけだが、すでに多くの地方自治体では独自のアセスメント制度を設け、環境影響評価を実施している。それらのアセスメント制度の中には、対象事業の範囲や住民参加の程度等の点において、環境影響評価法が要求するアセスメントよりも先進的な内容を有するものもある。こういった地方自治体の従来からのアセスメントと、国の法律である環境影響評価法に基づく新たなアセスメントとの関係については、今後の調整が必要となろう。

3. 2. 2 自然保護への取組

地方自治体による自然保護への取組は、着実に進められている。全国で55カ所の国立公園と304カ所の都道府県立自然公園は、都道府県によって管理されている。一般的にいうならば、これらの自然公園の管理のレベルは必ずしも高くはないが、中には国立公園よりも進んだ管理が行われている地域もある。また国立公園についても、具体的な管理行為のかなりの部分を都道府県の環境関係部局が担当し、あるいは国に協力している。

3. 2. 3 地球規模の環境問題への対応

地球規模あるいは国際的な環境問題への取組としては、地方自治体による途上国への協力活動があげられる。いくつかの地方自治体が、主にアジア諸国に対し、環境関連の事業に対する技術面や資金面での援助、あるいは人材育成面での協力を行っている。

また国内においても、温暖化対策に積極的に取り組む地方自治体が増えている。さらに地方自治体の活動を、全体として環境保全的な方向に向けていくために、地方自治体単位でISO14001（環境管理制度）の認証を取得しようという動きも見られる。

3. 3 産業界と各企業

3. 3. 1 公害型環境問題に対する姿勢の変化

深刻な公害問題が各地で発生した当初は、企業や産業界は環境対策に必ずしも協力的とはいえなかった。公害健康被害をめぐる損害賠償請求訴訟の場では企業側は徹底的に抗戦する姿勢を見せ、また新たな規制措置に対しては強く反発した。一方、住民や社会は、汚染行為を行っている企業を一方的に非難するという雰囲気であった、実際、OECDが主張した公害防止対策としてのPPPは、本来は **Polluter Pays Principle**、すなわち、汚染行為者に対して、その汚染の除去に必要な費用を負担させようというだけの考え方であったのに、当時の日本では、PPPは、あたかも **Polluter Punishment Principle**、すなわち「汚染行為者処罰原則」であるかのように考えられていたとの指摘もある。

しかし次第に、公害防止をめぐる、行政や住民との間で調整を行おうという対応も、企業や産業界の側から生じてきた。地方自治体との間での公害防止協定（「(3-2-1) 公害型環境問題への取組」参照）の締結に積極的に応じるという姿勢は、そのひとつの例であろう。

深刻な公害問題が一応は解消された近年では、国民の環境意識の高まりにも配慮してか、企業は環境汚染の原因であると指摘されることに相当に慎重である。また最近では、煤煙や騒音・振動等の問題をめぐり、企業が被告となる民事損害賠償請求訴訟においては、企業側が和解に応

じることが多い。これも問題を長引かせ、公害企業というイメージを広めてしまうことを避けようという判断が影響を与えていると思われる。

しかし、このような、どちらかという消極的な対応だけではなく、より積極的に、公害防止を企業の重要な課題であると捉える考え方も、産業界から生じている。かつてのPPP(汚染者負担原則: **Polluter Pays Principle**)に変わる新たなPPPとして、**Pollution Prevention Pays**(公害対策は無駄にはならない)という原則を主張しようというのは、注目すべき動向のひとつである。

しかしながら、PRTRに対する対応(「(1-1-5) 環境リスクと情報公開」参照)や、ISO14001・環境管理システムにおける環境監査のありかた(「(3-3-4) ISO14001『環境管理システム』の影響」参照)をめぐる議論に見られるように、多くの企業は、その活動が環境に与えている影響を、広く外部に公開することについては積極的とはいえない。

3.3.2 自然保護への関与

自然保護に関しては、企業や産業界の関与はそれほど大きくはない。それどころか、これまでは、開発型の企業活動は自然保護に敵対するものであった。現在でも、新たな開発による自然地域の減少や野生動植物への影響は、なくなっているわけではない。

しかし近年は、産業界が、環境問題に積極的に協力しているという態度を社会や消費者にアピールし、個々の企業や企業グループのイメージを高めるために、自然保護の面でも種々の活動に関与するようになってきた。

多く見られるのは、自然保護を行っているNGOへの資金提供である。しかしこの資金提供は、1990年代に入ってから日本経済の停滞と企業収益の悪化にともない、減少する傾向にある。

また企業や企業グループが、直接的に自然保護活動を行っているという例もある。その場合に多いのは、植林活動や、自然地域の維持管理である。ある電力会社は、推力発電用の水源地域として、著名な国立公園のなかの核心的な自然地域を保有しているが⁷、関連子会社を通じてその地域の自然環境の維持管理を行っているということを、広く宣伝している。

しかしながら、こういった自然保護活動は、当然のことながら企業イメージを高めるのに効果があるものに限られる。一方、その企業の活動が原因となって、自然地域や野生生物に生じている悪影響についての情報は、これも当然のことながら、企業からは発信されることはない。企業の自然保護の関わりへの、より正確な姿を知るためには、企業の活動を、自然保護への努力と自然破壊の影響という両面から調査して評価することが必要であろう。この点については、ISO14001等の環境管理システム、特に環境監査の制度がどこまで効果を持つかが注目される。

3.3.3 地球規模の環境問題への対応

有力な産業界が集まって組織している経済団体連合会は、すでに1991年に、経団連地球環境憲章を作成し、産業界としての世界的な観点からの環境配慮の原則を表明している。この憲章は、すべての事業活動において多面的な環境配慮を行うことを求めるとともに、他国、特に途上国に

⁷ 地域指定に基づく日本の自然公園制度では、国立公園等の自然公園内に、多くの私有地が含まれている。

進出する場合においても、最新の知見と適切な技術により、積極的に環境保全に対応すべきこと等を表明している。

産業界や企業による地球規模の環境問題への取組としては、特に温暖化問題への対応が注目される。経済団体連合会は、温暖化問題に対する産業界の自発的行動計画(ボランタリー・アクション・プログラム)として、各産業界ごとに対策目標を定め、その実施に取り掛かっている。また、CO₂の主要な発生源のひとつとなる自動車を生産しているあるメーカーでは、商社等と協力して、オーストラリアで大規模な植林事業を開始している。これは、自動車によるCO₂の発生を、植林によるCO₂の吸収で緩和するとともに、将来の温室効果ガス排出権の取引をにらんだ動きと考えられる。このような海外植林事業は、他の企業や産業にも広まっている。

しかし、より広く見られるのは、温暖化対策を新たなビジネスや競争力に結び付けようという傾向である。自動車の燃費や家庭用電化製品のエネルギー効率の向上、太陽光発電等の新エネルギー生産、リサイクル・ビジネス、あるいは今後強化されるであろう船舶の燃費改善要求をにらんだ新型船舶の製造、等々はその一例であろう。

一方、他の地球規模の環境問題に対しては、温暖化に対するほど顕著な対応は見られない。一部の商社や建築関係企業は、木材や木材製品の輸入あるいは使用に対して、木材生産地の環境配慮の程度を考慮しているが、木材の生産(林業)に対しては、世界的にも、まだISO14001のような環境管理システムの配慮が普及していないため、対応が困難なようである。

3. 3. 4 ISO14001「環境管理システム」の影響

近年の企業や産業界の環境対策に大きな影響を与えているのは、ISO(International Organization for Standardization: 国際標準化機構)が発行した環境管理システム、通称「ISO14001」(あるいは「ISO14000 シリーズ」)であろう。これは各企業(事業所単位)に対し、それぞれの企業の活動が環境に与えている影響を正確に把握・評価し、環境負荷の軽減に対して取り組むシステム(環境管理システム)を設けることを求めるものである。ISO14001の認証の取得は任意であるが、かつてISO9000「品質管理システム」の取得で出遅れ、国際市場の中で思わぬ痛手を受けた日本の企業、特に有力な企業は、競ってISO14001の認証取得に努力している。非公式のデータではあるが、1998年7月現在、ISO14001の取得件数は、世界55カ国・地域で5,147件であるが、国別では日本が1,018件でトップであり、日本に次ぐイギリスとドイツの取得件数、約630~650件を大きく引き離している⁸。

このようなISO14001の取得ラッシュは、それが企業の環境イメージを高めるということとともにISO14001を取得しておかなければ、企業間の取引から排除されかねないという状況にもよるものである。そのような傾向は、大手あるいは有力な企業がISO14001を取得し、取引関係のある会社にもISO14001の取得を求めるといった動きによって、一層加速されている。

各企業や産業界が、このようなシステムによって、自発的に環境対策を進めようという動きは、望ましいものである。しかしながら、現在のISOの環境管理システムでは、企業の環境負荷の現状やその改善状況についての監査(環境監査)の状況を、広く外部に公表することまでは求めている。そのため、企業の環境パフォーマンスの現状は必ずしも明確ではなく、また、異なる企業の

⁸ 日本経済新聞、1998年9月7日(月)、夕刊、p.3。

間での環境負荷やその改善状況を比較することも用意ではない。そういった意味では、ISO 14001 の取得は、まだ企業の、環境に配慮しているというイメージを高めるという段階を出ていない。さらに進んで、環境監査の結果を積極的に社外に公開し、環境改善の実績で評価を求めようという態度の企業が増えてくることが望まれる。

3. 4 市民とNGO

3. 4. 1 自然保護活動への参加

自然保護の分野では、NGOの活動が活発である。日本ではまだ強力なNGOはあまり多くはないが、伝統的に野生動植物や自然地域の保護といった分野には、多くのNGOや市民団体が参加している。

自然公園等における自然解説活動には、多くの市民がボランティアとして参加している。野生生物の観察や保護活動も、人気のある活動である。また身近な地域にビオトープを設け、あるいは里山や森林の手入れに協力するといった活動もよく見られるようになってきた。

こういった自然保護活動は、参加する人々にとってはレクリエーションとしての側面も持っている。そのため、ボランティアとして、費用を自分で負担して参加するケースが多いが、一方では、必ずしも持続的な保護活動につながらないという側面もある。

なお、いくつかの地域では、さらに積極的に、自然保護のために土地を買上げようというナショナル・トラスト運動も行われている。こういった活動にはしっかりとした組織を持ったNGOが必要であるが、これまでは日本ではNGOが法人格を取得することが難しく、そのことがNGOによる自然保護活動の発展の妨げになっていたという側面は否定できない。1998年に成立した特定非営利活動促進法(NPO法)はNPOによる法人格の取得の困難を軽減したが、その効果がどう現われるか、注目される。

3. 4. 2 日常生活のなかでの環境問題に対する取組

市民が日常生活のレベルで取り組むことのできる環境対策の代表は、廃棄物問題であろう。この問題については、リサイクルのためのゴミの分別排出や、再資源化可能物の特定集積場への持ち込み、あるいはゴミの減量化や省エネにつながる生活スタイルのみなおし等が広く行われるようになってきた。また、温暖化問題に個人レベルの生活から取り組むために、日常の活動から生じるCO₂の量をチェックしようという環境家計簿も興味を持たれている。

しかしながら、市民ひとり々々が、その日常生活の中で環境問題に積極的に取り組もうとしたときに、大きな問題となるのは、情報の欠如と、選択の余地が小さいことである。環境保全的な製品を購入しようとしても、どの商品がどれほど環境に影響を与えているのかといった点についての情報は手に入れにくい。また、包装等、ゴミとなる部分の少ない製品を選択しようとしても、そのような商品が販売されていない。さらに、容器等のリサイクルのための回収システムが整備されていない。こういった点を改善するためには、行政や産業界からの積極的な情報の提供と、環境保全的な消費行動を容易にするシステムの整備が求められる。

4. ケース・スタディ: 温暖化対策と、国立公園制度による森林環境保全の改善

本章では、これまでに述べた日本の環境ガバナンスの現状をより具体的に示すために、現在の日本が抱えている代表的な環境問題を対象としたケース・スタディを行う。対象として取り上げるのは、新たな、そして総合的な観点からの対策を必要とする問題である温暖化対策と、日本の代表的な自然環境である森林を保全するために活用されるべき国立公園制度である。

4.1 温暖化対策

温室効果ガスの人為的な排出による温暖化(気候変動)は、現在の日本にとって最も注目されている環境問題であるばかりでなく、まさに社会全体での総合的な取り組みが要求される問題である。

4.1.1 温室効果ガスの排出の現状

日本の温室効果ガスの排出総量は、世界全体の排出総量の約5%を占め、米国、中国、ロシアに次いで第4位、先進国(OECD加盟国)中では第2位である。一方、1人当たりの排出量はOECD諸国の平均を大きく下回るが、EU15カ国平均をやや上回り、全世界平均の2倍となっている。

4.1.2 対策目標

温暖化対策については、国際的な目標設定が大きな意味を持っている。国連気候変動枠組条約(1992年)で求められた、2000年までに温室効果ガスの人為的排出量を1990年レベルで安定化させることと、京都議定書(1997年)が定める国別排出削減義務に従い、2008年から2012年までの5年間の年平均で、1990年レベルから6%削減するというのが、日本としての当面の対策目標となる。また閣議決定である地球温暖化防止計画も、2000年以降、概ね1990年レベルで安定化させることを目標としている。

4.1.3 対策の実施手法とその状況及び問題点

1998年に成立した温暖化対策推進法では、地球温暖化対策に関する基本方針を定めるとともに、排出抑制計画の設定等によって国や地方自治体及び民間事業者による温暖化対策の推進を求め、また市民による取り組みを支援する体制を整備しようとしている。また関係行政機関への協力を求めるために、環境庁長官は必要があると認めるときは関係行政機関の長に必要な協力を求めることができるとしているが、これは温暖化対策への総合的な取組への道を開くものといえよう。

一方、同年に改正された省エネ法は、エネルギー消費効率の継続的な改善を推進するため、エネルギー消費効率が現在商品化されている製品のうち最も優れている機器の性能以上に設定するという「トップ・ランナー方式」の考え方を導入し、罰則等の担保措置を強化した。また工場・事業場におけるエネルギー使用合理化を徹底するため、エネルギー多消費工場に対してエネルギー使用の合理化に関する計画の提出を義務づけた。

しかし省エネ法による、エネルギー使用の合理化というアプローチでは、必ずしも総合的な温室

効果ガス削減対策にはつながり難い。より総合的な観点から、温暖化対策の基盤となる法制度を整備する必要がある。ところが温暖化対策推進法では、重要な要素である温室効果ガスの排出抑制計画の策定・実施と公表が、省エネ法の改正との関係からか、事業者に対しては義務ではなく努力目標とされており、その効果に疑問が持たれる。また、他の行政機関の施策に関する環境庁長官の協力要請を担保する措置も明らかではないし、環境税等のような経済的手法を導入するための根拠規定も入っていない。今後は、省エネ法等、温暖化に関係する既存の諸制度が存在することを前提に、調整すべき点は調整し、不足している点を補うことによって、総合的な温暖化対策を効果的に実施し推進するために必要な制度的基盤を整備する必要がある。

このような状況の中、民間企業は、温暖化問題に関する国際的な動向を重視し、すでにエネルギー使用効率の改善や温室効果ガスの排出削減等の具体的な活動に向けて動き始めている。

4. 1. 4 対策提案

今後、京都議定書で設定された目標を達成するためには、国としても、また地方自治体や民間企業でも、相当に積極的に温暖化対策を実施して行く必要がある。そのためには以下のような対策が重要な検討課題となろう。

- ・総合的な温暖化対策を効果的に推進するための制度的基礎の設定。
- ・政策アセスメントによる関連諸制度の総合的な調整と効率化の促進。
- ・民間企業に対する温室効果ガス削減計画策定の義務づけ。
- ・環境税等の経済的手法の導入。
- ・国内の民間主体や地方自治体が温室効果ガスの国際的な削減対策に積極的に関与するための制度的基盤の整備。

4. 2 国立公園制度による森林環境保全の改善

森林は日本の自然環境を代表する生態系であるとともに、その水源涵養機能を通じて、河川や湖沼の水源としても重要であり、また最近では温暖化対策との関係で、その二酸化炭素吸収機能も注目されている。国立公園等の自然公園制度は、特に良好な自然環境が残されている森林を保護する主要な制度である。

4. 2. 1 森林と国立公園

28の国立公園、55の国定公園、そして304の都道府県立自然公園を合わせた自然公園制度（自然公園法）全体では、日本の国土の総面積の14%以上をカバーし、国立公園だけでも国土の5.4%を占める。そのうち国有林野は、全国立公園面積の約60%を占めている。また北海道や東北地方のいくつかの国立公園では、国有林野がその面積の90%以上を占めている。

4. 2. 2 国立公園制度による森林環境保全の現状と問題点

しかし国立公園内の森林、特に国有林野の管理については、日本の国立公園制度が土地所有権を前提としない地域制を採っているため、国立公園を管理する権限と責任を有する環境庁と、独立採算制の下で林業を推進しようとする林野庁との間での困難な調整の結果、必ずしも適切な環境保全が行われてはいない。

たとえば林業については、国立公園制度によれば、国立公園内の特別保護地区では伐採禁止、第1種特別地域では原則として伐採禁止だが風致に支障のないかぎり単木択伐可能、第2種特別地域では原則として択伐だが風致に支障のないかぎり2ha 以内の皆伐が可能、第3種特別地域では風致に支障のないかぎり特に伐採種の定めはなく、普通地域では規制はない。しかしこれを面積で見ると、禁伐地域は国立公園総面積の12.5%にすぎず、択伐可能地域は7.9%、そして皆伐可能地域の合計は79.6%と、実に約8割の地域で皆伐が可能ということとなる。しかも禁伐の特別保護地区や第1種特別地域には、高山植生地域や湿原のように、そもそも林業の対象となる森林が存在しない地域も多いことを考えると、公園内のほとんどの森林で林業、それも従来とそれほどかわらない施業態様での林業が可能ということになる。

一方、増加する公園利用者による過剰利用の影響も問題である。国立公園全体の利用者は年間約4億人であり、高山帯や湿原といった脆弱な自然地域では深刻な環境影響が生じている。こういった過剰利用問題も、その原因の多くが、制度面及び現実面での公園管理体制の不備に起因するものである。

4.2.4 対策提案

このような状態にある日本の国立公園を改善し、国立公園内の森林環境の保全を実現するためには、次のような対策が検討される必要があると思われる。

- ・ 国立公園内の森林環境について、総合的な管理を行う。このためには、国立公園内の国有林野の管理権限を、林野庁から環境庁に移管し、公園専用地域とすることが望ましい。代替案としては、国有林野内の森林生態系保護地域の管理計画を国立公園計画と統合する等の方法が考えられる。
- ・ 国立公園内の民有地については、国が積極的に買上げる。現在でも、都道府県による公園内の土地、特に特別保護地区や特別地域を対象とした買上への国庫補助制度があるが、その買上予算は積極的に増額されなければならない。また都道府県の買上への補助だけではなく、国が直接に民有地を買上げることも考慮すべきである。
- ・ 土地の買上だけではなく、土地所有者と国(環境庁)や地方自治体との間で、多様な環境保全契約を締結し、土地使用権を背景として公園管理権限を強化することにより、自然公園法の定める開発規制の枠を超えた公園管理を実現するという方向も追求される必要がある。
- ・ 公園管理の予算、人員を増やす。現在の管理体制は、たとえば国立公園管理官数について見ると、近年大幅に増員されたとはいえ全国で僅か167名に過ぎない。これでは適切な公園管理を行うには、あまりにも不十分である。

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コメント

ジェームス・ニッカム

1. 環境

環境ガバナンスの一つの重要な側面は、環境(正確には、環境問題とは何かという問い)及びガバナンスの双方とも、それが意味するところにつき異なる理解が存在する点である。官僚機構においては、法律上の定義によって問題領域が設定、対処されるが、これはウェーバ一流官僚制度の主要な特徴、かつ私がこれまで「プロジェクト・カルチャー」として考察を行ってきたテーマである(例えば、Nickum and Greenstadt, 1998)。「環境問題」は異なるガバナンス特性を含む実に広い範囲の問題である。その一つの帰結として、環境担当官庁の役割として特定の環境問題に関する諸活動を「調整」すること、すなわち業務の取りまとめを行ったり、データベース構築のような特定の業務を請け負ったりすることが期待される。また同時に、問題を定義すること自体がガバナンスあるいは流行の言葉では「言説」の目的であるということになる。Hajer (1995)によれば、環境政策上の諸問題は、「歴史的に規定された権利要求の束」であり、客観的な現象に関する記述と同程度に制度的・政治的な規範を反映するかたちで定義されるものであるが、双方は問題発生プロセスにおいては分かれ難く結びついている。ここでやや話を飛躍することを許されるならば、加藤氏はフレームワークにより提案されている水質保全や酸性雨あるいは森林保全ではなく、気候変動及び国立公園管理を鍵となる問題として取り上げられたが、これはある言説の視点を反映した結果であり、日本の環境庁が問題を設定する際によく見られる立場といえる。水質保全という領域は環境庁にとって、建設省や厚生省、さらには地方政府当局に主導権を譲らなければならない分野である。また、酸性雨問題については、原因物質発生源のほとんどはおそらく未だに国内に存在するとはいうものの、国内のSO_x排出問題が概ね「解決」を見た現在、越境汚染問題として考えられている。

2. ガバナンス

以上が環境について検討した内容である。次に「ガバナンス」とは何を意味するのであろうか。ガバナンスという言葉が元来持っていた意味は、政府と同様、何らかの階層的な構造であった。またそれは国際金融機関に特有の用語としてガバメントの質を指す一面がある。他方で、Putnam(1993)が発表したイタリア政治に関する研究を発端に、良きガバメントの必要条件として「市民社会」とガバメントの間に、おそらくは参加型の良好な関係が必要であるという認識も広がりを見せている。この場合、市民社会は、「社会的資本」—政府から独立した主体(或いは政府以外の階層組織であるカトリック教会など)における自己組織能力—に依存する。

このように見ると、「依らしむべし、知らしむべからず」という徳川時代の政策は悪しきガバナンスの徴となるであろう。しかし徳川政権は300年近くにわたり(1603–1867)日本の統治においてまずまずの実績を挙げ、徳川期の市民社会は、必要に迫られることも多々あったと思われるが、自己統治能力を発揮し得たのであった(Nickum, 1999)。私にとって日本のガバナンスを巡るミステリーはそう新しいものではないのである。

3. 特筆すべき日本の実績

以上を考察した結果、日本のガバナンス(或いは日本の経済運営)を巡る大きなミステリーが明らかになる。すなわち、日本における環境ガバナンスは次の諸点で特筆すべき面を持つ。1) 技術的、経済的な条件が整った時に対策が実行されるスピード、2) 公害被害者補償基金の創設や公害の自主協定の締結など、従来ない新しい制度の採用、及び3) 環境に関する主要な領域における全般的に良好な状況。

4. 日本の環境ガバナンスのミステリー

しかしながら、日本における環境ガバナンスの諸制度は教科書的な通説が説く望ましいガバナンスの姿からは次の諸点で大きく逸脱する。

- 日本の環境庁の権限は弱く、自らの任務を調整と心得、しばしば他の強大な官庁からの出向者に管理職を含む重要な地位を与えてきた。
- 汚染者負担原則は日本において実質的には「汚染者受益原則」として発現している(産業の経済的規模によりこのことは影響されるのか)。
- 日本の司法制度は公害被害補償請求訴訟の原告に対して、加藤氏が触れられている1970年代初頭などの例外的な状況下を除き、総じて無理解である。
- 日本の環境NGOの大半は動員力が弱く、構成人員が少なく、党派的であり、また対決姿勢を避ける傾向が見られる。
- 日本の組織は情報管理を徹底し、政府、民間ともに情報開示に積極的でない。日本とトルコは有害廃棄物の発生量についての統計や推定値を発表しないOECD加盟国のなかの数少ない国である。

5. 日本の環境パフォーマンス

こうした望ましい環境ガバナンスを阻害する多数の事実にも拘わらず、30年前以来、全般的に日本の環境パフォーマンスは模範的である。以下、いくつか具体的な事項を挙げる。

- 1) SO_x排出量: 一人当たり及びGDPの単位当たりの双方においてきわめて低く(日本の一人当たり排出量は7kg、アメリカは63kg、ドイツは37kg、オーストリアは119kg)、OECD加盟国ではスイスに次いで二番目に低い。また、1980年~1995年で化石燃料の供給が3倍に増加しGDPも2.41倍に拡大した一方で、総排出量は減少し続けている(OECD Environmental Indicators 1998:27)。
- 2) NO_x排出量については、OECD加盟国中、一人当たり排出量は一番低いが(12kg)、1980年代半ば以来総排出量の減少は見られない(前掲、29)。
- 3) CO₂ 排出量については、1980年~1995年での増加量は24%に過ぎず、この間でのGDPがその10倍の速さで拡大したことを考慮すると驚異的に低い増加量といえる。商用エネルギーの使用量は同時期において43.5%減少した(World Development Report 1998/99: 208-209)。日本は現在、世界全体との比でGDPでは8%を占める一方でCO₂ 排出量では5%を占めるに過ぎない。他方、アメリカはGDPでは20.8%、CO₂ 排出量では24.1%である(下表参照)。
- 4) 一般廃棄物については、1980年以来の一人当たり排出量の増加速度はOECD加盟国中最も緩やかであった(平均値25%に対して7%)。また一人当たり総量(400kg)はOECD加盟国の平均値(530kg)よりも少なく、アメリカ(700kg)よりも一層少ない(OECD:38)。

5) 植林面積については、1970年以来基本的に安定しており、伐採は年成長のうち僅か3分の1である(OECD:55-56)。

	Japan	China	India	Thailand	USA	World
Population (1997: million)	126 2.2%	1227 21.0%	961 16.5%	61 1.0%	268 4.6%	5829
GNP 1997(PPP) US\$billion	2951 8.0%	4382 11.9%	1587 4.3%	399 1.1%	7690 20.8%	36951
Commercial energy use (mmtoe)1995	497 6.0%	850 10.3%	241 2.9%	52 0.6%	2078 25.2%	8245
CO2 emissions (mmt) 1995	1127 5.0%	3192 14.1%	908 4.0%	175 0.8%	5469 24.1%	22700
Deforestation rate (ann. ave, 1990-95)	0.1%	0.1%	0.0%	2.6%	-0.3%	0.3%

Compiled from World Bank, 1998.

- 6) 種の保存については、比較的低い割合の種の生存が脅かされているのみである(OECD:65)。
 7) (驚嘆すべき成功ではないが)殺虫剤の消費については、1980年以来総使用量は約4分の1に減少したが、単位当たり使用量は OECD 加盟国中最も多い(一平方キロメートル当たりの使用量は1259kg。ドイツでは202kg、アメリカでは86kg)。
 8) (驚嘆すべき成功ではないが)ダイオキシンの発生量については、日本は世界でも指折りであるが、それは主に焼却施設に対する政策が不適切なためである。

6. 日本及び他国への教訓

いかにすれば上に見たような驚嘆すべきパフォーマンスが可能になるのか、という点が今日までの日本の環境ガバナンスにおけるミステリーである。そして、次なるミステリーは以下の2点である。
 1) 先進国と発展途上国、アジア諸国と非アジア諸国という区別なしに他の国々にとっての教訓があるのかどうかということ、つまり、上に見たような成功経験をもたらしたものが歴史的、文化的、制度的に日本のガバナンス・システムに固有のものなのかということ。
 2) グローバル化が進んだ21世紀の情報社会において、今日とはかなり異なるルールのもと、受け継がれていくガバナンス・システムは日本でうまく機能するのかどうかということ。これらの問いについて私はこの5年ほど考察を続けているが、未だに解答には到達していない(例えば、Nickum, 1997)。この場をもって、これらの問いが今後のいかなるガバナンスの比較分析においても中心的な問題として位置づけられるべきであることを提案したい。

以下、加藤教授のペーパーに関するより直接的なコメントを述べさせていただく。

7. 加藤氏のペーパーについて

加藤氏のペーパーでは、日本の環境ガバナンスのメカニズムに関するいくつかの重要な問いについて、直接的には言及していないものの、考察のための基礎が提示されている。残念ながらここでは、興味深いすべての点についてお話する時間はないので、これから活発な議論に発展していきそうないくつか点についてコメントさせていただくこととしたい。

a. テーマ設定について

加藤氏のペーパーにおいては、IGES のプロジェクト構造とも符合する気候変動及び熱帯林破壊という2つのテーマが示されている。これらのテーマはフレームワークによって提案されている3つのテーマ(水質汚染、酸性雨、森林面積)とはいくらか異なるものであるが、氏の設定は筋が通っている。なぜなら、これら2つのテーマについて IGES は責任を負うことになり、また日本はこれらのテーマについては国際舞台において重要な役割を担っているからである。氏は日本が歴史的に直面した国内公害問題に焦点を当て、中でもとくに工業公害と国立公園管理の問題について詳述している。そして、環境ガバナンスの分野の中でもきわめて重要で、国家によって異なる言説を反映するであろうテーマ、情報の問題(EIA、ISO、PRTRなどが具体例で、FOIは含まれない)についての考察を行っている(Nickum, 1993 参照)。

b. アクターの範囲

しかし、ここで重要なポイントが提示されている。フレームワークにおいては、広い範囲からのアクターが政策課題設定及び実施において潜在的な役割をもつことが示唆されていた。具体的には、官僚、政治家、科学者、メディア、産業界、地方政府、そして非政府組織などといったアクターである。しかし一方で、加藤氏のペーパーにおけるアクターとは、中央政府、大企業、そして大きな制約を抱えつつも時に革新的な政策を実施する地方政府に限られている。これらのみが日本の環境ガバナンスの舞台に上がることを許されているアクターであるのだろうかという疑問を持たざるを得ない。また別の問題として、環境庁は政府の象徴的な組織として捉えられ、他の省庁はいくつかの箇所で言及されているものの、全般的に政府はまとまりのない主体として扱われているに過ぎない。いくつかの例を挙げるなら、例えば建設省は、環境関連案件としては最大の予算を計上する下水道網を管轄している上、さまざまな環境に関するアイデアを公共事業において具現化する権限をもっている。しかしその建設省については、最近ようやく「論争の輪に入りつつある」とごく簡潔に触れられているに過ぎない。また農水省については、国立公園の管理における林野庁の役割という観点で論じられているのみである。さらに、民間セクターに重点を置いているとはいうものの、その文脈において重要なアクターである通産省については、COP3 において「包括的なアプローチ」を主張する環境庁に対し「エネルギー関連の政策を優先する」立場を取ったとして登場するにとどまっている。ここでは残念ながら、環境庁と通産省が対峙するようになった経緯に関する追加的な説明はほとんど見当たらない。その他、運輸省、厚生省、大蔵省などは、環境問題によるライフスタイルが形成されてきている現代ではきわめて重要な霞ヶ関のアクターであるが、氏のペーパーでは一度も登場しない。

c. 人々はどこに？

しかし、重要なアクターとしての省庁の不言及以上に重大な点は、上述した他のアクター、とくに政治家、科学者、メディア、そして非政府組織への注目がきわめて低いことである。加えて、市民もしくは市民社会が非常に消極的な文脈でのみ捉えられている点も問題である。この点についてはおおよそ次のようである。人々は、都会化したことにより伝統的な自然との繋がりを失った。人々は、公害の被害者となると補償を受けた。人々は、土地を所有するようになると生態系を守る法律が適用されるのを妨げた。人々は、自発的に自然ガイドとなった。人々は、熱帯林保全の必要性に気づいていない。人々は、十分な情報がないために限られた選択肢しか持ち得ず、環境を守るための行動をなかなか取れずにいる。加藤氏のペーパーの最終部では、1998年に Jeff Broadbent によって行われた大分県における市民活動に関する研究について言及されているが、このような消極的な文脈における市民組織に関する論拠はほとんどない。Margaret Mckean (1981) による1970年代の市民政治に関する分析、1970年代に滋賀県で成功をみた燐洗剤の反対運動の事例、1980年代のゴルフコース建設に対する抗議行動の事例、また最近では危険施設の

建設に対するいわゆる「自分の家の庭先は困る(NIMBY)」運動の事例など、どれを見ても市民社会の環境問題に対する無力さを示す論拠は見られない。しばしば言われるように、本当に日本には市民社会が存在しないのであろうか。あるいは、たまたま加藤氏のペーパーでは見落とされてしまったのであろうか。

d. ガバナンスのメカニズム

環境(あるいは環境以外の)ガバナンスの本質の中心に横たわる、埋めることの難しい一つの溝は、どのように物事が機能するのか(あるいは機能しないのか)ということに関する意味である。実際、環境のアジェンダになり得る問題が多数存在するなかで、限られた特定の問題が選定されるのは何故であろうか。法律や規制、補助金、基準といった公式な政策的メカニズムは、どのような政治・行政システムの利害調整を経て築かれていくのであろうか。草の根レベルでは実際何が起きているのであろうか、そしてまた、重要なアクターの現実の動機及び戦略的な立場はどのようなものなのであろうか。文化は関係するのであろうか。行政関係者にとって法律とはトップ・ダウン型の規制をつくるための一般的な原則に過ぎないのであろうか。あるいは法律は、官僚的な意思決定機構に挑戦する推進力をもたらすものなのであろうか。もしそうだとすれば、誰がそのような挑戦を行う権利をもっているのか。法律は民間の契約においては「影」をもたらすものであるのか、あるいはその逆なのか。そもそも、どれだけ重要であるのか。Kitamura (1997) が1997年に日本で調査した街レベルでの規制は実際にはどのように映るのか。

e. なぜ、国立公園なのか

国立公園の管理は、明らかにそれ自体で環境問題を生じさせる行政管理上の問題であり、環境庁の組織構造を色濃く反映するものである。しかし、国立公園の環境的な目的とは何であろうか。確かに国立公園は生態系を保全し、無制限な開発行為による生物種や景観の破壊を防ぐかもしれない。しかし、国立公園という形をとることが最善の方策であろうか。国立公園内の森林破壊が公園外の地域よりも深刻であるというような事態にはなっていないであろうか。

8. 結論

このテーマに関しても、また加藤氏の多面的であるがやや簡潔に過ぎるペーパーに関しても、完全に公正な評価を終えたとは思わないが私のコメントはここで終了することとする。これからさらに議論を発展させていくべきいくつかの点を指摘することはできたことと思う。

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タイの環境ガバナンス

ソムルディ・ニクロ、クリスティン・アピクル

1. タイにおける環境保護

1.1 開発計画と環境保護の歴史

タイの近代的な開発計画は、第一次経済社会国家計画が策定された1961年にまで遡る。タイは植民地化されることはなかったが、多くの新興独立国と同じように、5か年計画が実施されるようになったのは戦後になってからである。現在までに、7つの5か年計画があり、現在は第8次国家計画(1997-2000)が実施されている。

国家計画によるタイの開発には、工業化と都市化という2つのプロセスがある。さらに、このプロセスには3つの特色が見られる。まず第1が、数十年間を通して、タイは開発と経済成長とを密接に関連つけてきた。第2に、経済成長と実現するための方法として工業化の道を選択した。第3に、開発のプロセスはトップダウンの方式によるものであった。5か年計画を準備するために、国家経済社会開発委員会(NESDB)が設置されたのであった。

タイの開発のプロセスは、他の発展途上国と同様に、世界銀行の影響を強く受けている。前述のとおり、経済成長に重点を置いたブループリントに基づいて、タイでは一般的にトップダウンでコマンド・アンド・コントロールの方式がとられてきた。しかし、過去20~30年の間、タイだけでなく世界中で、経済成長志向の経済では貧困を撲滅することはできず、豊かな人々と貧しい人々の間の不平等、自然資源の枯渇、環境破壊、政治的な不安定化、疎外感の増大やアイデンティティの喪失が進行してきた。

多くの発展途上国で経験しているとおおり、目に見える環境破壊と社会の有権者からの圧力が一体となって、持続可能な発展に焦点をあてたパラダイムシフトを促している。国連のストックホルム会議(1972年)とリオ会議(1992年)は、新しいパラダイムが主張された2つ国際的な場であった(Sandbrook, 1992)。アジェンダ21は、タイを含めて157の国連加盟国によってリオ会議で合意されたものであるが、各国が地球を守り、次世紀の将来世代の人々のための持続可能性をもたらすことで協力するよう要請している。ここで重要なことは、リオ会議は、少なくとも原則論において、環境問題を開発問題のなかに位置づけたことであった。

1970年代後半、タイでは、徐々に自然資源が危機にさらされていることが認識されるようになった。世界の環境問題の解決にむけた国際的な圧力が重なって、ストックホルム会議に参加した後、タイでは初めて第4次国家計画(1977-1981)で環境保護へのコミットメントを表明した。しかし、この計画は、世界不況のあと、特に1970年代以降の経済復興を目的としたものであった。

1980年代後半と1990年代初頭から、環境問題についての利害や関心が変化してきた。タイで環境問題へ取り組みが熱心となってきたのは、明らかに、環境NGOが環境保護にとって重要なアクターと認識され、「分権化」の考え方を中心としたボトムアップの方法を採り入れようとした第7次と第8次の国家計画の影響を受けたものであった。

これらのほかに環境問題に関連する重要な進展として、1991年と1994年の新しいタイ王国憲法の制定、さらに、1975年、1978年、1979年の環境法に代えて、環境法の執行を実効性のあるものとするを意図した1992年の国家環境質向上保全法(以下、1992年環境法という)の制定があった。

1.2 環境法制

タイの環境法の基礎は、1991年のタイ王国憲法(B.E.2534)にある。その第74条は、「国家は、自然資源の利用とその還元、汚染の除去と予防、土地と水の利用計画との均衡を保ちながら、環境を保全しなければならない」と規定している(Baker & Mckenzie, 1993)。こうした基本的枠組みをもとにして、1992年環境法が制定されたのであった。

この法律とともに、1992年には環境関連法が改正又は制定されたのであった。具体的には、工場法、有害物質法、エネルギー保全促進法、公衆衛生法、清掃整備法の改正法である。全体で、環境問題に直接間接に関連する規制が約70~80もある(TEI, 1997a)。

なかでも最も重要で包括的なものが1992年環境法である。それ以前の環境法と異なった特徴は、次のとおりである(TEI, 1995: 1-2)

- 国家環境委員会(NEB)に対して、環境質基準やその制裁措置など、国家の環境問題に係わる意思決定の権限を与えた。NEBはもともと1975年法によって創設されたものであったが、その権限は助言的なものに限られていた。新しい枠組みでは、NEBは大臣級の委員会組織となり、首相が議長で、NEBの事務局には科学技術環境省(MOSTE)の次官があたっている(TEI, 1997a)。
- 環境保護を担当する政府組織を改組した。国家環境委員会事務局(ONEB)に代えて、環境政策計画室(OEPP)、公害防止局(PCD)、環境質推進局(DEQP)が設置されている。MOSTEは、各部署に責任と職務を与えている。
- 国家レベルの上記の3つの部署からの環境保護に関する権限が県レベルに委譲された。
- 一定の地区を環境保護地区(EPZ)又は公害防止地区(PCZ)として指定した。
- EPZのある県には、県の環境保護行動計画の提出を義務づけた。その他の県も自主的に行動計画を提出することができる。
- MOSTE次官によって管理される環境基金が設立された。
- 環境影響評価(EIA)が義務づけられる事業や活動の種類が拡大された(Nicro, et al, 1997)。
- 住民参加の重要性を認識した。1992年環境法の第6条は、各人は次のような権利と義務を持つと規定している。「…公害防止や自然資源の保全に関連する違法な行為を目撃したときには、違反者に対する不服を申し出る。」「環境質の向上と保全に関連する活動において公務員に協力支援する。」(The 1992 Environment Act, 1992)

1.3 環境保護の制度化のプロセス

1970年代後半になって、タイでは環境問題への一般の関心が高まり、市民社会による環境運動が出現してきた。それらは、1972年のストックホルム会議や工業先進国における環境運動の影響を受けたり、統治制度を改革し民主化を求める政治運動に関連するものもあった。

その結果、1970年代と1980年代の環境運動は「住民対官僚・軍部エリート」という構図であっ

た。1973年春頃のスキャンダルでは、野生動植物保護法にもとづいて保護されているトゥンヤイナレスワン野生生物保護区で、違法に購入された政府保有のガンやヘリコプターを用いた軍部の警察が関与していた(Funatsu, 1997)。

これと類似したものとして、学生や非政府組織によって、1974-1975年のユニオン・カーバイト社傘下にあるタイ鉱業会社(TEMCO)に対するキャンペーン、1982-1988年のナム・チョンダム建設反対運動などが時の権力に対して展開され、環境問題が公務員の権限乱用を非難する材料として使われ、一般の支援を受けていった。

同時期に、環境汚染によって直接的に被害を受けたコミュニティの草の根組織の運動がそれぞれ起こっており、環境運動に影響を及ぼしていった。企業の森林伐採や、大規模ダム、森林伐採、ユーカリ植林、鉱業、工業開発や観光開発などによって、コミュニティが日々の生活で依存している農村環境が破壊されることに反対するキャンペーンのような自然資源の利用や管理をめぐる紛争がしばしば起こった。

しかし、市民社会と政府との交渉は緊張感を高めていき、時には、環境運動の指導者が処罰されたり、殺されることもあった。成長の早いユーカリの植林に反対したプラチャック師は再三脅迫にあい、その後逮捕されて、僧侶の地位を奪われた。

Funatsu (1997)などの研究では、1990年代に環境問題についての政府の立場が大きく変わっていったという。これは、環境問題に対する組織的な運動の増加によるところがあった。1992年のリオ・サミットなどによって、環境問題への対応をあらためるよう国際的な要求が高まったことで、この変化を促すような重要な外部要因を無視することができなくなった。事実、タイ政府は、1990年代前半に、環境保護に関連する法制度を改善したり、制度を改めていった。

特に、1991-1992年のアーナン・パンヤラチュン首相の第一次と第二次の内閣では、1979年環境法の改正などの進展があり、前述のとおり、新法に従って、環境分野の制度的、行政的な構造が強化されるという変化があった。こうした進展は、持続可能ではない経済発展の結果として環境問題が深刻化したことに対する政府の国内対策の表われとみることができる。

1970年代以降、タイの環境運動は地球規模の環境運動に支えられてきた。地球規模のリンクエージは、開発プロセスの主流に対抗するような新しい枠組みを提供するとともに、国内の環境破壊に対処するためのタイの新しい環境組織への資金提供を可能とさせた。

国内レベルでは、タイの君主制がタイの環境保護を促進する重要な要因となっている。国王の事業にも環境分野のものがあつた。特に、プーミポン国王による、高地の少数民族における開発事業がこれにあたる。1989年12月4日の国王が、誕生日の前日に行った重要な記念講演では、1988年にタイ南部で起こった大規模な洪水や土砂崩れに言及したが、ここでは700人が死亡又は行方不明となっていた。プーミポン国王は、自然災害を防止するために、自然保護や植林のキャンペーンを国家的に展開する必要があると宣言した。

翌年から、政府は、12月4日を「国家環境デー」と指定し、国民の祝日に大量の植林を行ったり、森林保護のために国中で記念式典を行うことが慣例化している。

タイの2つの権威的な存在である国王一家と政府は、マスメディアと協力して、環境破壊についてのキャンペーンで重要な役割を果たしており、1990年代には環境問題は「政府対住民」という対立的な構造から国民の協力が必要な国家的な目的へと変化してきた。同時に、環境運動への支援も広範になり、大企業や都市住民の組織が参加する余地できるようになった。

1980年代まで、企業と環境保護主義者は、一体とはなっておらず、環境問題をめぐる議論において、構造的そして戦略的に対立する関係にあった。これは世界的な傾向であって、その影響を受けてタイでも、TEMCO問題などの初期の闘争が起きていた。ごく最近では、少なくとも、企業は、環境を守るうえでのパートナーと見られるようになった。1992年のリオ・サミットで重要な役割を果たした持続可能な発展に関する経済人会議などの地球規模の取組みが、タイにも影響している(Hirsch,1994)。アーナン・パンヤーラチュン元首相が評議員を務める非営利団体であるタイ環境研究所も持続可能な発展に関するタイ経済人会議を組織している。

最近では、国家レベルで、数多くの主要な企業グループや個人がそれぞれ環境の視点に立つようになっている。持続可能な発展への取組みにむけた産業界の活動のなかで最もよく知られているのは、ラモン・マグサイ賞を代表するバンチャック石油社長のソポン・スパポン氏である。

バンチャック石油は、環境NGOと協力して組織された1994年環境年報に関するフォーラム(FARE)の主催団体の一つである。ソポン氏は、タイでは、農村コミュニティ開発、民主化、自給自足の提唱者としてよく知られている。ソポン氏は、「自給自足の経済を確立するためのキーポイントは、企業とコミュニティとの間のパートナーシップにあり、企業パートナーはコミュニティのパートナーに対して有利な立場を与える必要はないが、何からの特典を与えていかなければならない」と述べている(Bangkok Post, 27 July 1998)。

バンチャック石油による石油小売の経営はこの哲学に基づいており、コミュニティの諸組織や団体はバンチャック社のパートナーとなっている。この会社の最初の10カ所の石油ステーションがここにおかれ、今では、1,000以上のバンチャック社のステーションが稼働している。

他の例として、ソポン財閥の資金支援によって運営されているマジック・アイズという環境団体は反リッター運動で知られている。また、サイアム・モーター社の社長であるポンティップ・ポンプラパ氏によって創設された環境団体にシンク・アースというのがある。

タイの急速な工業化と都市化の結果として、最近では、農村と都市の環境問題の違いが大きくなってきている。農村から都市への大量な移住や都市開発計画の不十分さが、産業や家庭に起因する水汚染、大気汚染、廃棄物といった問題を深刻化させている。これは、村や都市の住民が目に見える影響を感じるもので、優先順位の高い問題となっている。農村地帯では、自然資源の減少、農地の不足、森林破壊が主要な関心事となっている。これらの問題は、タイの複雑さの原因ともなっているが、都市問題の副作用と見ることもできる(Pradubraj & Nicro, 1997)。

地域的あるいは地球規模の環境リスクに対するタイの対応に関しては、1990年代、特に環境保護の地球規模の協力を求めた1992年のリオ・サミットにむけて、タイ政府はその取組みに力を入れるようになったといえる。この会議では、タイは国連気候変動枠組条約(UNFCCC)に署名している。合意を実施するために、気候変動に関する国家小委員会が設置され、NEBのもとで研究と政策的戦略との調整を行っている。この委員会は、諸機関が枠組条約にもとづく政府のコミットメントに従っているのかを監視する組織としても機能している。

2. タイの状況

効果的な環境ガバナンスへの取組みを検討するに際しては、タイの経済や社会の現状を、特にアジア通貨危機との関連で理解していく必要がある。

2.1 経済

1985年以來の過去十数年間に、「アジアの虎」の経済的な奇跡は発展途上国にとってのモデルであると再三言われてきた。1985年から1995年の間に、世界銀行によれば、タイの国内総生産(GDP)の平均的な実質年間成長率は8.4%であった(World Bank, 1997)。しかし、タイが新興工業経済となる過程で、タイは文化、環境、政治、社会開発を犠牲にして集中的に経済成長を追求してきた。

1997年7月、タイはその経済や社会の状況に深刻な影響をもたらすような通貨危機に直面したのであった。現在のタイにおけるGDPの年間の平均成長率は-0.4%と見積もられている(Asiaweek, 21 Aug 98)。国民一人あたりの国民総生産(GNP)は1995年の2,740ドルから1998年には2,450ドルに落ち込んだ(Asiaweek, 21 Aug 98)。これに対して、米国の平均のGDPの年間成長率は1.4%で、国民一人あたりのGNPは29,950ドルで(Asianweek, 21 Aug 98)、1995年の26,980ドルから増加している。

2.2 社会

タイの国土面積は50万平方キロメートルで(フランスとほぼ同じ)、その人口は6,000万人を超え、1990年から1995年の間の年間平均の人口増加率は0.9%である。タイの人口の約20%が都市部に住み、1980年から1995年の年間の成長率は年間で2.6%であった(World Bank, 1997)。World Bank (1997)によれば、1990年に、タイの労働人口の64%が農業に従事しており、工業に従事する労働人口は14%である。

タイの経済成長、投資、補助金への取組みは都市産業やサービスと一体となっていく一方、人口の多数が住む農村地帯は取り残された。上位10(ほとんどが都市部)と下位10(ほとんど農村部)との所得格差は1981年で17倍であったが、1994年には34倍に拡大した。経済ブームの期間における所得の半分以上はこれら都市部の上位10におけるものであった(Ikemoto, 1994 cited in Phongpaichit & Baker, 1998)。

通貨危機の騒ぎのなかで、国家統計室が1998年5月に実施した調査によれば、160万人が失業したという。失業率は、2月の4.6%が5月には5%に上昇した(Bangkok Post, 19 Aug 98)。

タイの消費レベルに関しては、1994年の国民一人あたりの電力消費レベルは1,294キロワット／時間である(これに対して、米国は12,711キロワット／時間)(UNDP, 1997)。世界標準から見ればタイの国民一人あたりの電力消費量は低い水準にあるが、東南アジアでの消費の大部分を占めており、ベトナムの7倍、ラオスの12倍である(UNDP, 1997b)。UNDPの人間開発報告1997年版によれば、消費レベルは次のようになっている。

・1992年の国民一人あたりの1日のカロリー供給量:2,443

- ・1992年の国民100人あたりの新聞発行部数:5
- ・1994年の100人あたりのテレビの普及台数:25

2.3 アジアの通貨危機

1997年から1998年にかけてのアジア通貨危機については、その原因、影響、解決策についてさまざまな議論と分析がなされてきた。過去の歴史でいろいろな取組みや問題が一般的に取り上げられてきた場合と同じように、アジア通貨危機に関する理解は一致する方向にむかっている。主要なエコノミストや国際経済アナリストは、この問題の直接的な原因は各国のガバナンスが不十分な点にあると指摘している。

「今回の危機の原因は多様で複雑であるが、アジアの難しさの根幹となっているさまざまな問題点がガバナンスを不十分なものとしている」(IMF, 1998)。

多くのエコノミストは、アジアの危機はガバナンスの不十分さの現れであるという点に異議を唱えている。友人や家族に便宜をはかるなど、政府－企業の密接な関係が腐敗の温床となっている；ステイクホルダー間のコミュニケーション・チャンネルの欠如によって経済と通貨の状況についての透明性を損なっている；意思決定のプロセスにおける手続と責任が不足している－これらが、マクロ経済の安定性を脅かすような市場の不確実性と大量な資本流出をもたらしたと言われている (Bello, 1998; The Nation, 4 July 98; Saludo & Shameen, 1998; UNDP, 1997a; World Bank, 1997)。

このように、解決策は、腐敗の除去、透明性の確保、責任の明確化といった良きガバナンスを実現するための構造的な改革に基づかなければならない。外国投資家を取り戻し、経済を安定化させることを推進する必要がある (IMF, 1997)。

通貨危機の原因についての議論は、これまでの経済や政府のもとでは、腐敗があり、脆弱で、後発な経済でしかありえず、通貨危機をもたらしたという反応を生んできた。こうした議論は、国際通貨基金 (IMF) が提案している経済と政治の改革を正当化するものであり、経済のグローバル化に関連して、アジア諸国が開発についての資本主義の理想に立ち戻ることの必要性を唱えている。

タイを含めてアジア諸国が経済危機を乗り越えるにあたって、IMFのパッケージの条件となっている良きガバナンスの重要性を認識せざるを得ない (Kulawat, 1997; The Nation, 27 May 98)。

しかし、アジアに危機が襲ってから1年たっても、環境問題、失業、政治不安は解決されず、場合によってはますます悪化しており、経済も不況に陥っている。通貨危機が襲ったアジア諸国での早魃、暴動、失業の増加は、状況が悪化していることを明確に示している。このことは、IMFが課した良きガバナンスに基づいた改革に疑問を投げかけるものとなっており、グローバル化している世界における要求に沿った形で成長と進歩に関する西洋的な考え方を再考することを求めている (Phongpaichit & Baker, 1998)。

タイなど各国の研究者やIMFパッケージに批判的な人々は、資本のフローなど各国では制御できないようなグローバル化の動きが通貨危機の原因であると指摘している。さらに、通貨危機の結果、アジアはより対外開放を進めなければならないと信じている。金融部門や大企業の大部分はすでに売り払われたり、競りにかけられている。こうした考えに従えば、移行期にある企業は、

政府のコントロールを超えて自ら意思決定を行い、その利益を守るためにそれぞれのコミュニティを築き上げていくことになる。

タイにおける数多くの市民団体は、「内に向かって」自立すること、各国に固有な文化と自然資源の状況を再発見すること、それぞれの地域性や各国に適合した開発のあり方(例えば、タイの農村での自立を見直すなど、**The Nation, 16 July 98** 参照)を考えることを提唱している。しかし、良きガバナンスなどの自立の概念は決して新しいものではなく、アジア通貨危機によって再び注目を浴びただけである。

3. 環境ガバナンス構造の現状

ここでは、環境ガバナンスに関連する範囲で、タイの文化や政治の制度の基本構造について述べたい。

3.1 政府の文化

温情、共有、平和的な連帯が伝統的なタイの社会的な対応を反映するものである。ごく最近まで、自然資源の利用はそれが処理できる範囲内で各個人の権利とされていた。さまざまな考え方や物質主義的な生活様式が浸透したり、誰かがとってしまう前に自分がとれるものをとってしまうという態度が自然資源の利用にも現れてきたことなどから、こうした態度が変化してきた。

タイの人々は、数世紀の間、限られたエリート・グループによって支配されてきた。豊富な資源と大規模な土地があっても、人口は少なく、特に、農地管理など支配制度はヨーロッパと比べて温情あるものである。地方の人々は、長い間、政府から介入されることなく、資源を管理する権利もっていた。

こうした資源の自治は「地方の知恵(Local Wisdom)」といえるような開発をもたらしてきた。こうした知見は文化遺産として次の世代へと引き継がれる日常的な経験に基づいたものであった。初期のタイでは、生活は自然の一部であり、自然は人間に恩恵をもたらすが、不適切な態度をとれば罰せられるものと信じている。いくつかの農村コミュニティでは今でもこの考え方が尊重されており、これに従って生活している。例えば、川の水を取ったり、木を切り取る前に敬意を払う。

世界がグローバル化しているなかで、政府、経済、自然資源などについて西欧の考え方がタイ政府によって採り入れられるようになった。1896年、王室林務局が設置され、国中のすべての森林は政府に帰属するものとした。従って、1940年、政府は国家森林法を施行したが、ここでは国中の森林が政府に帰属すると規定している。木を伐採しようとする者は、政府の特許を受けなければならない。許可なく伐採した者は、賦課金が課せられる。自然資源の利用における対立は、「道徳的な自然主義」から「資本主義」へとタイ人の態度を変えてきたといつてよく、伝統的なタイの生活様式を変えるものであった。

すべての自然資源が政府に帰属するという考え方によって、自然資源管理は政府の決定と政策に大きく依存することとなった。特許という形によって資源が分配されることで、民間企業は直接的に利益を得るようになった一方で、政府は税金や特許料として利益を得ることができる。こうした管理制度は、自然資源の汚染と破壊を加速させた。

急速な資源の汚染に対処するために政府機関と国家の予算がまにあわなくなっている。水は有機的な産業廃棄物によってとても汚染されている。残念ながら、漁業では利用と再生に関する管理計画が必要となっている。都市では自動車排気ガスと道路の砂塵でかなり汚染されている。

現在の環境行政では、政府は環境の劣化を制御し防止する能力が不十分であると批判されてきた。関係する機関の構造的、機能的な重複、調整不足と管理の不十分さが状況を悪化させる原因となっている。

1992年の環境法は政府の役割を強化しようとするもので、環境質基準を設定したり、公害防止地区を指定する権限が設けられている。

3.2 政府の構造

1979年環境法に代わるものとして、1992年環境法はとても重要なものとなった。以前は環境問題について監督してきた中央組織であった国家環境委員会事務局に代えて、3つの新しい政府部局がつくられた。

- ・環境政策計画室(OEPP)は、地方レベルの環境管理の政策と計画を策定し、環境基金と環境影響評価報告書の手続を管理するものとして設置された。OEPPは、地域の活動を調整するための地域事務所を設置する権限を持っている。
- ・公害防止局(PCD)は、基準の勧告、環境管理に関する措置の検討を担当する。さらに、公害苦情の調査についての権限を与えられている。
- ・環境質推進局(DEQP)は、情報の公開、一般意識の向上、訓練コースと調査そして民間部門やNGOの推進についての責任をおっている。

明らかに、政府はその行政においてコマンド・アンド・コントロールの方式に大きく依存している。国家レベルの3つの部局は環境についての権限を県レベルに委譲しているにもかかわらず、多くの政策は依然としてトップダウンによっている。汚染者の管理と監視については、1992年環境法の第59条と第60条で明確に規定されている。公害防止地区内では、環境を守るために環境質基準と公害防止措置が設けられ、県レベルで実施される。

タイにおける環境管理について従来型の環境ガバナンスの構造では、中央レベルでは数多くの省庁や部局の間で権限と責任が分散されており、政府の下位レベルでは伝統的に権限が制限されてきた。政府が環境法を強化しているにもかかわらず、環境法の実施には困難が伴っている。

それ以来、多くの進展があるが、各部局はまだ新しくできた組織で、その目標を達成するためにはよりいっそうの経験を積む必要があるであろう。さらに、国家レベルの環境管理の官僚機構の見直しとともに、その責任が多様化し、管轄が重複しているという問題は適切に解決されてはいない(Phantumvanit et al., 1994)。

3.3 住民参加

最新のタイの第8次国家経済社会開発計画(1997-2001)(以下、第8次国家計画という)では、初めて、タイの県町村の各レベルで政策決定の過程で住民参加を求めた。最近では、1998年6月に、第8次国家計画のワーキンググループの専門家やメンバーが集まって、タイの経済危

機を克服するために地方のコミュニティを強化する方法について議論している(*The Nation*, 6 February 98)。市民社会組織(CSO)の参加が、特に政府と企業の分野の責任を通して、「バランス・オブ・パワー」や「民主主義の強化」にとって必要であるとの認識が高まっている(*The Nation*, 18 January 98)。

1992年環境法は、環境保護との関係で、タイ市民の法的な権利と義務を規定している。これらの権利と義務は次のとおりである(1992年環境法第6条)。

- ・環境情報についての権利
- ・国家事業の汚染によって受けた被害の補償を請求する権利
- ・汚染者に苦情を申し出る権利
- ・環境保護部局に協力する義務
- ・環境法と規制を遵守する義務

また、1992年環境法は、タイ国内と海外の非政府組織(NGO)の存在を認めており、直接的に環境保護活動に従事しているものについては「環境NGO」として登録される(1992年環境法第7条)。

DEQPは自然資源と環境保全についてのNGOの登録を担当している。現在、約197の環境関連のNGOがあり、93についてはMOSTEによって登録されている。登録されたNGOは環境基金から開発活動についての資金的援助を受けることができる(MOSTE, 1997)。

3.4 市民社会

ボトムアップの運動による市民社会は環境を開発問題の課題とする契機となっている。クロエク大学のプラパット・ピントテン氏によれば、国内での反対運動の数は1993年には739件、1994年には754件で、その頻度が高まっている。こうした運動の約40%は、資源管理、ごみ処理、大規模施設事業など環境に関連する問題によるものであった(Funatsu, 1997)。

市民社会の運動は、現在の開発モデルは持続可能なものではないという政府の実状のなか、政府の開発計画に対する根強い不満に対するもので、開発についての議論を呼び起こしている。人々の権利や民主主義の価値を認識して、人間の顔をもった開発や持続可能な人間開発が1990年代初頭から国際的に取り上げられている。

現在、政策レベルでは、ガバナンスは人権や民主主義の考え方と一体となって進化してきた。人々を開発問題の中心に据えて、国際的なドナーのコミュニティや各国政府のなかで「参加」が良きガバナンスとしてますます認識されるようになってきた(Badshah, 1998)。

結果として、市民社会でも、考え方の違いはあるものの、コミュニティの権限増強と意思決定の過程への市民社会の参加に焦点をあてて、その運動や行動における戦略として「ガバナンス」という用語を用いるようになってきている。このプロセスは簡単であり、ある程度、開発プロジェクトやプログラムで主要な開発機関あるいは開発機関と市民社会組織との協力によって支援されている。

アジアでは、資本主義の追求や新自由主義の経済が、1970年代と1980年代に市民の美德に影響を及ぼしてきた。しかし、金融の混乱はタイを含めたいくつかの国々で市民の美德や自立の

重要性が見直されるきっかけを与えたようである。

腐敗や誤った管理を改めるのには、良きガバナンスにおける参加が必要となっているようである。

NGO とタイ政府との間の調整と相互交流が、公式・非公式なチャンネルをとおして行われている。タイでは、NGO と政府分野の開発への取組みを調整するために国家社会福祉審議会が1960年代初頭に設立されている。1980年代、さまざまな地域では国家レベルの農村開発 NGO 調整委員会や NGO ネットワークが形成され、農村問題についての NGO と政府の間のコミュニケーションと調整を推進してきた (MOSTE, 1997)。

タイでは、NGO は草の根レベルで公共部門と地方コミュニティの意識と活動を推進する役割を果たしてきた。国家的には、それぞれ専門能力によって計画策定や政策実施に影響を及ぼすことに成功してきた。

タイの環境問題の状況についての一般の意識は、メディアを通して高まってきた部分がある。メディアは、環境と開発の問題が政策課題として取り上げられるように、NGO とかなり協力してきた。環境問題を扱う大きなメディアは、社会、政府の対応、関連分野の協力、大衆の関心にかんがりの影響がある (Pradubraj & Nicro, 1997)。

環境紛争の頻発によって、政府は徐々に地方の住民の反対運動に対する態度を変えていった。最近では、反対運動がその目的を実現する事例も出てきている。1988年、ナム・チョアンダム建設が中止されたり、パクナムダム建設では地方コミュニティは被害の補償を受けたり、ハンドンのごみ焼却・発電プラントの建設計画は撤回された。これらの出来事は、メディアで報道され、環境問題についての紛争の多くに影響を及ぼした。

個人、組織、メディアによる苦情や運動は、国家環境委員会 (NEB) と議会の環境小委員会を通して正式に取り上げられている。これらの活動は、国家環境政策と計画を策定する権限をもつ NEB にも影響を及ぼしている。

3.5 ガバナンスの構造

20か年環境質推進政策が1997年に承認された、この目標を達成するために5か年環境質推進行動計画が策定されている。県レベルでは、環境保護地区 (EPZ) や公害防止地区 (PCZ) として指定された地区で、年間の県環境行動計画を策定して実施することが義務づけられている。

新しい環境質推進政策は、政府が経済社会開発政策と調和をとりながら自然資源管理と環境保護を検討するうえでの基礎となっている。この政策における重要な目標は次のとおりである (MOSTE, 1997)。

- ・汚染を防止し、汚染された自然資源の回復を促進して、今後の持続可能な発展にとっての基礎となる資源として活用する。
- ・自然資源の利用を調整して、これに関する紛争を減少させて、資源利用の影響を最小限とし、生態系の全体的なバランスを保つこと。
- ・自然資源の管理とその持続可能な利用における地方組織、NGO、大衆を含めた関係者の参

加を支援すること。

これらの目標を達成するために、5か年環境質推進活動計画は5か年国家経済社会開発計画と並行して実施されている。

政府の環境プログラムは、NEBの調整のもとで各省庁で実施されている。政府や非政府によってプログラムや事業が環境政策や法を遵守するものとなるよう、数多くのメカニズムが用意されている。最も共通に利用されている手法は、基準の設定と罰則である。その他のメカニズムとしては、事業計画のなかでの環境影響評価(EIA)の活用、汚染者負担の原則の基づいた経済的手法の活用、持続可能な発展にむけた進捗状況を監視するための各レベルにおける適切な環境と開発に関する指標の検討がある。

しかし、これらは、世界銀行や国連などの国際機関によって提唱されているものを模倣したものである。文化、経済、環境、政治、社会などで異なっているにもかかわらず、それとは無関係に、これらの手法は先進諸国で活用されているものである。タイでは、環境政策やプログラムが実施されていないことが問題となっている。タイの環境組織は環境プログラムを実施し、各分野の制度による環境パフォーマンスを監査するだけの能力と資源が欠落していることがその原因となっている。

例えば、第7次と第8次の国家計画と1992年環境法を受けて、タイで汚染者負担の原則などの市場を基礎とした手法を導入されたことは、企業が環境への負荷が少ない生産工程を採用したり、消費者が環境への負荷の少ない商品を購入するようなインセンティブを与えるものである。しかし、現在、汚染者負担の原則は政府によって採用されてはいるが、企業に汚染を減少させるような汚染賦課金の包括的な制度がつくられていない。

4. ケース・スタディ

4.1.1 水汚染

長い年月の間、タイの主要な河川の水質は悪化している。1995年、チャオプラヤ、ター・チー、エー・クロン、バン・パコンその他の主要河川の水質は受容可能な基準を下回っている(MOSTE, 1996)。タイ最大の河川であるチャオプラヤ川は、中央平野－国王の米蔵－から排水を受けて、バンコックや周辺の人口密度の高い県を横断して流れている。

有機汚染物質あるいは有害な物質が深刻な汚染をもたらしている。チャオプラヤ川の水質については、1980年からONEBによって有機汚染物質が、そして1983年からは重金属(カドミウム、鉛、水銀)が監視されている。1980年代初頭からのデータは、チャオプラヤの下流(河口から0－100キロメートル)では特に水量の少ない期間に、容存酸素量(DO)のレベルの低さが問題となっている。DOのレベルは、1リットルあたりで0.2から0.8ミリグラムを変動している(Tapvong, 1995)。その後、状況はさらに悪化している。1990年には、チャオプラヤ川の下流20キロメートルの間で、水浴やレクリエーションを楽しむ人はいなくなった。加えて、タイ湾上部では、汚染負荷が沿岸漁業に被害を及ぼしている(Phantumvanit, et. al., 1994)。

有害な水汚染はチャオプラヤや河口周辺の湾でも深刻な問題となっている。工業開発と工業の種類が変化してきたことで、有害廃棄物の製造が増加していった。1970年代末には、12,000の工場が有害危険廃棄物を排出していた。1980年代末、これは31,000の施設に増加している

(MOSTE, 1997)。

タイは、主に紡績、染色、電気メッキ、金属製造、そして害虫駆除のために毎年大量の有機、無機の化学物質を輸入している。さらに、1970年代から1980年代の商業穀物生産への農業転換は、機具、化学肥料、農薬の増加をもたらしている。これらは、河川汚染の主な原因となっている。

チャオプラヤの有害物質には2つの健康リスクがあるとメディアで報じられている。一つは、あるコミュニティ(パサム・タニ)で飲料水として利用されていること、そして、これらの物質が沿岸に堆積して水中の食物連鎖に入り込むことである。最終的には、人間の健康を脅かすこととなる。

ター・チャー、メー・クロン、バン・パコンの各河川の各所の水質は、特に乾季に厳しい水準に達しており、水質悪化による被害を受けている。多くは、運輸(クラス5)や工業利用(クラス6)に適した程度の水質で、農業、家庭、漁業、動植物生息の目的として利用するには汚染が酷い(MOSTE, 1995)。

国連環境開発会議(UNCED)へ提出されたタイのカントリー・レポート(Royal Thai Government, 1992)は、バンコックの主要な汚染源(生物化学的酸素要求量(BOD)で計測したもの)とそれに寄与しているものを要約したが、家庭廃棄物が40%、ビジネス・サービスが32%、工業が25%であった。

急速な経済成長と公共サービスの不十分さが組み合わさって、公共廃水と廃棄物処理システムが不十分となっている。屋外の水域は、家庭や工業の廃棄物の排出先となっている。タイでは急速に工場が増えていっており、排出管理が難しくなっており、タイの主要河川の水質悪化をますますもたらしている。

タイの100の市と50の衛生地区の調査によれば(バンコックと公害防止地区を除く)、排水収集と処理の施設があるのは12だけで、そのうち5つについては現状のニーズを満たしていない(Kruger Consult, 1996)。

第8次国家計画と1992年環境法では、水質基準を改善し、民間部門と協力して排水処理施設を建設し、廃棄物の最小限化やクリーン技術の推進を規定している。新しくより包括的な水資源法が準備の段階にある。

飲料水、排出、沿岸水、表流水の環境質基準が設定されている。排出基準は、工業排水、深井戸への排水、家庭排水、建物の排水、水路への廃棄物投棄について設定されている。

工場、工業施設、大規模商業施設、ホテル、レストラン、大規模コンドミニアムの事業では法律に従って廃棄物の処理が義務づけられているにもかかわらず、ほとんどが水域に放出されつづけている。明らかに、施設の年間稼働費用が設備購入の資本費用を上回っており、ほとんどの工場や工場施設が処理施設の設置義務を履行しているにもかかわらず、実際にこれらを活用しておらず、未処理のままあるいはわずかにばかり処理しただけで排水されており、BODの増加が表流水の負荷を高めている(Kruger Consult, 1996)。

海水の水質対策に従って、MOSTE(1996)は、タイ湾の西岸とアンダマン海の海水は、大規模

なコミュニティ、工業施設、観光地を除いて、徐々に良い状態になっており、海水の水質のレベルは基準レベルよりも低くとどまっている。これには、チョンブリ県からラーヨン県への沿岸域や沖合いも含まれている。

海洋生物の再生を超える漁獲と漁船、工場、観光産業、沿岸住居による汚染によって、タイの海域における海洋漁業資源が悪化してきた。

海洋汚染において油濁も大きな関心事である。1995年以来、チョンブリやラーヨン沿岸線で7つの油濁が起きている(MOSTE, 1996)。これらの油濁に対応するため、政府は2つの行動計画を策定している。これには、水汚染の予防と対策のための1995年行動計画と油汚染からの保護や救済のための1995年行動計画がある。

漁業資源は移動しており、捕獲したとき以外は目に見えない。そのため、漁業資源は共通財産として扱われている。漁業資源の共通財産としての性格は、資源の過剰捕獲をもたらしている。国連海洋法会議では、沿岸国による排他的経済水域(EEZ)を設定することで、この共通財産の緩和を試みている。しかし、国際法の曖昧さは、水域への不法占有の対立の原因ともなっている。

海洋汚染管理について、タイは、港湾における汚染管理施設の評価を最近完了しており、有害廃棄物の越境移動とその処理の管理に関するバーゼル条約を批准している。船舶からの汚染管理の対策と規準を決定するために、船舶起因の汚染に関する国際条約への批准も関心事となっている。

4. 1. 2 水汚染の政策課題の設定

河川と海洋の汚染の影響は明らかに深刻となっており、人間への健康への深刻な影響も現れてきたときに、水汚染が政策課題として取り上げられる。一般的に言って、政府機関は、水質に関する基準を設定し、環境の状況を監視することが期待される。しかし、最近の河川や海洋の汚染は、法律がどのようにどのように機能しているのか、どの程度地方の環境が監視されているのかという問題を提起している。

メディアは、水汚染を政策課題として取り上げるのに適切な役割を果たすアクターである。工業からの水汚染をもたらした者がメディアによって批判されるので、汚染が減ることもある。さらに最近では、地方コミュニティ・グループが河川や海洋の汚染によって生活水準が悪化していることを訴えている事例も増えている。1993年5月、フェニックス製紙工場は、未処理の排水によってナムポン川の汚染で村人によって告発されたとき、メディアは広くこれを伝えている。

Prapertchob(1997)によれば、1980年代以来、河川では、汚染、強い悪臭、魚の死亡が断続的に発生している。しかし、これらの問題は散発的に発生しており、発生する地区も限定されている。地方の住民のみが被害を受ける。フェニックス工場の稼働に対する地方コミュニティ・グループの反対運動は1990年代に入ってからのものである。1992年環境法の執行と環境質に対する認識の高まりの結果として、大衆の暴動が起きることもある。

「ナムポン川保全住民会議」というグループとともに、被害を受けた村人によってこの事件が起きた。このグループは、環境保護の必要性を認識した村人、学校の先生、婦人、若者によって構成されている。彼らは、自らワークショップを開催したり、政府機関、研究機関、NGOによって主催さ

れたセミナーに参加している。同じ年、「ナムポン川事業の保全・再生」というNGOが住民組織、研究者、政府機関の架け橋となるために組織された(Prapertchob, 1997)。

4. 1. 3 水汚染対策の実施

一般的に言って、農業協同組合省は、水資源の保護について主要な責務を負っている(MOSTE, 1997)。この省の機関で、水汚染を担当しているのは、次のとおりである。

- ・王室林務局。水資源保護に重要な森林地帯と海洋資源の保護を担当。
- ・王室灌漑局。清浄水と海水、水産養殖を担当。
- ・土地開発局。土地と土壌の保全を担当。

加えて、MOSTE、公衆衛生省、内務省の機関が水質の監視と管理を担当している(MOSTE, 1997)。

特に、工業との関連では、工業省の工場局が1992年までに環境分野の執行機関であった。しかし、1992年環境法のもとでは、DIWによる環境規制の執行が不十分な場合にPCDはこれに介入することができるようになった。

多様な範囲にわたる省庁や政府の機関が、1920年代以来制定されてきた70以上の環境法を管轄してきた。こうした重複が、この分野での横断的な管轄の機関間の緊張関係を生んでいる。

例えば、監視制度の短所の一つは不明確な水質基準である。例えば、タイの2つの異なった政府機関がBODに関する2つの異なった規制を実施している。OEPPは、BODは1リットルで60 mg 以上とすべきでない」と主張としている。しかし、DIWは、排水1リットルあたり100mg まで許容している。

過去十数年、国際機関や民間企業との協力で政府部門によって国中に約40の中央廃水処理プラントが建設された。しかし、わずか11の廃水処理プラントだけが稼動しているだけである。9つは建設の最終段階にあり、残りは建設中である。

稼働中のプラントのなかでも、適切に稼動しているものはわずか2～3つに過ぎない。ほとんどは、予算上の制約に直面しており、稼働・維持(O&M)に必要な費用を捻出する余裕さえない。建設費用は中央の予算(1992年環境法制定以後の環境基金を含む)によって賄われている一方で、O&M費用は地方機関の責任となっていることが原因となっている。廃水を適切に処理するためには、処理を担当する機関の資金的・人的な資源を改善する必要がある。

利用者からの料金によって、集中廃水処理システムと収集施設を提供し、バンコック首都圏(BMR)における既存の廃水処理施設を維持していくためには、廃水管理機関(WMA)が王室規則に従ってMOSTEの国有企業として1995年に設立された。

その業務を効率的に遂行するために、WMAは、民間、公共そして国際機関による廃水管理への投資に参加しており、30%を超えない範囲で出資分を保有している。廃水処理を担当するWMAとその他の機関にとっては、費用を回収するための正しい価格づけや消費者の受容性を検討していくことが必要となっている。

海岸と海洋の環境管理についても、タイは、EIA報告書を義務づけて、有機的な有害物質の集中処理プラント設置を推進しているだけでなく、プーケット、ピーピー島、パタヤ、サムット・プラカーンなどの海岸地区をEPZやPCZに指定している。

タイで主要な工業県であるサムット・プラカーンは、チャオプラヤ川の河口にあつて、PCZでもある。このことに伴って、県環境質管理行動計画の一部として公害防止行動計画を策定している。

サムット・プラカーンの公害防止行動計画のなかの廃水管理は、工業と家庭からの排水を処理する集中廃水処理システムを県に設置することを提案している。この事業は、MOSTEの公害防止局(PCD)によって管理され、政府予算、環境基金、アジア開発銀行(ADB)からの融資が資金源となっている。建設は1998年に開始されて、2001年から完全稼働されることが予定されている。一旦稼働が開始されると、WMAはO&Mを担当する(PCD, 1997)。

この廃水管理事業には、企業による設計、建設、維持といった官民のパートナーシップも関わってくる。一旦、事業が稼働されると、企業が自ら廃水処理プラントを建設するよりも費用が安いので、企業はこれに参加することが期待されている。

サムット・プラカーンでは、県レベルと国レベルの両方で、県政府と企業部門のパートナーシップが存在し、制度化されるようになっている。タイの各県では、共同官民調整委員会(JPPCC)が設置されている。この委員会は、県知事が委員長となり、県レベルの行政担当者、タイ産業連合会の県レベルのリーダー、商工会議所の県レベルのメンバーによって構成されている。さらに、国の国家計画機関である国家経済社会開発委員会(NESDB)には、JPPCCの問題を担当する部署がある。

しかし、サムット・プラカーン廃水管理事業やその他の事業では、ステイクホルダーは、政府、産業界、商業の部門に限られない。政府の事業によって住民、労働者、学生も影響を受けている。その間、前述した第8次国家計画でも、市民社会の参加を含めて、タイのガバナンスの新しい形態を推進している。

同時に、政府の開発計画過程に対する根強い不満はボトムアップの運動によって顕在化している。例えば、1997年、サムット・プラカーンのコミュニティでは、バンブリー、サムット・プラカーンのプラントから外部への有害物質の排出で、地方の住民の眼への刺激、呼吸障害などをもたらした。バンブリー郡と県の担当者は、問題のプラントと交渉を持ち、稼働を半分にした(Thairat, 15 August 1997)。

4. 2. 1. 大気汚染

タイにおける酸性雨についての関心は、国家開発の動向や関連するエネルギー消費や生産の制度への関心の高まりの影響を受けてきた。燃焼するための化石燃料の消費の急速な増大が、二酸化硫黄と窒素酸化物の排出の主要な原因であつて、酸性雨をもたらしている。世界銀行による石炭利用開発に関する研究では、タイにおける国内での石炭の総需要は、1988年の760万トンから2000年の3,800万トンに増加している。これは、年間で17%も増加していることになる(Chongpeerapien, 1990)。

タイでは酸性雨発生危険性が生れたのはごく最近のことで、20年くらい前のことである。酸性雨は、清浄水、生態系、作物や森林など陸生システム、建造物、人間の健康に被害をもたらす。ヨーロッパや北アメリカでの酸性雨の影響は、さらなる被害の増大を食い止めるために科学的な研究や多くの政策を促した。しかし、タイでは、酸性雨に関する監視や影響についての入手可能な情報はほとんどない。

しかし、このことは、タイでは先進諸国と違って、酸性雨が問題となっていないということではない。エネルギーの需要増大は、以前以上に、人為的な酸性ガスの発生を増大させている。下記の表は、酸性ガスの排出が少しずつ減少している米国や日本との比較において、タイでは急速に酸性ガスの排出が増大していることを示している。

表1 二酸化硫黄の人為的な排出量
(000 metric tonnes) (Source: UNEP, 1993)

	1970	1975	1980	1985	1990	% change
United States	28,400	25,900	23,400	21,100	21,100	-10
Japan	-	2,570	1,600	1,180	1,140	-29
Thailand	-	224	420	507	612	46

表2 二酸化窒素の人為的な排出量
(000 metric tonnes) (Source: UNEP, 1993)

	1970	1975	1980	1985	1990	% change
United States	18,300	19,200	20,400	19,800	19,800	-3
Japan	-	2,330	2,130	1,950	1,940	-9
Thailand	-	182	255	327	384	51

二酸化硫黄の排出量に関しては、特に、電力プラントが約45%、工業が26%、運輸が23%を排出している。1980年から1990年における二酸化硫黄の排出量の年間増加率は3.0%であったが、電力と工業ではそれぞれ3.6%、運輸が12.3%、そして居住/農業/商業の部門であった(Chongpeerapien, et. al., 1990)。

発電における排出量の増加は、タイ発電機関のメー・ホー発電所で高硫黄炭の利用が増加していることを反映したものである。メー・ホープラントは、一時間あたりの二酸化硫黄の排出量は1,900ug/cu mで、1,300ug/cu mの許容水準を超えている(Bangkok Post, 24 July 1998)。

運輸部門では、二酸化硫黄の増加はディーゼルの消費によるところが大きい。運輸部門の燃料の総利用におけるディーゼルの割合が、1979年の42%から2011年には54%になると予測され

ている(Chongpeerapien et.al., 1990)。

1970年代以来、タイの自動車保有の増加によって、自動車が窒素酸化物の主要な排出量となっている。この他には、工業と農業の部門が窒素酸化物の主要な排出源となっている。

過去数十年にわたって二酸化硫黄と窒素酸化物の排出抑制は、国内あるいは地域的な環境に対する酸性降下物の脅威が要因となって取り上げられたのではなく、人間の健康リスクについての関心によるところが大きい。さまざまな研究によれば、健康リスクには、弱者(子供と老人、呼吸疾患や気管支疾患のある者など)への直接的な回復不可能な健康被害、外傷、皮膚炎症、癌も含まれている。

国際合意(例えば、UN/ECE越境大気汚染条約とその議定書など)を通して酸性ガス排出の試みはなされているが、酸性雨問題に対処するための直接的な政策はない。酸性雨問題は、間接的で個別的な問題として、村人やコミュニティ組織が発電プラントや工業の酸性ガスに対する反対運動を通して顕在化している。

一方、気候変動は、タイの国内でも一般の関心を集めるようになってきている。地球温暖化の脅威に対応するために、1990年にタイは気候変動に関する国家小委員会(NSCC)と気候変動専門家委員会(CCEC)が大臣級の組織としてつくられた。タイでは、タイが1994年12月に批准した気候変動枠組条約(FCCC)の規定を受けて、温室効果ガス(GHG)の目録と緩和の研究を提唱されている。1995年3月28日に、批准は効力を発する。

これらと同じように重要なことは、第8次国家経済社会開発計画のなかに気候変動問題を盛り込んだことである。加えて、タイ政府が、気候変動に関する国際的な動向におけるタイの参加を推進するとともに、その研究と対処能力の向上に対して年間予算が充てられるようになった。

また、タイでは、脆弱性と適応について予備的研究を実施しており、これは、タイの将来の発展を脅かすような季節、平均気温、降水、森林パターンの潜在的な変化について明らかにしている。気候変動についてのタイでの事業や政策は、森林破壊と土地利用変化、エネルギー生産と消費、工業化、運輸と農業におけるGHGの排出源に焦点をあてている。

表3 1960-1990:二酸化炭素の人為的な排出量
(000 metric tonnes) (Source: UNEP, 1993)

	1960	1970	1980	1990
United States	799,544	1,165,477	1,259,281	1,310,341
Japan	63,997	202,973	254,881	289,288
Thailand	1,012	4,190	10,921	25,535

主要な3つの温室効果ガスは、二酸化炭素、メタン、亜酸化窒素である。1990年、二酸化炭素は1億640トンで世界全体の排出量の0.63%であった(TEI, 1997b)。1992年現在で、タイは31番目の二酸化炭素排出国である(World Resource Institute, et. al., 1996)。他のGHG排出量には、

5, 800トン(二酸化炭素換算)のメタンと300トン(二酸化炭素換算)の亜酸化窒素がある。

表3は、米国や日本と比べて、タイの二酸化炭素が急速に増加しており、おそらくタイが「ビジネス・アズ・ユージュラル」のシナリオに従えばさらに増加する可能性があることを示している。

1990年現在で、国の温暖化効果に寄与する主要な7つの部門は、次のとおりである(Boonpragob, 1996)。

- ・米の生産、1億800万トン(35%)
- ・木材バイオマスの利用、9000万トン(27%)
- ・運輸、3300万トン(10%)
- ・電力、2800万トン(9%)
- ・工業、1200万トン(4%)
- ・家畜、1200万トン(4%)

石油や天然ガス、工業過程、燃焼、農業土壌、廃棄物、湿地、野焼きや土燃料といったその他の活動によって温暖化効果の2%をもたらしている。

タイの気候変動への脆弱性や適応に関するTEIの研究では、次のことが明らかとされている(Boonpragob, 1996)。

- ・一般均衡モデルによって予測された気候変動シナリオでは、地球規模の気候変動がタイの森林の分布とその健康状態に影響を及ぼす可能性がある。
- ・気候変動によって水の利用可能性が5～10%減少し、これが農業生産全体に影響を及ぼす。
- ・地球温暖化による海面上昇は、低地の中央平野からの雨水の排水を鈍化させる。これによって、低地で洪水が発生し、塩水が海水に混入して穀物生産に深刻な被害をもたらす。
- ・気候変動により、狭いビーチが姿を消し、マングローブ生態系や海水の湿地が減少するなど、海岸の資源が減少することが予測されている。同様に、漁業、観光、沿岸地の喪失に関連して、社会経済的な影響も深刻となる。

4. 2. 2 大気汚染の政策課題の設定

時折、メディアは気候変動の問題を論じ(例えば、Bangkok Postの1996年9月18日付、1997年4月11日付、1997年12月13日付)、地球規模の気候変動の原因と結果や、1992年のリオ・デ・ジャネイロの地球サミットや1997年地球温暖化の京都会議のような会議でのタイの対応について大衆が情報を得ることができるようなフォーラムを提供している。

しかし、気候変動を政策課題として取り上げた主要なアクターは、UNFCCCにコミットした政府部門である。1990年代以来、気候変動の影響や温室効果ガス目録に関する研究が、TEIやタイ開発研究所(TDRI)などの研究機関や学術機関によって行われてきている。これらは、タイ政府による支援、先進国や国際機関による資金援助によって実施されている。

CCECは、気候変動問題についての国家政策の提案に関して、NSCCを支援するために情報を収集し、情報とそれに対する見解を提供している。NSCCはMOSTE次官によって運営されており、CCECの長はOEPPの事務局長が務めている。

現在、気候変動に対する政府の取組みのほとんどはトップダウンによるもので、政策と計画の段階にある。第7次国家計画以来、排出量の削減についての政策的対応が進展してきている。これらには、次のものが含まれている(MOSTE, 1997)。

- ・化石燃料からガスへの転換。
- ・都市部での大量輸送システムの改善。
- ・電力利用についての需要サイドの管理の実施。
- ・森林破壊地帯での森林再生の促進。
- ・森林と流域の保全。
- ・地球環境保護についての一般向けのキャンペーンの実施。

引き続き、NSCCとCCECの会合で政策や事業がつけられている。これらの取組みには、次のものが含まれている(TEI, 1998)。

- ・国家エネルギー推進室(NEPO)を設立し、ガソリン1リットルあたり7サタン(セント)を石油基金に組み込み、エネルギー関連技術の研究開発に充てる。NEPOの対象は、再生可能なエネルギー源を中心として民間部門の省エネルギー事業の実施への資金提供にも拡大している。
- ・初等と中等の学校のレベルでのカリキュラムにエネルギーと環境の保全についての項目を盛り込むという大きな進展があった。これは3年間の事業で、NEPOによる資金提供によって、地方のNGOと教育省との協力によって行われている。
- ・環境保護や環境問題を除去するようなクリーン技術の輸入義務を免除する新しい規則を設けた。税率を輸入額の70-80%から5%に大幅に下げている。

それにもかかわらず、実際には、地球規模の気候変動に対処するための行動はほとんどとられていない。部門ごとに実施されている事業にはその背景や目的にGHG排出量の削減を含んだものがあるが、それらの第一義的な目的はおそらく住民の健康と幸福をまもるための地方の大気質の改善となっている。

例えば、運輸部門について言えば、タイでは、バンコックなど都市部の運輸システムの改善が燃料消費を減少させ、燃料効率を改善することによって、大気汚染のレベルが下がると考えられている(MOSTE, 1997)。タイは、現在、自動の輸送システムを建設中である。自動車の運行を促す高速自動車システムも開発の段階にきている。MOSTE(1997)の予測によれば、タイの大量輸送システム年間で20,000~100,000トンものCO₂を減少させる可能性がある。

同様に、酸性雨の場合、部門別に事業が行われており、これらは主にクリーン技術の導入を強調している。エネルギー生産部門に関して言えば、タイでは、スター石油精製社(SPRC)が初めて脱硫装置が付いた施設の導入を求められ、1998年からこれを導入している。環境に優しい生産技術への投資は、公式の基準となっている0.25%と比べて、ディーゼル燃料の硫黄分を0.05%減少させるものと信じられている(Bangkok Post, 3 March 1997)。標準的な高硫黄分のディーゼルは酸性雨に寄与するものであることがよく知られている。しかし、おそらく、事業の成功は消費者の意識と燃料の選択、そして新しい燃料を受け入れる消費者の意思にかかっている。

酸性雨に関する主要な関心事は、地域の陸生水生の生態システムと建造物の被害ではなく、二酸化硫黄と窒素酸化物による人間への健康被害である。

ランパンのメー・ホー石炭火力発電所の場合には、プラントを運営するタイ発電公社(EGAT)は、有害な二酸化硫黄の排出によって呼吸器疾患、皮膚や眼への刺激、その他の健康問題について村人から告発を受けた。EGATは、排出量を最小限化するために二酸化硫黄用のフィルターを設置することを約束したが、まだこれは実施されていない(Bangkok Post, 24 July 1998)。

4. 2. 3 大気汚染防止の実施

前述のとおり、酸性雨と気候変動の取組みは、まだ政策の計画段階にある。政府と非政府、特には双方が一緒になった団体の数は、タイの大気問題へのコミットメントを達成させるために次の段階として実施計画を検討している。

TEIはタイ政府よりタイにおける気候変動に関する研究の多くを任せられている。国連開発計画(UNDP)を通じた地球環境ファシリティ(GEF)による資金援助で、アジア開発銀行(ADB)が実施している「アジアにおける温室効果ガス費用最小化戦略」がその一つの例である。このプロジェクトでは、タイの行動計画を提案し、市バスの燃料転換、太陽電池産業の市場開発、共同森林管理などの事業が盛り込まれている。

ALGAS研究も、対処療法的な政策オプションに関連する費用を計る基準を政策担当者に分かり易く提供するために、温室効果ガス削減のオプション分析に費用最小化原則を適用している。

タイ発電公社(EGAT)が着手した需要サイド管理5か年基本計画は、エンドユースの効率向上によって電力浪費を削減するユニークなモデルとして注目されている。蛍光灯や冷却コードの導入によって電力と燃料需要を減少させて、長期的に気候変動を緩和することが期待されている。しかし、研究によれば、EGATは地球温暖化防止の方法として一般大衆の利害をうまくとらえていない。蛍光灯や冷却コードへの認識が高まっているが、GHGへの効果については良く周知されていない。これは、政府による教育や認識に関連するプログラムが弱いことを物語っている。さらに、メディアの関心もほとんどなく、地球規模の気候変動の話題よりも、ダム建設、大気汚染、自然資源管理といった問題に関心を払っているようである(Pradubraj & Nicro, 1997)。

森林についての共同実施として、タイでは、大気中のGHGの削減とともに地域環境を保護するための森林政策も強化している。タイでは、現在、破壊された森林保全地区を対象として、大規模な公共森林再生プログラムを実施している。このプロジェクトは、国王在位50周年を記念したもので、500万ライ(952, 380ha)の再生を行った。この点は後で詳しく言及する。

4. 3. 1 森林破壊

タイの森林地帯は、1910年には3, 590万haあるいはタイ国土面積70%であったのが、1991年には1, 360万haに減少し(RFD, 1993)、国土面積の25%となっている。1996年の計算によれば、毎年約25万から5万haの森林減少が進めば、森林は1, 280万haだけになってしまう(MOSTE, 1997)。森林地区は農業共同組合省王室林務局(RFD)が所管している。

Puntasen (1997)によれば、タイで最も急速に森林地区が減少したのは1961年であった。1961年、タイの森林は国土面積の53. 3%で、2, 740万haであった。この30年間、森林面積は、国土の28. 0%に減少し、1, 440万haとなって、1961年と比べて約半分となった(MOSTE, 1997)。

偶然にも、1961年は最初の5か年国家経済社会開発計画(1961-1966)が開始された年であった。最初の2つの国家計画は、農業や林業の輸出によって得た資金を使って工業やインフラストラクチャに投資することを推進していた(Puntasen, 1997)。政府が先進国企業の工業用の需要にあてるために商業目的の森林管理を始めたときから、タイの森林破壊率が急速に加速していった。

農業用地の拡大も森林伐採の原因となっている。1967年、森林が国土面積の48%となったが、農業用地は28%まで増加している(Puntasen, 1997)。高度な人口増加も、生産性の高い農業用地の不平等な配分と一体となって、森林転換にとって強いプレッシャーとなっており、過剰な伐採をもたらしている。森林からリクレーション用地への転換、海外の木材製品の需要が、森林破壊の原因となっており、違法伐採をもたらせてきている。

土地投機も森林破壊の原因となっている。経済的な富を求める都市中間層が増えたことで、農村部を中心に土地を買い取っていった。その結果、農村部の土地が商品生産に利用されたり、投機の対象となったりし、土地価格が急騰していった。30年も経たないうちに、農村部の土地価格は100倍以上も増えた。こうした高騰は、小規模な農業従事者がその土地を手放すようなプレッシャーとして働いており、RFDが保護している森林の違法伐採をもたらし、政府機関と地元コミュニティの対立を生んできた。

かつて、世界で最も人口の少ない地帯が森林、樹木、木材でカバーされていたときは、森林が恵みをもたらすものであると考えられていた。多くの森林が消滅し、砂漠となり、農業用地や人間居住に使われるようになった今でも、こうしたタイ式の考え方は根強く残っている。こうした状況のもとでは、熱帯雨林などからの恵みはもはや木材ではなくなっている。これらは、農家や都市住人への継続的な水供給を確保することであって；一年を通して安定した流水の調整としての機能；森林の表土への天然の肥料の継続的な供給；土壌流出からの表土の維持；二酸化炭素の吸収と同時に地球温暖化の悪影響の評価；生命に不可欠な酸素の地球上への供給；生物多様性の維持と生成がある。おそらく、これらに比べると、木材は重要な恵みではない。

第4次国家計画(1977-1981)では、より包括的で広範な森林管理計画が盛り込まれており、国家森林政策委員会が第5次国家計画のもとで設置されている。国家森林政策は1985年に承認されている。政策ガイドラインがつくられたにもかかわらず、森林破壊は止まることはなかった。第6次国家計画期間における森林資源保護の失敗は地元コミュニティへの森林資源の経済的な意味合い、そして森林資源管理におけるNGOからの支援やコミュニティの役割を尊重しなかったことに起因していると言われている。南タイでの死亡者がでるような土砂崩れや洪水などによる森林破壊を食い止めるために、政府は1989年に森林伐採を禁止している。

しかし、過去数十年にわたっての、経済的インセンティブや大衆運動による集中的な森林再生や1989年の森林伐採にもかかわらず、タイは森林を失い続けている。さらに、商業伐採の禁止によってタイは輸入木材への依存が高まり、近隣国での森林破壊に寄与する結果となっている。森林破壊をもたらす重要な原因として、森林法や政策が効果的に執行されていないことも挙げられる。

森林政策についての最近の動きとして、第8次国家計画では1989年の森林伐採に関連して1985年の国家森林政策を改訂している。第8次国家計画における森林政策に関する主要な規定は、「タイは国土面積の40%を森林とし、25%は保存林とする」と述べている。

おそらく、最も包括的な森林に関する法律は1941年の森林法であろう。これは、1948年、1982年、1989年にそれぞれ改正されてきた。1964年には、すべての森林地区を保存林に組み入れることによって森林破壊率を下げるために国家保存林法が制定されている。これまで、1,221の森林保護区がある。国立公園や野生生物保護区など森林保全地区の告示などの法的措置が採られている。

タイの森林政策の一部は、熱帯林資源保護にむけた地球規模の取組みの影響を受けてきた。1990年、国際熱帯木材機関(ITTO)が、天然熱帯林の持続可能な管理のための指導原則を策定し、すべての森林を持続可能な形で管理に移す目標として2000年を設定している(ITTOの2000年目標と知られている)。タイもITTOの加盟国であり、一応2000年目標を受け入れている。

タイは、その森林管理の制度を中央集権的なものからよりコミュニティを基礎とした森林管理に再構築している途上である。新しい共有林(コミュニティ・フォレスト)法が準備されている。関係者の利害が調整されれば、政府はこの法案を国会に提出して承認を得ることになる。新しい法律のもとでは、コミュニティは森林資源に対する権利を保有し、その管轄の範囲で森林資源を管理する責任を負う。この新しい森林管理の取組みが成功すれば、東南アジア地域におけるモデルとなるであろう(MOSTE, 1997)。

さらに、RFDは、森林保全、森林回復、農村部の人々の能力開発といった点について住民参加を推進して森林資源の減少に対処するガイドラインを策定している。それにもかかわらず、RFDはその権限を森林コミュニティに委譲し、森林におけるコミュニティの生活に関連する意思決定によって森林の管理と参加を認めていこうという考えをもっているようである。

4.3.2 森林破壊の政策課題の設定

タイの森林や森林資源は国家の財産として扱われてきた。森林を保護管理するために、1896年に森林を管理するためにRFDが設置されている。今日、RFDは農業協同組合省の一部となっている。RFDの財源は政策からの支出に依存している。

1989年の森林伐採の全面禁止はタイの林業のあり方を変えてきた。RFDが林業から保全へと組織構造を変化させているだけでなく、同時に、多くの労働者が職を失っている。タイ経済では林業製品輸出が外貨獲得の主要な手段であったにもかかわらず、森林伐採が禁止されたのであった。そこで、余剰労働力や木材需要はタイの森林管理の持続可能性に対して長期的に脅威を及ぼすような諸問題を生み出している。

森林政策の方向転換によって、タイ森林部門基本計画が策定されている。この計画は、持続可能な生産だけでなく、生物多様性資源を保護するように、タイの森林資源管理を再構成しようとする試みである。1991年にはフィンランド政府からの技術的、資金的な援助を受けて主要な作業が終えられているが、計画そのものは消滅してしまっている。

RFDのイデオロギーは食糧農業機関(FAO)の「古典的な」森林破壊の分析を背景としたものである。FAOは、熱帯雨林破壊の主要な原因は発展途上国における貧しい者の人口圧力と焼畑農業によるものであると考えた。森林破壊についてのこの分析は、国連機関、国際機関、主要な開発銀行、金融機関の発展途上国への援助における政府の対応策の基礎となったものである。しばしば、こうした取組みは、よりいっそうの自然資源の喪失や農村コミュニティの生存を脅かすも

のとなってきた。

伝統的な分析では、企業グループや先進国と発展途上国の政府による森林破壊を考慮に入れていない。さらに、森林破壊の解決策には、地元住民の参加による大規模で急速な森林再生が含まれる。これには、実際の社会的、環境的な便益をもたらすことができないだけでなく、タイの農村部の人々が強く反対するような商業的な植林事業における地元住民の参加も含まれていた。

住民とその生活資源の破壊の重要性が増すにつれて、多くの場合、農村コミュニティによる反対運動が起きてきた。これらの例は、地元住民が森林を破壊していることを問題視するような伝統的な考え方とは違った状況であった。事実、農村部を中心とした地元住民は、森林の保存の取組みを熱心に始めるようになっている。

1970年代中頃から、地元住民が森林破壊を問題視するようになった。1975年には、タイ北部のナン県のルアン行政村の500人の村人が村の水源であるクン・シーブン林を封鎖するために集まり、外部からの営利目的の森林伐採活動を阻止しようとした。

コミュニティレベルで森林問題に政治的な関心を示す層は、森林伐採禁止前後の1980年代後半に生れてきていた。1988年、タイ北部のパヤオ県のチェシ・ムアン郡の5,000人が役所を占拠して、水源地のファイ・メーヤット林における森林伐採の特許を取り消すよう政府に求めるために5日間にわたって抵抗運動を繰り広げた。この運動によって、政府は特許を停止したのであった。

もう一つの事例では、1987年から現在まで、東北部の8つの県の村人は政府と林業会社によって推進されているユーカリ植林は森林と肥沃な農地を破壊するものであるとして反対してきた。いくつかの場所では、緊張関係が強まって、植林事業におけるユーカリの苗畑に村人が放火する事件も起きている。

1989年には、森林破壊から森林を守るためのこの運動が最高潮に達し、周辺の村人が政府に対して森林伐採の特許を直ちに取消すよう要求したのであった。この運動は、学生、マスメディア、研究者、NGO、一般大衆からも支持された。商業伐採への強い抵抗が大きく影響して、政府による国家的な森林伐採の禁止措置をもたらしたのであった。

これらの出来事はメディアによって報道され、地元住民や自然資源との関係についての一般の理解を変えさせた。これによって、森林管理における地方の知恵の重要性に対する認識が高まった。また、村人による自立的な保全を強化し、森林管理の役割における村人の考え方が広く知られるようになった (Leungaramsri & Rajesh, 1992)。

4. 3. 3 森林破壊の実施

現在実施されている主要な森林再生事業は、タイ国王在位50周年記念のものである。政府機関は、500万ライ(952, 380ha)の森林再生事業を5年間にわたって国中で実施している。この事業は、1994年に開始され、2002年までに延長されている。この事業の目標は、2002年までに800, 000haの植林が目標とされており、そのうち480, 000haが保護地区での植林で、残りが国立森林保存地区内の森林破壊のある場所で行われる。

しかし、こうした野心的な目標はなかなか達成できない。1996年から1997年の間に、企業や公益団体が250万ライ以上の森林再生を表明したが、実際に実施されたのは30%以下であり、その原因は植林に適した場所が不足していることにある。この30%でも不適切な場所に植林が行われたものがあり、植林後にすぐに若木が枯れてしまっている(MOSTE, 1997)。

この事業のもう一つの目的は、植林事業に産業界を巻き込むことにある。産業界は植林の場所を選んで植林を実施することが求められ、植林費用や植林後に必要な管理費用を提供しなければならない。昨今の経済的な停滞によって、昨年は植林の実施件数が急激に減っている(Mcquistan, 1998)。

さらに、地方や国際的なレベルの数多くのNGOが、森林管理の改善のための貿易のインセンティブを活用するような取組みを行っている。カナダ規準協会と森林管理協議会(FSC)の森林認証制度による持続可能な森林管理のためのISO14000ガイドラインがよく知られている。

それにもかかわらず、森林を占有している数多くの人々がかなり重要な問題となっている。タイの村人の22%が国立森林保存区に住み、その数は800万に生活や農業に及ぶ(Sadoff, 1991 in Mcquistan, 1998)。植林は中立的なもので、現状に手を入れるものではないので、植林は一般的な活動となっている。しかし、森林再生プログラムはタイの森林破壊の原因に取り除くものとはならず、これに取り組みなければ森林破壊は食い止められないであろう。

タイ環境研究所(TEI)では、政府機関と地元コミュニティとが「持続可能な森林管理のための協調的取組み」において資源利用と保全の均衡を保つことで協力することを推進するパイロット事業に着手している。1994年7月から、国家遺産・環境保全協会(SCONTE)との協同して、オランダ政府と国際熱帯木材機関(ITTO)からの資金援助によってタイの2つの保護区で3年間の事業が始まっている。

この事業は、660haの植林を推進し、22の村コミュニティの参加を確保している。さらに、400人以上の村人が、収入獲得、環境教育、森林技術についての公式な訓練を受けている。例えば、3つの苗畑がつくられ、ここには50,000以上の苗木を収容できる。これらの苗畑はこの事業による訓練を受けた人々によって管理運営されている。事業活動は地元コミュニティを強化し、長期的に持続可能なものとなるように配慮されている。村では団体が組織され、地元での事業活動の実施にあたっている。さらに、環境教育のキャンプも実施され、一般の意識向上についてのプログラムが続けられている。

タイ石油公社(PTT)の資金によって実施されている「持続可能な管理行動計画」と呼ばれる事業は、最近再植林された5つの地区での持続可能な環境回復を展開することを目的としている。RFDと地元コミュニティとの協同で、事業活動には植林、生態系回復のための生物多様性対策、他の森林再生事業へのガイドラインの策定が含まれている。パイロット事業の完了をもとに、将来の持続可能な森林管理への政策と対策についての提言が農業協同組合省に対してなされる。

ある意味では、今後のタイの持続可能な森林管理は王室林務局にかかっており、結局は政府の政策が重要となってくる。森林再生はタイの森林管理の重要な構成要素であるが、植林計画は現実的な視点で策定されるべきであり、持続可能性を保つために公共と民間の両部門の対処能力を反映したものでなければならない。

さらに、タイの森林における人間と森林のインターフェイスにとっては、地元の人々が森林管理と保全に参加することが重要である。不公平とならず、短視眼的にならないように、地元の人々は排除されるべきでない。タイは国家管理のもとですべての森林を維持できるほどの資源や能力を備えていないので、同時に、個人、地元コミュニティ、その他の関係グループからの支援を活用すべきである。

4.4 政策の提言

タイの環境ガバナンスのメカニズムを紹介し、環境問題と環境政策の特性と進展を要約してきたが、ここでは地域的な視点から環境に関する政策課題の設定と実施についてタイの環境ガバナンスを検討する。

アジア太平洋地域の発展途上国は、一国の行動ではもはや解決することができないような複雑な環境問題に直面している。ほとんどの発展途上国の政府部門は、未発達な環境管理レジームを実施するための資源が欠落している。さらに、多くの環境問題が国境を越えるものであって、環境保護に一国で対応することは無意味なことである。それゆえ、環境問題は地域的あるいは国際的な関係を通して取り上げられる。

一般的に、環境政策と法は、地域の経験を共有することを推進し、環境に優しい技術の研究開発や環境モニタリングのための地域的なセンターやネットワークを構築するもの；国家的な環境プログラムを開発し、地域的な意見交換や訓練を推進することを柔軟で地域規模の支援を奨励するもの；地域的な研究と趨勢の実施を促すものでなければならない。立法担当者や政策担当者を支援するために、情報、科学的研究、技術援助の交流が今後の環境保護の重要な点となってくるであろう。

地球規模で見ると、開発と環境に関する多くの政策が、世界銀行や国連などの国際機関から導入されており、文化、経済、政治、社会の違いにもかかわらずタイの政策にも適用されてきた。

事実、このような政策は、先進国に便益があるように、タイを含めた発展途上国の資源を開拓するようなものであって、アジア金融危機の要因の一つとなったとの議論もある。

Phongpaichit and Chris Baker (1998)などの研究者は、アジア通貨危機は辛いものであるが結果としては良い機会とあたえてくれると信じている。関係国の人々は開発のパスをより深く考えるようになるし、それぞれの社会の資源や文化を再発見し強化する。各国がグローバリゼーションに振り回されることなく、内から繁栄をもたらすことを可能とする。

東南アジアの通貨経済の危機とインドネシアに端を発するヘイズ問題の騒ぎで、地域的な相互依存関係が強まり、環境についての責任ある政策決定や事業やプログラムの実施、そしてモニタリングに関しての地域協力の必要性がますます認識されるようになっている。

タイは、次のような、多くの地域的な同盟関係に参加している。

- ・東南アジア諸国連合(ASEAN)のもと的高级事務レベル環境会議(ASOEN)
- ・アジア太平洋経済協力フォーラム(APEC)
- ・メコン河サブリージョン(GMS)
- ・バングラディシュ・インド・スリランカ・タイ経済協力フォーラム(BIST-EC)

- ・インドネシア・マレーシア・タイ成長トライアングル(IMT-GT)
- ・アジア・ヨーロッパ会議(ASEM)

しかし、これらの地域的な同盟では経済的な関心が中心を占めている。例えば、ASEANはASEAN自由貿易地区やASEAN投資地区の設置を検討している。アジアと米国、カナダ、オーストラリア、ラテンアメリカ諸国が参加しているAPECでは、2020年までに自由貿易投資地区の創設を目的としている。GMSの最近の事業には、タイ・ラオス・ベトナム東西輸送コリドーのラウンド9やメコン河のムクダハン橋事業などがある。

しかし、貿易政策は気候変動への取組みを実施に移すために重要な役割を果たし得る。貿易は、環境への悪影響を制御緩和するものであった。その一つの例が、オゾン層保護のモントリオール議定書である(Jesdapipat, 1996)。

地域環境ガバナンスに関して重要なことは、貿易、観光、産業、インフラストラクチャー開発についての地域的な開発政策のなかに環境を組み入れることである。

NGOやコミュニティを基礎とした組織(CBO)は、地域団体の定期会合と同時にあるいはこれらとは別に、地域団体による行動への抵抗運動が起きている(Kimura, 1997)。こうした集まりは、地域経済協力への反対の声と見られ、国際的なメディアの注目を受けている。

1996年11月のマニラでのAPEC定期会合で、多くの市民社会グループが、環境と人間の費用を貿易に盛り込むことを求めるようそれぞれの国のAPECへの代表団に働きかけ、経済的な持続可能性の問題を大きく取り上げた。反対運動は、通りでデモを行って、公式会議場へ向かい、APECの担当者に反対の声明文を手渡している。

環境問題に対処するための地域的な取組みはトップダウンによることが多く、特に意思決定のレベルで地方政府や市民社会の参加はほとんどない。例えば、1996年、GMS諸国(タイ、ミャンマー、カンボジア、ラオス、ベトナム、中国南部)は、ADBと共同して、上流国の森林破壊によって問題が深刻化しているトンレ・サップや大湖の回復についての合意を成立させた。この事業は、6,000万人の農民を市場経済のなかに組み入れて、彼らに必需品を提供することで焼畑農業をなくすことを目的として設定している(Bangkok Post, 4 Aug 1996)。

流域の農民や住民が何を欲し、彼らの対処能力や制約が何かについて参加の機会を与えずに、こうした取組みが決定されている。環境を守るという点では、この事業の実効性に深刻な影響を及ぼしている。

タイやその他の国々では、参加が、事業、プログラム、政策の説明責任、透明性、持続可能性を確保するような良きガバナンスの効果的なメカニズムをもたらすものであることは一般的に明らかである。しかし、住民参加が環境保護の万能薬ではないことを理解することも重要である。タイ環境研究所の1995年の年会で、「多数が必ずしも正しいわけではない、技術的に専門的なことが含まれている場合は特にそうなる。それにもかかわらず、環境問題は時と場所と人によってかなり違いが有るので、各地区における環境問題の正確な状況を反映させるための住民参加が大切である。」(Nicro et al, 1995)。と述べている。

住民参加によって、資源の有効利用や多様なアクターの決定事項の実施する潜在性に正確

に基づいた意思決定ができるようになる。

求められているものは、地域事業の計画段階における公式な調整過程の確立である。これには、環境と社会への影響評価、そして、国の政府や多国間組織だけでなく、県政府、小規模な独立企業、NGO、CBO、研究者、メディアを含めたステイクホルダーの参加が必要である。

新古典派の経済学への批判は、北米自由貿易協定 (NAFTA) や世界貿易機関 (WTO) など現在の地域的な協力フォーラムが提供している経済開発のモデルは新古典派の考え方による規制のない自由貿易に基づくもので、持続可能なものではないという。政府と経済を分けて考えることはできないという政治経済の現実を無視したものである (Kimura, 1997)。さらに、これらの機関は、環境、労働、人権といった問題を犠牲にして、貿易政策を最優先としている。

効果的な地域協力を推進するために、良きガバナンスはまず各国レベルで実践されなければならない。ケース・スタディの分析の後、共通の問題点を指摘しなければならない。タイの政策課題の設定と実施を改善するためには、開発の各段階における分権化、参加型の対処能力の構築、対立の調整を可能とし促進するように国家の役割を変えていくような制度の改革が必要となっている。

経済通貨危機に直面して、費用を産業界に課している環境政策ではもう手遅れであろう。さらに、タイや他の危機に直面した国々では、クリーン技術の推進など環境に関する事業の重要な要素として輸入技術やサービスに大きく依存しているので、資本を消耗するような環境保護プログラムを減らしている。

OEPPは、危機に直面して、環境インフラストラクチャへの政府予算を3分の1減らして、300万パーツとしている。さらに、民間の環境市場が崩壊したため、多くの環境企業がその経営戦略を援助による事業に依存する方向に切り換えている (Asia Rain Newsletter, June-July 1998)。

しかし、通貨危機によって、実施に移される事業がより選びぬかれることが可能となるといもいえる。さらに、資源が限られているので、事業の効率性、効果性、持続可能性がますます重要となる。優先順位の設定が、環境保護のための政府政策やプログラムにとって必要となってきた。

費用便益分析では環境の価値が除外されることが多い。技術的、公共的な投入と科学的、経済的、医学的な証明、そしてリスクに対する一般の関心を考慮に入れた過程を通して、最良な優先順位が決定される (Brandon & Ramankutty, 1993)。

森林保全の試みは地方レベルで実施することが最も効果的であると信じられているので、各地区で住民による強力で持続可能な組織の存在が、成功をおさめる前提条件となる (Puntasen, 1997)。

地元コミュニティを持続可能な管理に組み入れるには、森林担当の機関の考え方を変える必要がある (McQuistan, 1998)。違法な侵入者として見るよりも、農民は森林保全と管理におけるパートナーとして位置づけられるべきである。このことは、森林管理の責任を、個人、コミュニティ、その他の利害団体に委譲すべきであることを意味している。RFDの役割を拡張と推進のための従来のコマンド・アンド・コントロールから変更する必要があるが、森林地区での地元での管理を

着手させ、支援し、指導する専門的技術がRFDによって提供されることが求められている。RFDの従来の役割を再構成することは、地元コミュニティとともに作業を行うための社会的、環境的な技能を備えるよう森林担当官の対処能力構築と訓練が必要となってくる。

コミュニティの構成員側でも、政府その他の関係組織などの外部からのコミュニティが効果的に機能するための支援を可能な限り受入れ刺激を受ける必要がある。次に、組織強化は、保護されるべき財産の所有権の帰属にかかっている部分がある。この場合、コミュニティによって保全される森林は「共有財産」として管理されるべきである。

しかし、森林が法的に保護されているものであれば、それは政府に帰属し、コミュニティは所有権を持ち得ない。それにもかかわらず、コミュニティに森林を守るインセンティブを与えるためには、何らかの所有権を与えなければならない(McQuistan, 1998; Puntasen, 1997)。コミュニティに受容可能な所有権を与えることは、森林保護のルールと規制を設けて、これを監視することを可能とする。同様に、コミュニティが持続可能な森林管理によって得られた便益を構成員によってみずから獲得して配分することができるようにしなければならない。このような所有権の形態には、長期的な便益のための森林保護を望むコミュニティの組織的な強化も必須である。

望ましいコミュニティにおける森林管理の過程では、政府からの強力な支援が不可欠である。例えば、グループの取組みを公的に位置づける;グループの活動を法制化する;森林保護活動に必要な資金的、物資的、技術的な支援を行う;森林保護によって直接利得を得ようとする外部のグループに対する措置をとることが挙げられる(Puntasen, 1997)。

政策レベルでは、費用を最小化し、限られた行政能力を経済的に活用できるように、費用効果的な政策を設計することが重要である。環境面で適切な政策は、成長や貿易を促進する政策と矛盾するものではなく、市場の歪みや、価格のつかないあるいは低い価格がつけられている環境資源の過剰な利用をもたらす政策の失敗を正そうとするものである(Brandon & Ramankutty, 1993)。

補助金の撤廃や資源利用や汚染物排出による外部性を内部化するような価格改革は、環境汚染を防止する経済的手法の一つである。汚染や渋滞に対する税金や排出量取引は、大気、水、土地資源の価格づけを行うものとなる。税制を利用した政策は、資源の所有者(政府である場合が多い)に資金をもたらすものとなる。これによる収入は資源に再び投資されるべきである。さらに、価格増加と財政的手法は、効率を高めて汚染を減少させるような技術適応を刺激するものとなる。

経済的手法はタイでまったく馴染みがないわけではない。これらが特定の課題にどのように活用されるべきかの若干の例がある。一つは、ドライバーが無鉛ガソリンを選ぶように無鉛ガソリンに対する消費税がある。もう一つ、バンコク・ユニティエン有害廃棄物処理センターの利用者に課せられる処理賦課金がある。

しかし、多くの場合、汚染賦課金の導入によっても効果的にインセンティブを与えられていない。換言すれば、賦課金の率が低かったり、投資を行うのに不十分なものであることから、汚染者が汚染排出を減少させるように誘因するものとして効果を上げていないのである。一方で、汚染賦課金はまず収入増加に役立つものであるとの主張もある。いずれにしろ、環境意識の向上と現実的な基準の設定とその執行に力を注ぐ必要がある。こうした過程によって、広範囲なステイク

ホルダーの参加を招来することができる。

制度のレベルでは、タイは優先順位の設定と政策改革のステップを進めるための制度的な対処能力を備える必要がある。制度を通して、政策の選択を決定づけられることがある。政策の組み合わせは、その取組みの効率性だけでなく、それを実施する国の対処能力について重点を置いて行われるべきである (Brandon & Ramankutty, 1993)。

環境保護についての従来のタイ政府の構造では、権限と責任が中央政府の数多くの省庁に分散されており、下位のレベルの政府は伝統的に権限が制限されてきた。1992年環境法が制定され、それに伴って環境管理の官僚機構が改組されたにもかかわらず、責任が多くの部署に別れ権限が重複しているという問題はうまく解決されていない。例えば、理論的には、PCDが環境基準の設定の全体の責任を負っているが、実際には工業省が工業の固定汚染源についての基準を決めており、PCDは残りの汚染源について決めているのである。地域レベルでは、地域的な環境ガバナンス、特に地域環境のモニタリング、において異なった国家環境基準が求められている。

1992年環境法は、中央と地方の権限のバランスをある程度変更しており、規制執行や環境計画に関する権限と責任を県や地方レベルの政府に認めている。これは、地元民に対する意思決定の説明責任を果たすためには重要な進展である。また、新しい取組みには深刻な問題もある。ほとんどの県や市は環境管理に責任を持てるような専門的能力や資金を備えていない。簡単に言えば、権限の委譲は、必要な資源の地方レベルへの移転なしに行われているものがある。

地方の対処能力を強化する方法は、PCDのような政府部局を分権化するなどを通して実現することであろうし、時間が経過すると、地方の環境管理を技術的に支援するためにPCDが各県や市に設けられることになるであろう (Phantumvanit et al. 1994)。

効果的な政策決定にむけた環境情報の収集と分析のためのまとまった取組みが欠けている。事実、タイや他のアジア太平洋諸国の環境保護への貢献は、相互に独立してしまっており、バラバラな場合が多い。長期的な持続可能な発展にむけた効果的な地域政策戦略を検討する協調した取組みもなされていない。

最近、政策調整については、アジア太平洋経済社会委員会 (ESCAP) などの国連機関が触媒的な役割を果たして、各国が地域的な環境プログラムに協力するという動きがある。さらに技術的な問題については国連食糧農業機関 (FAO) や世界銀行などの国際機関、特に土地資源については土壌研究管理国際委員会 (IBSRAM)、海洋資源については海中生物資源国際センター (ICLARM) などが効果的な対処をするようになっている。さらに、森林管理ASEAN研究所やASEAN木材技術センターなどの森林資源についての地域的なプログラムも数多くある。

広範囲で横断的な環境問題についてネットワークを持ち統合された組織が存在していない。このようなメカニズムは、環境情報と政策戦略のオプションを各国に提供するものとなる。資金援助を目的とするわけではない。こうした制度を採りいれて、市民グループによって設置、運営、維持されるような市民社会のネットワークが必要である。これによって、市民社会がその関心事について発言し、情報を収集普及し、地域、国家、地方レベルでの開発と環境保護についての新しい手法を民間と政府に提供することを可能とするような場ができるようになる。

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コメント

百村帝彦

1. はじめに

ソムルディ・ニコロ氏の報告は4つのコンテンツから成り立っている。第1章ではタイの環境問題への取組みの概略について、関連する法制度についても触れながら説明している。第2章ではタイの経済状況の概略が、近年の経済危機について触れながら述べられている。第3章では、環境ガバナンスのメカニズムの現状についての分析がなされ、第4章では水質汚濁、大気汚染、森林破壊について詳細な事例研究が提示されている。

2. タイの経済

1985年以来、タイは「アジアの虎たち」といわれた経済的な奇跡を実現し、近隣発展途上国のモデルと認められた。しかしながら1997年中盤以降、タイの経済発展は財政上の崩壊を起こしてしまった。

ニコロ氏はタイの経済成長の本質について、以下のように言及している。タイの急速な経済成長・投資は都市産業やサービス業を中心に行われており、好調期における全収入の半分が生み出されていた。

また、タイのエコノミストや国際市場アナリストたちは、タイを含むアジアの経済危機が個々の国々のガバナンスの貧弱さにあると指摘した。また、氏は特権階級やそのファミリーにまつわる政治や経済ビジネスの腐敗が、タイの貧しいガバナンスを引き起こしたものであると指摘している。

タイ政府は、マレーシアなど他の東南アジア諸国が難色を示した国際通貨基金(IMF)の勧告をほぼ受け入れた。経済復興策として、タイの大蔵省・タイ中央銀行はファイナンスカンパニーの大整理と小規模商業銀行の国営化編入処理をおこなった。「不良債権処理こそが銀行界再編のための正しい処方箋」という世界的常識、すなわち西洋的常識を取り入れることとなった。IMF 勧告に従ったこれら不良債権処置は、タイにとってかなり強硬政策であり、国民の中でも政府に対する反発を持つものさえあった。また、これら西洋的な経済を建て直し策に対する反発もあった。加えて昨年8月18日には、外国人事業規制法の改正案が閣議で承認され、海外からの強力な投資・事業の介入が可能となった。

これら一連の処置はタイ政府の経済政策の根幹を大きく変えるものである。氏が指摘するように、財政危機の結果として良質のガバナンスである「自力本願」の概念が新たな活動を与えることになるのだろうか。

3. ガバナンスの現状

タイの環境ガバナンスの現状についてであるが、氏はタイの天然資源の管理主体について、地域住民が長期間にわたって政府の妨害もなく、自然資源を管理する権利を有しており、その資源

自治は「ローカル・ウィズダム (土着の知識)」という言葉で表される、としている。

この考え方は「コモンズ」として広く認識されたものである。日本では、江戸時代に入会林や入会海など、地域住民自身によって自然資源を管理していた歴史がある。ただし、日本の場合は江戸幕府によって、管理を委譲されていたものである。

また氏は、国家が天然資源を管理しそれが実際に効力を得た時から、天然資源の急激な劣化・破壊が始まったと指摘している:特に森林資源の破壊、また工場廃棄物などによる水質汚濁、工場の煙、乗用車の排ガスなどによる大気汚染などである。

このような背景のもと、1975年の環境法の改訂版として成立した1992年の環境法は、タイの環境保全と汚染規制地域に対して非常に有意義なものとなった。

また第8回国家経済社会開発計画(1997-2001)では、計画に対する意思決定プロセスに県、郡、行政村レベルで、地域住民の参加を促したことである。これにより、ボトムアップでの計画策定、また意見の取りいれが大いに期待できることである。また、タイでは環境 NGO の活動も活発である。

これら地域住民参加型によるボトムアップのプロセスは、今後必須のプロセスとなることであろう。氏が環境ガバナンスにおける今後のプロセスを非常に重視している点は注目される。

4. ケース・スタディ

ニコロ氏は、大気汚染・水質汚濁・森林破壊の各種の事例について詳細に報告をされている。私は、タイ王室林野局の部局のひとつであり、東北部に位置するナコンラチャシマ苗畑センターに日本のボランティアとして1994年当時勤務していたことがある。そのため、特に森林破壊の事例研究については興味深かった。当時より4年間以上の時間が経過しており、本報告からタイの森林を巡る経済・社会状況が変化していることが分かった。

1961年以来、タイの森林破壊は急激に早まった。この30年間で27.4百万ha(53.3%:1961年)であった森林率は14.4百万 ha(28%:1991年)と、約半分にまで減少している。近年、焼畑などによる森林破壊が大きな問題となっている隣国ラオス人民民主共和国の森林率47%(1991年)と比較してみても、森林率がいかに低いか分かる。

ニコロ氏は、森林破壊の主要な要因として以下の3点を挙げている。第1に政府が商業目的の森林経営に着手したこと、すなわち木材伐採に関して積極的な立場であったこと。第2に人口増による農用地の拡大。第3に都市部の中産階級によって林地が投資の対象とされたこと、などである。

一点目の森林伐採は、北部、南部、東北部など各地で行われてきたが、特にタイ北部において顕著であった。有用材であるチークの伐採が主に行われてきた。これらのほとんどは商業目的(有用材の輸出)によって実施されたものである。この際には、多くの違法伐採も見られることとなった。

二点目の農用地の拡大も、1961年以降急速に進んだ。農用地の拡大には、2つの原因があ

ったと考えられる。一つ目の原因は、氏も指摘するように人口増加による農用地の拡大である。これは、全国各地において見られる。二つ目の原因は、商品作物の導入による森林の農地化である。特に、タイ東北部ではトウモロコシ、ケナフ、キャッサバ等の商品作物の導入が計られた。これら商品作物の栽培のため、多くの森林が農地に転用され、森林率は下がる一方であった。このため、タイ東北部では森林率は12%にまで下がった。

三点目の林地が投機対象とされた点は、上記の2点と比較して近年発生したものである。タイにおいて中産階級が成立し、彼らが林地を含む土地を投機の対象とする余裕が生まれてからの現象であった。このため、これらはタイの経済危機によって急速に減少していった。

ニコロ氏が指摘するように、森林とは単に木材や林産物を生産する場として存在するわけではない。下流域で生活をする住民の水の供給地、二酸化炭素の吸収源、酸素の供給地、そして生物多様性の維持をする場など多くの機能を持っている。これらの森林の環境的な側面も、非常に重要な位置を占めている。

タイにおいて森林破壊が大きく注目されることになったのは、1988年の南部大洪水の際である。多くの国民が犠牲となり、国王自身が遺憾の意を表するなど、マスコミでも多く取り上げられる事態となった。この事件以降、森林保全に関する国民の意識が高まり、様々な取組みが行われている。

まず、大きな施策として挙げられるのが、木材伐採の禁止である。また、国王王位50周年記念事業(キング・プロジェクト)に代表される植林事業に積極的に取り組んでいる。新たな取り組みとして、森林の管理システムを今までの中央の政府レベルからコミュニティーベースへと、一部権利の委譲を図る政策・コミュニティーフォレストリー法を模索中である。この法律の目的は、地域住民自らが森林を管理することによって、より持続的な森林経営を図るものである。これらの政策は、ラオスやヴェトナムにおいて実施され始めた土地・森林分配政策とも通じるものがある。

しかし、いくつかの問題も生じている。木材伐採禁止のため、違法伐採という形で続けられていくことになった。同時に木材業者は、その供給先をラオス、ビルマ、カンボジア等の近隣諸国に依存することになった。

植林事業でも、植栽地の適地不足などの問題が生じている。そのため、キングプロジェクトは、5年で完了するはずだったが、延期して実施中である。

同時に、保全林内に居住している住民が多数存在することも原因の一つである。法が整備される以前に「保全林」に生活していた住民が、違法者と扱われる事態が生じている。また、タイの経済危機により、植林や森林経営に対する動機が下がってきていることも要因となっている。

5. おわりに

環境問題とは個々の国々において独立して発生している事項ではないと、ニコロ氏は指摘している。現実には、多くの環境上の問題が国境を超えた形で発生している。この事実に対して、タイ(または他の発展途上国)単独で解決できる問題ではなく、「グローバリズム」の視点にたった「良質の環境ガバナンス」の方向性を打ち出すよう示唆している。

一方、環境ガバナンスに対する一般の参加、すなわち「ボトムアップ」の方策を積極手に取り入れて行くことが求められる。無論この際には、行政側の十分な考慮も必要となるであろう。

この「グローバリズム」と「ボトムアップ」の双方の観点を配慮した上で、今後タイの環境ガバナンスの課題は、好転の兆しを見せるのではないか。

インドの環境ガバナンスー淡水の需要と水質の管理戦略を中心にー

ジョティ・パリキ、タタ・ラグラム、クリット・パリキ

1. はじめに

環境ガバナンスでは、大気、水、生物多様性などすべての環境資源を考慮に入れなければならない。環境ガバナンスは、需要、供給、質の管理の問題を包含すべきであり、村、郡、地域、州、国の各レベルにおける利用者、規制者、供給者などをすべてのステイクホルダーを対象に入れなければならない。インドにおける環境保護の歴史は長い。インド憲法は、環境保護について直接言及している。インド憲法48条Aは、「国は、環境の保護、改善、森林と野生動物の保護に努めなければならない。」と規定している。第51条A(g)では、国民に対し森林、湖沼、河川、野生動物を含め環境資源の保護と改善を義務づけている。第49条と第51条A(f)の基本原則では、文化遺産も環境全体の一部として保護することの重要性を認識している。このようにインド憲法は、環境に関する法制度の枠組みとその執行に必要な根拠を規定しているのである。

憲法の別表 VII は、種々の所管事項を3つに分類している。つまり、連邦リスト、州リスト及び競合リストである。連邦リストのなかの所管事項については、インド議会によって立法されるのに対して、州リストの所管事項については州立法機関が必要な立法を行う権限を与えられている。競合リストは、中央政府ならびに州政府が共同して所管する事項を挙げている。例えば、上水道、灌漑、運河排水は州政府の所管事項であるが、州を越える河川や渓谷についての規制と開発は中央政府が管轄することとなっている。競合リストの事項の例としては、森林、野生動物、鳥類の保護がある。

環境への関心を経済発展の過程に統合する必要性が提唱されるようになったのは、1960年代後半にまで遡る。すなわち、第4次5か年計画(1969-1974)の策定ときであり、そこでは「環境問題を総合的に評価したときに、初めて調和のとれた発展が可能となる。」と規定している。環境資源の管理を国の経済計画のなかに組み入れることは、第6次5か年計画のときに始まった。第7次5か年計画と第8次5か年計画では、環境資源の保護と持続可能性の問題が、他の多くの開発問題と同等に重要であると位置づけられている。「1992年環境と開発に関する国家保全戦略と政策、MOEF, GOI」と「1992年染防止の政策」が第9次5か年計画(1997年-2002年)によって実施に移された。第9次5か年計画では、環境と経済を開発計画に統合するという総合的なアプローチが採られている。

政府は、制度の設立と強化、環境計画の策定、数多くの立法や原則の執行を通して、環境保護に取り組んでいる。今日までに、中央と州で75以上の環境や汚染防止に関連する法律が制定されている。最近の20年間に、環境資源や一般大衆の利害を守るための立法措置が行われた。重要な環境法、規制や推進措置がインド政府によって制定されている。

● 1974年水(汚染防止)法

1974年の水法によって、水汚染の防止、除去、管理を目的として中央と州の汚染防止委員会(CPCBとSPCB)が設置されている。CPCBは、この法律の遵守を確保するために個人や企業に情報の提供を要求することができる。

● 1977年水(汚染防止)税法

1977年の水税法は、1992年に改正され、ある特定の企業や地方機関による水利用に対して税金を課すことを定めている。この税金の主な目的は、水汚染防止のために必要な中央と州の汚染防止委員会の資金を調達することにある。

● 1981年大気(汚染防止)法

CPCBとSPCBは、大気汚染に対処するための権限も与えられている。州委員会の事前の許可なく、大気汚染防止地区で工場を建設、稼働することはできない。

● 1927年インド森林法、1972年野生生物(保護)法、1980年森林保護法

これらの法律は、インドの森林と生物多様性に対処するために制定された法律である。この法律に従って、数多くの野生生物保護区と国立公園が設けられている。1980年森林(保護)法のもとでは、1992年にルールやガイドラインが改正され、森林地の転用についての審査においての重要な条件となっている。森林の転用が行われた場所では、これに相当する森林再生を別の場所で行われなければならない。森林地の転用ができない場所では、この2倍に相当する植林が行われなければならない。

● 1986年環境(保護)法

この法律は、中央政府が、排出基準、工業用地の利用規制、事故防止や有害廃棄物取り扱いに関する手続の策定、汚染問題の調査研究、立ち入り調査、研究所の設置、情報の収集と発信についての権限を中央政府に付与する包括的な法律である。

● 1994年環境影響度評価の届出

70年代初頭には開始されたが、1994年に公布されたもので、環境面で許容される限りで、様々な活動や新規のプロジェクト(29分野にわたる)の開始、拡張、近代化を制限、禁止する権限を中央政府がもっている。これには、鉱業、水力発電、灌漑、洪水制御、港湾(小規模なものを除く)、500haにわたる鉱山の採掘を含む。このプロジェクトではEIAと環境管理計画の提出が義務づけられている。産業のタイプや規模によって、MOEFや州政府がそれぞれ所管している。

● 環境監査

主要な汚染企業に対して、毎年、監査報告書を管轄の汚染委員会することが義務づけられている。このように、この基本的な目的は、企業の責任を明らかとし、自己監視させることによって汚染委員会の負担を軽減している。

● 大気質と水質の基準

この基準は中央汚染委員会によって設定され、その対象(工業、都市、住居、生態的に敏感な地区)ごとに定められている。州汚染委員会はより厳しい基準を課することができる。

● 大気質と水質の排出基準

分野ごとに、利用可能な最善な技術によっている。

● 1991年賠償責任保険法

有害廃棄物の取り扱う企業に対して、事故によって傷害を受けた人に対して補償することができるように、保険契約を締結するよう義務づけている。

2. 汚染防止のための財政的インセンティブ

前述の多様な法律における規定は、規制措置としてのコマンド・アンド・コントロールのタイプがほとんどであった。法的規定に加えて、政府は汚染防止のために企業に対して財政的なインセンティブを与える措置をしている。現在、汚染削減のために企業が利用できる財政的なインセンティブとして、減価償却費控除、水税の割り戻し、租税の減免、金融機関による低利融資がある(Box1参照)。

Box 1: 汚染防止のため政府が提案している財政的なインセンティブ

- **減価償却費:** 汚染防止のため製造業で設置された装置やシステムについては、100%の減価償却が認められている。この目的で、インド政府から特定の機械装置が指定されている。
- **水 税:** 関連製造業者が汚水・下水処理機器を設置した場合、水利用に対する水税の70%を割り戻す規定が設けられている。
- **優遇関税:** 指定された汚染防止装置とその部品については、減免した税率35%+5%が適用される。
- **物 品 税:** 汚染防止の目的に使用される製品については、減免した税率5%とする。例えば、1989年には、50%以上のフライアッシュを含むフライアッシュ・ブロックは、完全に物品税を免除された。
- **金融機関:** 金融機関は、汚染防止装置の設置のための低利融資を拡大させている。共同の汚水処理施設を設置する中小企業に対しては、投下資本の25%または500万ルピーのいずれか少ない額が補助金として与えられる。

Source: Annual Report, Ministry of Environment and Forests, Govt. of India (1994-95).

このような政府の取り組みにもかかわらず、インドの環境シナリオは近年悪化の一途を辿っている。その原因は、一つには汚染防止委員会が有効に機能しておらず、環境基準を遵守するためのコストが過大であることによって、環境法がうまく実施されていないことにある。インドの環境問題にとっての主要なものは、水と大気汚染、共通財産である土地資源の悪化と森林の質の低下による危機に瀕している生物多様性の崩壊である。インドは多様な環境問題が存在する大国である。この報告のなかですべての環境問題を取り扱うことは、内容を希薄にし、重要な点を見失うことになろう。したがって、この報告書では、生物多様性と大気汚染に関する諸問題を簡潔に論じたうえで、水汚染を中心に提起したい。

3. 生物多様性

インドは種ならびに動植物の遺伝子が豊富な国である。世界の種の6%がインドで発見されている。インドは、植物の豊かさにおいて世界第10位、地域固有の高等脊椎動物の種の数では第11位、生物多様性ならびに土壌の多様性においては第6位であると言われている。インドで発見された生存している種数は150,000種である。世界全体で合計12箇所の生物多様性のホットスポットのうち2つがインドにある。その1つは国の北東地方に、もう1つは西海岸沿いの西ガーツ山脈にある。しかしながら、植物、動物、森林の生態学的な均衡は、人口の急速な増加により著しく崩されている。インドの人口は、1947年の3億7,000万人から1994年には8億8,000万人に増加し、世界人口の18%を占めるにいたった。インドは世界の15%の家畜を飼育しているが、地理的にはわずか2%を占めるだけであり、森林地域は1%、牧草地にいたっては0.5%に過ぎない。

インドの森林地域は6,400万 ha であり、国土面積の19.5%に相当する。インドの1人あたりの利用可能森林は0.08ha であり、それは世界平均の0.8ha よりかなり低くなっている。これ以上の森林伐採が行われなくても、人口増加だけで2000年までには一人あたりの利用可能森林は0.07ha に下がるであろう (Govt. of India)。これらの森林のほとんどは人口増加のプレッシャーによって質的に低下の脅威に晒されている。最近の予測 (FSI, 1996) によれば、40%以上の花冠を持つ森林はわずか11%に過ぎない。人口や家畜数の増加に伴い、インドの森林とそこで維持

されている豊かな生物多様性は大きなプレッシャーのもとにある。インドの森林への脅威として、森林地の利用転換がある。1980年の森林保護法の制定以来、11,804km²の森林地が森林以外の目的に利用転換されている。深刻な森林枯渇の原因は多々ある。それには、増加の一途たどる燃料用薪、飼料、木材の需要増加、増加する人口及び家畜数、不適切な保護対策、森林地の森林活動以外への転換、そして森林を収益源とみなす傾向などである。

インドにおける生物多様性保護のための主要な手法は、1972年野生動物(保護)法、1983年国家野生動物行動計画、1988年国家森林政策である。1972年の野生動物(保護)法は、生物多様性全体の保護を目的に国立公園及び禁猟区の指定について規定している。1995年現在で、インドの地理的な地域の約4%に当たる148,848km²に及ぶ441の野生動物禁猟区と80の国立公園がある。さらに、207の保護区をネットワークに追加して保護区をインド全体の地理的な地域の約5%に当たる広さに拡大する提案が出されている(図1参照)。

インドの総合的な生物多様性保全プログラムは3つの分野に分けることができる。つまり、保護区の指定と管理、管理下にある森林(保護区ネットワークの外側の森林)の生物多様性の保護、そして生物多様性に関する取引の統制と管理である。生物多様性に関する取引の統制と管理は単に効果的な法律の執行の問題であるが、最初の2つは、法律の執行に加えて、複雑な社会経済的、政治的問題を含んでいる。これらの問題は、生物多様性と人間コミュニティが共存するところから生まれてくるものである。保護区として閉鎖された資源へのアクセスの手段を失うこと、野生動物がもたらす人の財産や生命への被害によって対立が生まれるのである。

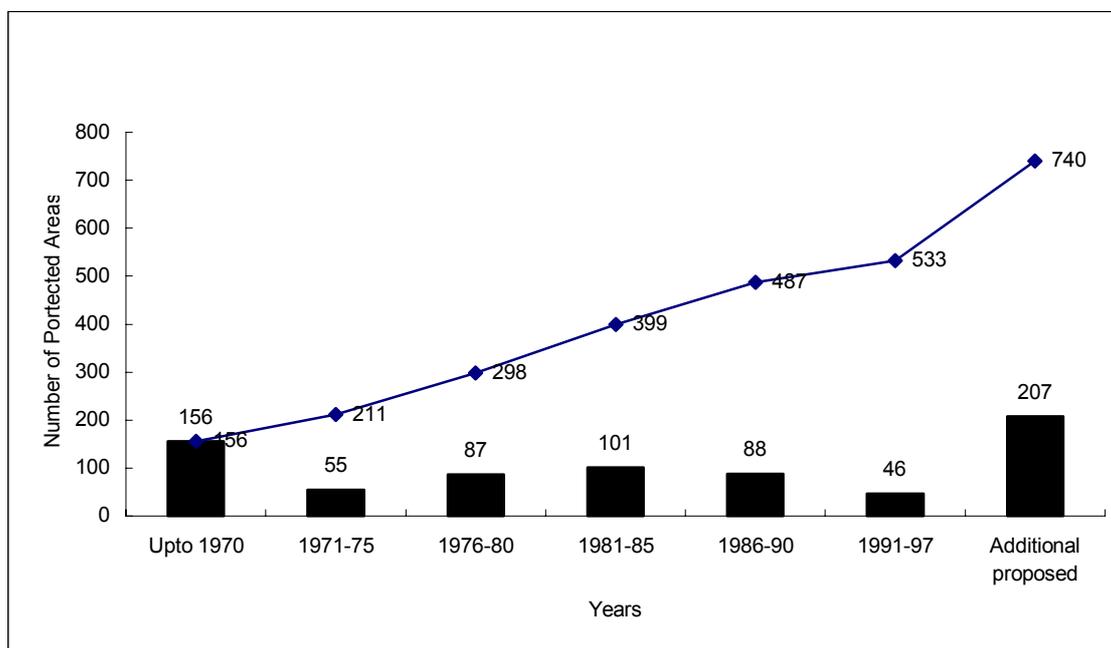


図1 インドの保護区ネットワーク

総合的な保護や国立公園と禁猟区の重点化の戦略は、インドの生物多様性保護政策にとっての主要な柱であった。実際には、保護区内の森林も地方コミュニティや地方経済を支えており、保護区の設置によって悪影響を受けることとなった。ある事例研究(Kothari *et al*, 1989)は、ほとんどの国立公園(56%)や禁猟区(72%)がそのなかでの人々の生活を支えていると報告している。

保護区指定の法的手続では、対象となった土地におけるあらゆる私的な権利を処理する必要がある。実際には、大規模な移住を意味しており、これらの地区では発生していることである。これはとても評判が悪く、コストもかかるので、政治的に不都合が多く遅々として進まない。その結果、法的手続は国立公園に関しては40%、禁猟区に関しては8%しか完了していないと報告されている。保護区内の緩衝地帯でのエコ・デベロップメントを通して、天然資源への依存を減らし、信頼と参加を得ようという考え方は「1983年国家野生動物行動計画」として実現した。しかし、コミュニティでは野生動物の襲撃により作物、家畜、そして命さえ奪われることが往々にしてあるので、周辺のコミュニティでは保護区を資産として見るのではなく、むしろ問題視している。社会全体としては、保全による恩恵を享受しているが、農村のコミュニティではそのコストを押し付けられているのである。

重要な目標である生物多様性の保全を実現させるためには、地方のコミュニティと保護区との対立を解決するための新しい戦略を考案しなければならない。保護区のなかの資源に依存している多くの居住地区が保護区にあるので、保護区内からの移住だけでは、生物多様性保全を実現することはできない。生物多様性保全と人々の居住とが調和して共存できるという事実は認識されなければならない。地方のコミュニティは、明確な責任と責務を持って保護区の管理に参画する必要がある。エコ・デベロップメント、エコ・ツーリズム、環境にやさしい経済活動が保護区の内外だけでなく、すでに管理下にある森林についても長期的視点での国家的な生物多様性保全が奨励されなければならない。実効性のない保全法や政策よりも、関係するステイクホルダー・グループための共同で合目的な意識向上キャンペーン活動や保護区レベルでの利害解消の場を設けることのほうが長い目で見て生物多様性保全には役立つであろう。

4. 大気汚染

4.1 都市の大気質

インドには人口100万人以上の都市が23あり、その多くで大気汚染のレベルがWHOの健康基準を超過している。自動車の使用、電力の消費、工業化及び家庭燃料が上向きの傾向を示しているので、都市の大気汚染は悪化しつつある。インドの10大都市のうちの6つの都市ムンバイ、カルカッタ、デリー、アーメダバード、カンパア、ナグプアーでは大気汚染は深刻で、粒子状浮遊物質(SPM)の年平均レベルは少なくともWHO基準の3倍を超えている。デリー、カルカッタ、カンパアの年平均SPM値は基準の5倍以上である。全国的には、中央汚染管理委員会により報告されている都市部の90%以上のモニタリングステーションにおける年間平均濃度は $75 \mu\text{g}/\text{m}^3$ を超えており、これはWHOが勧告している基準の中間点である。

しかしながら、 SO_2 及び NO_x の年平均濃度は、全般的に典型的な大気基準との関連では低い。都市部の人口と大気汚染の間には明瞭な相関関係があるようには見えず、多くの中規模の都市でも巨大都市と同等かそれ以上の汚染レベルの高さを示している。

4.2 室内の大気質

インドでは、牛糞、薪、作物の残り物など未処理のバイオ燃料が台所で利用されているため、室内の大気汚染が深刻化している。鉱物石炭もインドの家庭における空気汚染の原因になっている。これらの燃料の多くは農村部で利用されているが、都市部での利用もかなりなものである。農村部を中心とした室内の大気汚染はこれまで重視されてこなかった。近年になって、国全体での排出量のうち SO_2 の82%、 NO_2 の38%、揮発性有機化合物の88%、粒子状物質の96%が家庭から

のものであると推定されている。

4.3 大気汚染の影響

大気汚染は多くの健康問題を惹起し、農業生産性などの経済生産性に悪影響をもたらし、建築物や土地などの財産に損害を与え、環境への災害のリスクを高めるような生態系の変化の原因となる。冬季には視界不良のため飛行場が閉鎖されるようなデリーのスモッグによって、飛行機のフライトスケジュールは頻繁に変更される。健康への悪影響の観点からは、粒子状浮遊物質とPM10(直径10ミクロン以下の粒子、容易に肺に浸透するため一般粒子状物質よりも人の健康により関係が深い)は、幼年死亡率(呼吸器系疾患と心臓血管系疾患による死亡)と死亡率(流行性の慢性肺閉塞、特に気管支炎や上下呼吸器感染)の双方に関連している。オゾン層は、呼吸器系病院への入院例の増加、活動の制限、喘息、眼炎症、心臓病の増加原因となっている。一酸化炭素(CO)は、血液により運ばれる酸素量を減らす、大気中に急速に放散するため、その影響は回復しやすい。大気中の高レベルの鉛は、高血圧や子供の知能指数(IQ)低下を含む神経症の原因となっている(B.Ostro, 1994)。

世界銀行の研究(Brandon and Homman, 1995)によれば、インドの主要36都市で大気汚染のレベル(PM10, SO₂, 鉛 とNO_x)がWHO基準を超過しており、毎年40,350人が幼年死亡、1,980万の入院治療を必要とする疾患、12億100万人が軽度の疾患であるという。

Kirit Parikh et.al, 1994 のケース・スタディによれば、ムンバイの大気汚染による健康被害の推定コストは、SO₂濃度が1立方メートル当たり10マイクログラム増加するごとに、呼吸困難による死亡例を対象に含めただけでも社会コストは1億ルピーを超えるという。この研究は、さらにチェムバーでの財産価値の減少は、SPM濃度が1立方メートル当たり100マイクログラム増加するごとに20億ルピーの累積被害が発生すると推定している。別のケース・スタディ(NEERI, 1998)では、首都デリーにおける健康被害による損害は、1年あたり11億6,800万ルピーであると推定している。これらの研究から明らかのように、大気汚染のために多額の負担をしている。

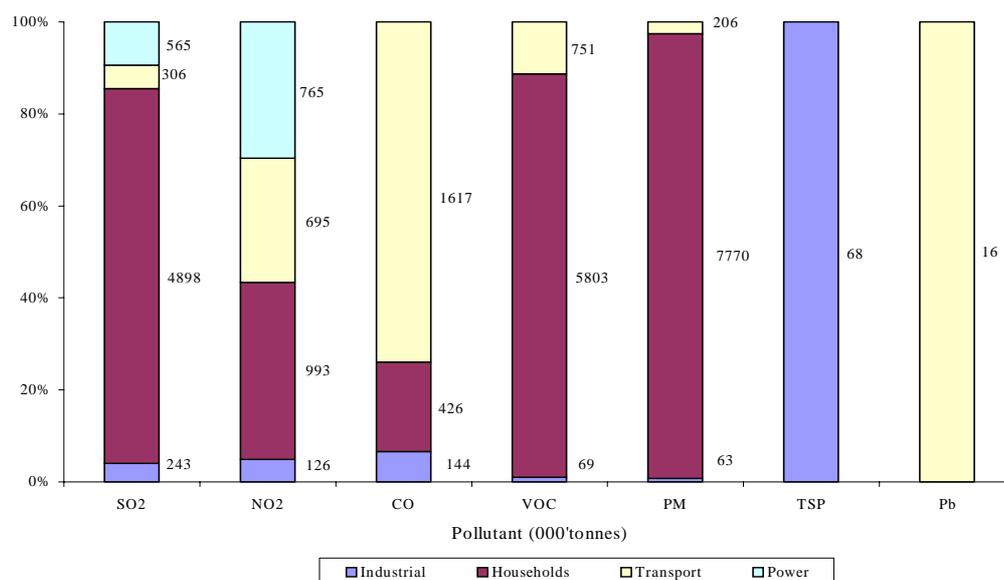
室内大気汚染物質によって、呼吸器感染症(ARI)、慢性的肺閉塞症(COLD)、肺癌、結核(TB)、盲目と心臓病などの深刻な健康問題が発症することが明らかとなっている(Mishra et.al, 1997; Smith, 1987)。発言の機会を得られてない被害者等は、多く時間を室内で過ごす人々、すなわち女、5歳以下の子供と高齢者である。これらの人々は常に激しい被害を受けている。そのため、インドの人口の多くが危機的な状況に陥っている。毎年、41万人から57万人の幼年死亡は室内大気汚染によるものであり、6年間も闘病しているものもある。この問題をより徹底的に調査し、クリーン・ストーブやクリーン燃料の促進を図る努力が緊急に必要である。

4.4 誰が大気を汚染しているのか？

多くの活動が大気汚染の原因となっている。化石燃料の利用、工業過程、バイオ燃料の燃焼なども含まれる。1989/1990年における大気汚染物質の排出量は、IGIDRの推計によれば図2に示すとおりである (Jyoti Parikh and Kirit Parikh, 1999)。家庭部門(室内大気汚染)からの排出量が国全体の大気汚染にかなり寄与している(82%SO₂、39%NO₂、19%一酸化二窒素、88%揮発性有機化合物(VOC)と97%粒子状物質)。運輸部門が都市の大気汚染に最も寄与している(27%NO₂、74%一酸化二窒素、11%VOC、100%鉛)。インドの自動車登録台数は過去25年間に驚異的に増加し、1973年の210万台であったものが1993年には2,520万台に達

している(Ministry of Surface Transport, 1993)。1994年の自動車の排出量は、インドの主要12都市において1日あたり3, 596. 8トンと推定されている(Jyoti Parikh and Kirit Parikh, 1999)。

工業部門からの汚染排出量は、200万メートルトンである(Down to Earth, 1999)。最も汚染が大きい産業は、工業化学、ゴム、繊維、鉄鋼、非金属製品、食品、紙、印刷・出版、金属製品、皮革である。



Source: Jyoti Parikh and Kirit Parikh, 1999.

図2 1989/90年の大気汚染

5. 水質

5.1 主要な課題

5.1.1 水の利用可能性

インドでは、1人あたり年間2, 228 m³の淡水が利用可能であると見積もられているが(World Resource Institute, 1996)、季節によっては多くの地域で深刻な水不足に見舞われる。その最大の原因は季節的にも地理的にも水資源が均等に配分されないためである。このように、必要とされる時期に、必要とされる場所で必要量が賄えないことが大きな問題となっている。清浄な飲用水をすべての人々に供給することが水政策のうえでの目標となっており、今後達成すべき課題である。1993年3月の時点で、インド人のうち地方居住者の78%、都市居住者の85%が飲用水を利用できる状態にあったが、それでも安全な飲用水とは無縁の人々がほぼ2億もいるのである。一方、下水設備を利用できるのは都市人口の48%、地方では3%に過ぎない(Central Statistical Organization, 1997)。

5.1.2 水質

水の利用可能性とともに重要な問題は水質である。近年、急速な都市化、人口の急増、さらに

は増え続ける工業廃水、家庭廃水、集約的な農業によって惹起される農業排水によって水質が悪化している。主要河川の水質は、表1に示すとおりである。家庭廃棄物や尿尿による病原性水質汚染が様々な水系感染の疾病をもたらしている。また、水質の悪化によって、上流と下流の水利用者間の対立は激しくなる一方である。

汚染された水に接することによって感染する病気には、下痢、肝炎(黄疸)、回虫病、鉤虫感染、トラコーマ、メジナ虫病(ギニア虫)などがある。世界銀行と世界保健機構の推計によれば(World Bank, 1993)、インドではすべて疾病のなかで11.5%を占める伝染病のうち21%が水系感染によるものである。このうち特異疾患としては下痢、トラコーマ、腸管虫、肝炎及び熱帯性症候群(インドの住血吸虫病、リーシュマニア症、リンパフィラリア)がある。インドでは毎年、水系感染による5歳未満の幼児死亡数が150万に達すると推定されている。水系感染病による損害を人時間に換算すると18億時間(人日数にして2億日以上)になる(Ministry of Rural Development, 1993)。幼年死亡と一時的な疾患を一体として定量的に測定しDALY(廃疾調整年)である。表2に示されているように、インドでは毎年3,050万DALYが水質汚染や下水衛生設備の不備によって失われている。

表1 主要河川の水質

River	Designated best use category *	Quality category (1994)	Critical parameters
Baitarani	C	D	BOD
Brahmani	C/B	D	BOD
Brahmaputra	C	D	T.Coliforms
Cauvery	A/B/C	C/D	pH, T.Coliforms, DO, BOD
Ganga	A/B/C	C/D	T.Coliforms, BOD
Godavari	B/C	D	BOD
Tributaries of Indus Beas, Satluj, Ravi, Chenab, Jhelam, Tawi, Parwati & Largi	A/C/	B/C/D	T.Coliforms, BOD
Krishna	C	D	BOD
Mahi	A/C	B/C/D	BOD, T.Coliforms
Mahanadi	D/C	B/D	BOD
Narmada	A/B/C	D/C	BOD, T.Coliforms
Sabarmati	A/C/D	D/E/E	BOD, T.Coliforms
Tapi	A/C	B/D	BOD, T.Coliforms

Source: CPCB, 1996

* A=Drinking water source without conventional treatment but after disinfection; B=Outdoor bathing; C=Drinking water source with conventional treatment followed by disinfection; D=Propagation of wildlife, Fisheries; E=Irrigation, Industrial cooling, controlled Waste Disposal.

表2 1990年のインドにおける水系感染病
(In millions of DALYs)

Disease	Female	Male	Total
Diarrheal Diseases	14.39	13.64	28.03
Intestinal Helminths	1.00	1.06	2.06
Trachoma	0.07	0.04	0.11
Hepatitis	0.17	0.14	0.31
Total water-related diseases	15.63	14.88	30.51

Source: World Development Report (World Bank, 1993), pp. 216-219.

人的資本のアプローチを用いると、DALYの統計上の価値はインド人労働者の年間平均生産量に相当する(これは1DALYが病気や早死のために働けない1年間を意味しているからである)。単純に、1年の経済的価値を1人あたりの年間平均国内総生産である12,000ルピーとすると、3,050万DALYの年間損害は36,600クローレ[クローレ;1,000万ルピー]に相当する。インドはこれに等しい額を毎年費やして、清潔な飲用水が行き渡るように努力すべきであろう。上下水道の改善によって発病率が顕著に減少し、病気の脅威からある程度解放されると同時に、下痢による幼児死亡率も **Box2**に示すように減少する。

Box2

水道水の質及び下水設備の改善により予測される罹病率の低下は、下痢:26%、トラコーマ:27%、回虫病:29%、住血吸虫病:77%、メジナ虫病:78%と推計されている。下痢症候群による死亡率は65%、子供全般の死亡率は55%低下すると推計される。

Source: Ersey et al, 1991

5.1.3 地下水

インドでは、人口の80%が地下水を家庭用水として利用していると推計されている (UNICEF, 1998)。持続的に供給が可能な総地下水資源は概算で431.8 km³ である (Central Statistical Organization, 1997)。地下水は国内全域で均等に利用できるのではなく、ガンジスーブラマプトラ川流域の帯水層などでは豊富であるが、硬岩累層で形成された半島部では少ない。ガンガ流域は地下水源として最大限の利用が可能であり、ここだけでインド全体の地下水源の39%を占めている。利用可能性といった点でガンガ流域に続いているのがゴダバリ流域で、国全体の10%に相当する地下水資源がある。インドにおける地下水資源の平均的な開発レベルは32%である。インドの州のなかで地下水の利用率が高いのは、パンジャブ(94%)、ハリヤナ(84%)タミール・ナドゥ(60%)、ラクシャドウィープ(64%)、ラージャスターン(51%)などであり、比較的低いのはグジャラート(41%)、ウッタルプラデシュ(38%)、アンドラプラデシュ(24%)、ビハール(19%)などある (Central Statistical Organization, 1997)。汲み上げられた地下水の90%が灌漑に用いられ、家庭用水として利用されるのは6%に過ぎない。

3つ目の問題は、全国で見られる地下水の過剰な開発である。帯水層からの揚水による小規模灌漑に使われている電気ポンプは479万台、ディーゼル・ポンプは370万台にも及び (CWC, 1993)、地下水盆の低下を招く結果となった。余りにも多くの掘り抜き井戸が同じ帯水層から揚水したため、地下水盆が下がるばかりか、フッ化物やヒ素などの無機汚染物質が侵入し、健康を脅かしている。過剰開発の原因の一つとなっているのは、インドでは「水利権」についてのコモン・ローがあり、それによれば地下水の所有権は事実上土地の所有者に帰属することになっていることにある。地下水は帯水層から採ることができる共同資源であるという認識が欠けている。地下水を共通の資源として管理するための政策が重要となっている。

5.1.4 土壌の劣化

水政策における4つ目の問題は、不適切な水利用による土地の劣化である。用水路の水源で農業を営む者が集中的に灌漑を行い、作物に必要なと認められる以上の水を利用するために、水量の減少や塩水化が進んでいる。ほとんどの場合、農家が支払う電気代はごく小額で、それも一

括払いで請求されるだけのことが多いため、ポンプ揚水に要する限界費用はゼロに等しい。水には希少価値があるのに、灌漑用水の料金も低い。州によっては、水料金が灌漑事業の運営維持コストを下回っているところもある。このように、地下水盆の低下と土壌の劣化は、農家による水の過剰利用乱用がもたらす問題である。

インドでは、水資源に恵まれた地域が多いが、水質悪化のために、用途によっては水質基準を満たした水を供給することができない。水の利用可能性と水質をめぐる対立が激しくなっている。自由に使えるのが当然であると考えられている水であるが、水需要を満たせない地域の多いことが明らかになるとともに、水が対立の焦点となってきている。水を賢明にかつ慎重に利用したり、水を必要とする各地域に効果的に配分するようなインセンティブが与えられていない。

表3 1995年の各国における水資源の状況

Country	Annual internal renewable resources* (km ³)	Water per land area (m ³ per square km)	Water per capita (m ³)
Canada	2901	290944	98462
Brazil	6950	816494	42957
Russian Federation	4498	263426	30599
United States	2478	264659	9413
China	2812	292917	2292
India	2085	700840	2228
World	41022	301988	7176

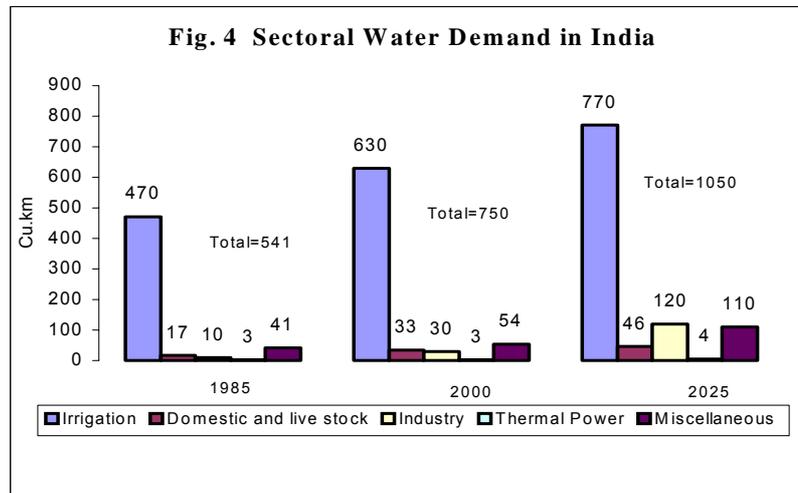
Source: World Resources Institute, 1996; World Bank (1997)

Annual internal renewable water resources refer to the average annual flow of rivers and recharge of groundwater generated from endogenous precipitation.

5. 1. 5 水資源:利用可能性と需要

インドでは km² 当たりの水資源は豊富だが、表3に示すように国民1人あたりとなると比較的少ない。

インドで利用可能な平均年間水量は1人あたり2, 228m³だが、全用途(農業、家庭、工業と民生)を合わせた場合、1人あたりの平均年間消費量は612 m³と推計されている。2000年には、農業部門で630km³の水が必要になると予測されているが、これはインド全体の水需要の84%に相当する。家庭用水としては33km³(全体の4. 4%)、工業部門では30km³、火力発電に3km³、残り12%にあたる54 km³がその他のさまざまな用途に必要とされるだろう(図3参照)。総需要量は630km³に達する見込みである。水の需要は増大する一方で、2025年までに、灌漑用水として770km³、工業用水として110km³が必要になると推計されている(CWC, 1993)。



Source: CWC (1993)

図4 インドの部門別の水需要

5. 1. 6 適切な水量は？

利用できる水が必要量を満たすに十分なだけあるか否かを判断するには、さまざまな要素が関連してくる。時間当たりの降水や流入量は基本的な決定要因だが、水を豊富な時期に乏しい時期のために貯めておくことができるか否かによっても水量が変わってくる。そのほか人口、灌漑の必要性、その時間的配分、工業用の需要や生態学的なニーズも関連してくる。

利用可能な水が1人あたり1,000 m³から1,700m³になると、その地域は水不足に陥り、地域全域に渡る水不足のため水の管理が重要課題となる (Falkenmark and Widstrand, 1992; UNEP, 1997)。UNEPの予測では、インドは2025年までに深刻な水問題を抱えることになる。

増大する水需要に応えるためには、取水計画に多額の投資を行うとともに、地方レベルで水源拡大のために伝統的な取水方法を復活させる必要がある。取水による地方レベルの供給増大や再補充を実施し、無駄な送水を省き、農業、家庭、工業用水を節水を図れば、極めて高い費用効果性を実現することができる。需要サイドから水の管理を考えた場合、Box3に示すように必要量を減らすのに最適な方法がある。

灌漑の管理や、農家への衡平な送水に関わる管理上の問題については数多くの研究があるが (Minhas et. al, 1972; Dhavan, 1988)、ここでは取り上げない。水質に関する問題と政策について検討することがここでの目的である。

Box3

- スプリンクラー灌漑を採用すれば流入法に比べて約25%水を節約し、収量を15%増やすことができる。
- 果樹、野菜、綿、砂糖きびに点滴灌漑を施すと経費節減ができ、25%から50%の節水、5%から25%の増収が見込める。
- 投資の費用便益率は良好である。節水による便益は他の利用者にも及ぶから、投資に対してはインセンティブが必要である。

地方の水道事業のための需要管理計画

水需要が増大を抑制するために、地方で需要管理計画が実施されてきた。

- インドネシアのボゴール市は、給水量の拡大に対応するため多額の投資を迫られた。そこで市当局では家庭用水と商業用水の消費量の大幅削減に踏み切った。まず水道料金を約30%値上げした結果、消費量が29%減った。次に、消費者へのキャンペーンを展開し、月間消費量が100 m³を超える消費者に的を絞って、さらなる節水を呼びかけた。消費者に助言して、節水器具を配布した。キャンペーン開始後3ヶ月で、月間の平均消費量はさらに29%減少したのである。
- メキシコ・シティでは、1人当たりの水消費量を6分の1まで減らすために、35万個の便器を6リットルの小型便器に交換した。その結果25万人分の家庭用水に相当する量が節約された。
- 北京の新価格決定方式では、水利用量が料金とリンクしている。新しい規則では、消費量の割り当てが決められ、過剰な消費には制裁金が課せられる。
- 節水器具の使用、漏水の検出と修理、公園での効率的な灌漑の実施によって、エルサレムは1989年から1991年の間に1人あたりの水消費量を14%も減らした。
- カナダのウォータールー市の節水計画の内容は、高料金の設定、節水教育、節水器具の配布である。ボランティアの協力により約50,000世帯に節水器具が配布された。これによって、1人あたりの消費量が10%近く減少した。

需要管理による節水の可能性

- 多様な部門でそれぞれ水管理を効率化し、それが全体的節水につながれば、将来の需要の削減にも役立つ。2025年の需要予測は農業が800km³、家庭用が、52km³、工業用が120km³だが、適切に管理を行えば2025年までに農業部門で63km³、家庭用で2km³、工業用で25km³の節水が達成できる可能性がある。

Source: Central Water Commission (1998); World Bank(1995); Z.Hasan and R.N.P.Singh (1997).

5.2 水汚染

5.2.1 誰が水を汚染しているのか？

淡水の水質は、土地利用、侵食、森林破壊など自然の営みや人間活動に直接影響を受ける。水の三大汚染源としてあげられるのが、家庭廃水、工業廃水、農業からの排出である。

最も問題なのは、家庭廃水と人尿で、多くの水系感染症の源となっている。インドで水の有機物含有量が極めて高いのは、農村部と都市部ともに家庭用下水処理施設が著しく不足しているた

めであり、家庭廃水及び地方当局による廃水がインドの総廃水量の75%を占めていると推定される。(MOEF, 1992)。中央汚染防止委員会(CPCB, 1988)によれば、一級都市(人口10万以上の都市)212のうち、ある程度廃水の回収と処理(一次処理、二次・部分的な一次処理、部分的な二次処理)を実施し、廃水処理場を備えているのは、全体の22.6%に相当する48だけであった。二級都市(人口50,001から99,999まで)241のうち廃水回収システムがあるのは19だけで、そのうち処理施設があるのは10だけである。一級都市の廃水量は12,146MDLで、二級都市では1,298MDLであった。1998年には、ボンベイ(1,714MDL)とデリー(1,480MDL)の各廃水量は二級都市241すべての廃水量を合わせたものより多かった。一級都市の廃水のうち処理されたのは20%、二級都市では2%に過ぎなかった。農村部存分における推定廃水量は入手できないが、1993年の時点で下水施設を利用できたのは農村人口の3.15%に止まっている(Central Statistical Organization, 1997)。こうした未処理の廃水は、水資源に悪い影響をもたらす。

インドの産業は過去40年間にかなりの成長を遂げた。河川や湖に廃水を排出する水汚染事業所2,901のうち適切な処理施設(ETP)を備えているのは841(29%)に過ぎず、2,026社(69.8%)は適切な処理施設を持たず、残り34社は閉鎖された(MOEF, 1997)。

緑の革命によって多収穫品種の開発やそれに伴う水資源の開発と農薬の使用が促進され、インドは穀物の自給自足ができるようになった。しかし、農薬の乱用が、水環境に悪影響をもたらすこととなった。化学肥料($N+P_2O_5+K_2O$)の消費量は1984年には770万トンであったが、1995年から1996年にかけて1,390万トンにまで膨らんだ。1971年には24,305トンであった病虫害防除剤の消費量も、1994-1995年にかけて85,030トンに増えている(Central Statistical Organization, 1997)。化学肥料の流出によって水資源が富栄養化している。病虫害防除剤は生態系の食物連鎖を通じて蓄積され、濃度が高まる(生物濃縮)。人間を含めて多様な種が影響を被っている。

5.2.2 なぜ適切な廃水処理が行われないのか？

廃水の75%を占める家庭廃水の回収と処理は、地方当局あるいは村パンチャヤートの責任によっておこなわれている。下水や廃水処理施設など基本的施設が整っていないというのが、家庭廃水の処理が行われていない主な原因である。そのほか、法律上の規定が実施されない、施設設置の資金が不足しているなどに加えて、問題意識の低さも原因となっている。

工業廃水については、汚染企業が廃水処理施設(ETP)設置のための一時的な投資には、特に収入に対する投資率が比較的に低い場合には協力的である。しかし、廃水の構成成分によっては運営費がかさむことがあり、処理施設は設置したものの維持運営費が高くつく場合には運営を見合わせるという事態も起きている。また、中央と州の汚染防止委員会の監視が汚染防止施設の点検に偏っていて、運営中の立入検査がないがしろにされていることも、処理施設の運転が放置される原因の一つとなっている。運営の監視(処理施設の有効性について継続的に監視する)には、かなりの人材と資金が必要であるが、監視当局がどちらも調達できない。

さらに、不遵守企業の所有形態について調べると、興味深い事実が判明する。図4に示されているように、不遵守企業のうち48%が州や協同組合の経営によるもので、9%が国営である。このように、半分以上(57%)が公共部門、残り43%が民間部門の事業所となっている(CPCB, 1995)。

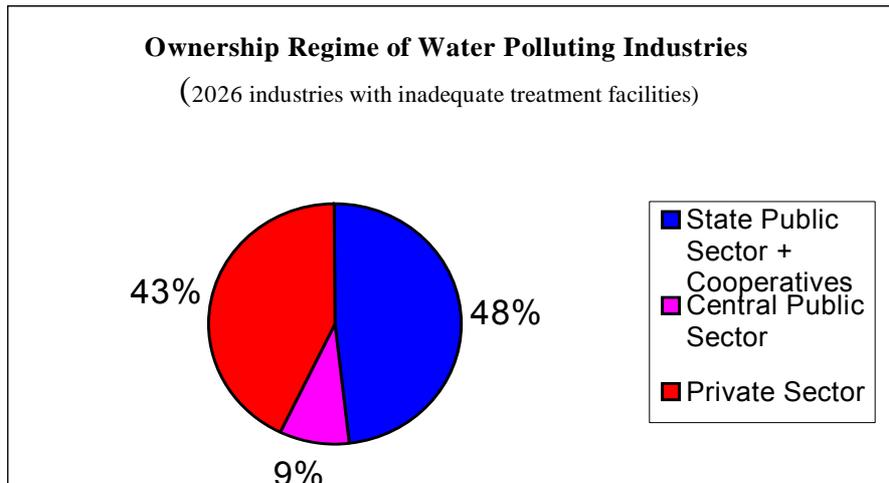


図4 水汚染企業の所有形態

小規模の施設(会社組織でないものや家内工業を含む)の多くは、現在実施されている公害防止について適切な取組みをしていない。共同廃水処理施設(CETB)設置や処理技術導入を対象とする資金補助はあるものの、こうした制度を活用するように企業に対するインセンティブを与えるメカニズムが欠落していることが問題となっている。排出基準も執行されていないので、水汚染企業もわざわざ資金補助を受ける必要がないのである。

農業部門では、これまでのところ化学肥料や病虫害防除剤使用についての規制がない。統合的な害虫管理制度や環境に優しい農法(ミズ養殖や有機肥料など)を採り入れるように、今後は農家の意識を高めるようなキャンペーンを展開する必要がある。

5. 2. 3 処理レベルとそのコスト

CPCB(中央汚染防止委員会)によって定められた現行の排水基準は、処理後の排出地点で計測する。たとえすべての企業が基準を遵守しても、企業数が多ければ周辺の水質は悪化するであろう。さらに、環境影響にもとにした汚染物質が分類されていない。すべての企業に画一的な基準を適用することは、費用効果性からみて問題がある。

廃水処理のコストは廃水の性質(量や濃度など)、排出基準や処理技術などによって異なる。インドで、主要な水汚染企業が汚染防止にかけている経費は年間の総取引高の0.01%(セメント)から3.9%(化学)である(Kirit Parikh et al, 1999)。

水資源の浄化能力にはおのずと限界があることが明らかになるとともに、環境基準も厳しくなり、廃水処理施設の処理効率の改善が義務づけられるようになった。その結果、コストもかなり増大している。例えば、色素や完全溶解性蒸発残留物の処理で99%の効率を実現するには、90%の場合のほぼ2倍のコストがかかる可能性がある(Prasad Modak, 1995)。インドの企業は、投下資本の2-5%を汚染防止に充てて、廃水、排出、廃棄物の処理についての規制基準を達成しなければならない。施設の運営コストは年間で施設設置コストの15%から30%に達している。(Prasad Modak, 1995)

5.3 インドの水資源管理政策

政府による水資源管理政策の概要は、**1987年国家水政策;1992年環境と開発に関する国家保全戦略と政策;1992年染防止の政策**に規定されている。

Box4:インド政府の主要な水汚染管理政策

技術対策

- ・ クリーン燃料やクリーン技術、エネルギー効率の高い設備や水汚染管理システムの利用。
- ・ 環境に優しい代替物、技術、省エネルギーへのインセンティブ。
- ・ プロジェクトのコストの一部として、環境対策費の内部化。

ゾーニング対策

- ・ 水源や地域ごとの水質基準を定めて、期限を定めて水質汚染防止計画を策定する。
- ・ 住民や環境への影響が最小限となるように、プロジェクト用地を適切に選定する。
- ・ 廃棄物を再生処理後の原料として利用し、汚染を可能な限り減らすことに協力的な企業を競争上優遇する。
- ・ 事業所用地の選定について、環境面のガイドラインを参考にする。

財政的なインセンティブと経済的手法

- ・ 環境に優しいクリーン技術、廃棄物のリサイクルと再利用、天然資源保全のインセンティブ。
- ・ 企業に廃水/排出税、資源税を課したり、資源消費量と生産能力に基づく実施基準を設けるなどによる「汚染者負担の原則」の実施。
- ・ 生命や財産についての損害や損失に対する公的な責任保険の導入。
- ・ プロジェクトのコストの一部として、環境対策費の内部化。

コマンド・アンド・コントロール

- ・ 汚染集約企業に特に注意を払い、生産工程や生産技術、汚染規模をもとにして、企業の種類ごとの汚染防止基準の設定と執行。
- ・ 「環境監査」の導入。
- ・ 企画段階から環境影響評価を行い、企業用地の選定。
- ・ MOEFによる全プロジェクトの監督。

Source: *National Conservation Strategy and Policy Document on Environment and Development (1992). Ministry of Environment and Forests, Government of India, New Delhi.*

6. 大気質と水質の改善対策

国中で大気と水の質が悪化していることは、これまでの政策が効果を上げていないことを裏付けている。その原因は明らかであり、法律が実施されておらず、実効性を上げていないことによる。過去20年間、汚染防止委員会が汚染企業に対して起こした訴訟は数千件に及んでいるが、有罪判決になったのはほんのわずかであった。例えば、ラージャスターンでは7,000件近い訴訟のうち、有罪となったのは2件に過ぎない。汚染防止委員会は人員不足で計測や監視に必要な機器を持たず、資金が乏しいうえに政治的圧力の対象となることも多いのである。

工業部門における現行の汚染防止については、「入手可能で最善な」技術に基づいた排出基準によっている。企業は実現可能なことであっても、そのことを知らせずに、緩やかな基準を割り当ててもらおうとするのは必然である。水汚染については、消費量に応じて課税されるだけで、廃水中の汚染物質濃度は課税対象にならないため、企業は汚染物質の濃度を下げることには関心をもちない。汚染物質の量を測定し、濃度と量に応じて課税するのが妥当であり、そうすれば企業は排出や排水を浄化するためできる限りの努力をするようになるだろう。こうした経済的な解決策には、測定と監視をしっかりと行う必要があるという理由から、支持されないこともある。しかしながら、これまでの経験から言えることは、汚染防止委員会が訴えても有罪となるような事例が少ないという現状から見て、こうした監視制度がなければ、政策の実効性を確保することができないということである。そこで、汚染源となっているすべての主要な企業を測定や監視の対象とする必要がある。測定や監視制度の整備の次に、経済的効果のある汚染税を導入する必要がある。

工業国での経験によれば、企業は世論の圧力に反応する。人々の声を集めて企業に訴えるためにも、国民は情報を入手する権利をもたなければならない。すべての企業の廃水構成成分の測定結果を一般の人が入手できるようにして、大気汚染や水汚染をもたらしているのはどの企業か、またどの程度の汚染を引き起こしているのかを、国民が知ることができるようにする必要がある。社会的な圧力による環境質管理に成功した国のひとつにインドネシアがある（Box5参照）。

わが国の河川の水質を改善するには、大規模な汚染企業による汚染を防ぐほか、未処理のまま河川などに廃水や汚水を排出している小規模な企業や地方当局の下水に対する対策が必要となっている。小規模な企業は集団で移転させて、共同廃水処理施設の設置を義務づける必要がある。地方当局の下水処理も重要であり、代替策はない。水質の悪化が国民全体にとって甚大な損害であることを考えれば、下水処理への投資は経済的にも見合うものであり、地方当局や企業は下水処理を行う義務がある。

Box5: 社会的な圧力を利用した汚染管理:

インドネシアの PROPER プログラムとそのインドへの適用

インドネシアでは、企業の環境問題への取り組みが、企業の所在地域と地域の社会経済的な情勢に左右されている。BAPEDAL（インドネシア環境影響管理庁）は、企業による汚染削減を促進する目的で、PROPERと名づけられた先進的なプログラムを発足させた。このプログラムは企業の評価に5色の色分けによる格付けを提案した。法律の遵守度の高い順に金、緑、青、赤、黒と格付けし、赤が最高で黒が最低の遵守度を意味する。格付けは公表される。この色分け格付けにはいくつかの目的がある。まず、複雑なデータを単純な格付けに代えることで、多様な企業による水汚染の状況を比較できる。次に、最終的な格付けが分かり易いため、意味するところが一目瞭然である。このプログラムのもととなったアイデアは単純である：専門家以外の人々にも分かる形で汚染情報を提供し、メディアや世論の力に訴えてクリーンな産業の振興にあたるというものである。

1995年6月、その一部が初めて公開されたが、メディアの多くがその結果を報道した。金に該当する工場はなく、5工場が緑の格付けを与えられた。残り182の工場については、色による格付けの内訳だけが公表された。青が61、赤が115、黒が6であった。BAPEDALは、赤と黒に格付けされた工場に、1995年12月までという期限つきで改善命令をだした。命令に従わない場合には工場名と格付けを公表すると通達したため、10の工場が赤または青への格上げを、6ヶ月以内によく達成した。工場経営者とのやりとりその他の事実から、彼らが改善に踏み切ったのは、なによりも地域社会や市場からの拒絶反応を恐れたためということがわかった。1995年12月には全面

的な公表が実施され、各工場の色による格付け、工場名、所在地、役員、親会社が公表された。その後の1996年9月の評価では、さらに改善が見られた。

かなりの不遵守企業が、法律を遵守するようになった。1995年6月には、赤や黒の格付けの不遵守企業が全体の65%を占めていたが、1996年9月までに47%にまで下がった。さらに、同期間中に法を遵守する企業が50%増加している。

インドネシアの新しい汚染規制によって、地域社会、メディア、そして市場が一体となると、産業公害に対して強い力を発揮することがわかった。この成果に勇気づけられたBAPEDALは、2000年までに2,000の工場の格付けを実施する予定である。フィリピン、コロンビア、メキシコなど数ヶ国も同種のプログラムに着手している。これまでPROPERは主として大企業を対象としてきた。今後の課題は、一般に名を知られていない中小企業をこのプログラムの対象にすることであるが、実現できるかどうかは今後の問題である。また、貧しい地域ほど環境対策がおろそかにされていた。PROPERが効果的なのは、インドネシアでも豊かで教育程度の高い地域だけということだろうか。また、BAPEDALは、PROPERプログラムが新鮮さを失い、メディアが報道しなくなっても、効果を維持できるだろうか。

このアイデアをインドで生かすにはどうしたらよいか。株式市場を利用して、企業が環境面でのリスクを株主に報告するよう義務づけ、長期に渡って企業の環境対策に対する関心を持続させることはできるだろうか。もし可能であれば、プロジェクトの遅延ばかりか、環境上の理由から中止に至る事例も考えられ、会社の収益にマイナスになるだろう。このアイデアを実施するためには定期的な公認監査官(CEA)による環境監査が必要になり、それに伴ってマニュアルや研修プログラムも必要になる。

色による格付けの担当当局と汚染防止委員会は協力体制を築く。汚染防止委員会は技術や行政の面で権威ある組織ではあるが、残念ながら法律的な論争に終始し、格付け担当当局のように社会的な圧力で動くことができない。したがって、2つの機関は相互監視のもとに調査結果を確認し合うことになる。色による格付け制度と環境監査の一体化は可能だろうか。また、より重要なのはどちらだろうか。

農業による水汚染を減少させるためには、化学肥料の消費量を減らすことが必要となる。価格決定を適切に行えば、化学肥料がもっと効果的に利用されるようになる。しかしながら、最新技術が不要ということではない。例えば、総合的な害虫管理システムが推進されるべきである。環境に優しい農産物を扱う市場も創出できよう。化学肥料の利用とそれに伴う肥料の流出を減らすには、ミズ養殖や有機肥料が適当である。点滴灌漑による施肥は、水と肥料の使用量を最小限に抑えることができるとともに、効率の良い作付管理が可能になる。

最後に、都市部では自動車の排ガスを規制するため、特別の措置が必要となっている。運輸部門での適切な介入によって、全体の大気汚染レベルをかなり下げることができる。汚染レベルを引き下げる緊急的な措置もあるが、Box6に示すような長期対策もある。

Box6: 自動車汚染管理の対策

緊急措置

- ・ 都市部から年式の古い車輛を段階的に締め出す。
- ・ 自動車に触媒コンバーターを導入する。
- ・ 都市部全域で無鉛ガソリンを使用する。
- ・ ディーゼル車には、燃料消費税及び汚染税を課す。

長期対策

- ・ (燃費や排出削減のために)4サイクルエンジンを導入する。
- ・ 燃料の質を改善する。
- ・ 都市部公共輸送システムを改善する。
- ・ 適切な交通管理を踏まえた都市計画を行う。

大気や水質の汚染は、人々の健康に悪い影響をもたらしている。清浄化のコストはさほど大きくはない。清浄な空気と水は贅沢品ではなく、必需品である。大気と水の浄化を実現するためには、慎重な政策、情報への権利、住民参加などによって、大気や水を浄化しなければならない。

7. 水質管理戦略

社会経済的な活動は良質の淡水に依存しているが、日常的には水資源の開発がどれだけ経済生産性や社会の繁栄に寄与しているかなど考えることは少ない。インドでは、人口や経済活動の増大につれて、多くの地域が水不足に陥ったり、地域の経済発展に歯止めがかけられている。急増中の水需要のうち80－90%が灌漑用で、工業や家庭の用水としては20%未満である。有限で脆弱な資源である水を総合的に管理し、国の社会経済政策の枠組みのなかで各地域の水対策や計画を統合することが最優先課題となっている。各部門の政府機関が責任を分散して水資源開発にあたると、総合的な水管理にとって障害となる。総合的と呼ぶにふさわしい水管理のためには、実施や調整の面で効果的なメカニズムが必要となっている(UN-DTCD/IBRD/UNDP, 1991; UN-DTCD, 1991)。

有限資源である水の持続可能な管理にあたっては、計画と開発にかかるすべてのコストを認識する必要がある。計画に際して考慮すべきは、直接間接に生じるあらゆる種類の利益だけでなく、投資、環境保全、運営コストそして最も高くつく水の代替利用に要する機会費用である(Jyoti Parikh et. al, 1998)。ここでは、淡水質の管理戦略について検討を加える。需要の減少は将来の汚染減少につながるという観点から、需要管理戦略について議論している。さらに、コメント・アンド・コントロール、技術介入、財政的経済的な手法など多角的なアプローチを活用して、水の持続可能な供給、需要管理、水質管理を実現するという試みについても提案したい。

7.1 産業汚染管理

経済的手段

- ・ 新しい価格メカニズムによる水利用料の削減。
- ・ 処理施設への投資。
- ・ 汚染者源負担の原則の適用

- 水利用量より汚染の度合を重視した課税方式
 - 環境への影響を考慮した課税方式
 - EIAレベル(環境アセスメント)で、環境に与える影響を費用便益分析に含める。
 - 企業に環境監査を義務づけ、自主的な監視の促進により監視機関の負担を軽減する。
- ・ 公的な責任保険の範囲を拡大し、主な水汚染企業17も対象とする。
 - ・ 新規の事業所にクリーン技術、再利用、再生処理を義務づける。
 - ・ 上記以外の企業に対するクリーン技術導入の財政的なインセンティブを与える。
 - ・ 環境保全対策を実施する企業に高い格付けを与える。

7.2 家庭と農業の汚染管理

工業用水や廃水が典型的であるが、都市部では家庭や商業の利用によるものが中心である。農村部では、農業からのものの割合が高い。肥料や病虫害防除剤とともに、農業からの廃水が人の健康を害することがある。水汚染や下水の不備による健康への悪影響や、その結果生じる経済的な損害は深刻な問題となりつつある。

- ・ 一級都市における家庭用の上下水道や廃水処理事業に、民間部門の参入や官民の提携による参入を認める。二級都市については、活発な討議を行ったうえで期間限定のプログラムを実施する。
- ・ 従来の廃水処理の方法はコストが高いため、これに代る家庭廃水の生物学的な処理方法を開発する。
- ・ 排水基準など産業公害に対処する枠組みや公害防止局はあるが、家庭や農業に関連する汚染について対応する体制が整っていない。
- ・ 汚染源の特定が困難な家庭や農業からの廃水は表流水を汚染するばかりか、地下の帯水層に及ぶことがある。家庭下水についても基準を設ける必要がある。
- ・ 家庭や農業に関連する汚染を監視管理するために新しい制度的なメカニズムを確立すべきである。中央と州の汚染防止委員会の管理下におくか、あるいは既存機関(PWD、地方当局、パンチャヤート)などが運営にあたる。
- ・ 総合的な害虫管理制度を推進する。環境に優しい農産物専用の市場を設けることもできる。
- ・ 化学肥料の使用と肥料流出を減らすために、環境を傷つけないミミズ養殖や有機肥料を勧める。点滴灌漑による施肥を導入すれば、水と肥料の利用が最小限にとどめられ、効率的な作付管理ができる。

7.3 ステイクホルダーと外部性

水問題によって違った形でそれぞれの人達が影響を受けている。水は社会全体で利用されているため、紛争は後を立たず、その事情もさまざまである。環境経済学では、水量の減少や水質の悪化によって生じる影響/コストを算出することができる。これは利用者間の紛争の調停に役立つものとなる。持続可能性を実現するためには、地元コミュニティが水の保全に携わるべきであるとする考え方が現在主流である。これはNGOによっても支持されるもので、国連環境開発会議のリオ宣言のなかで環境保護における一つのアプローチとして盛り込まれたものである。伝統的な水保全の活動に効果は認められるものの、人口増大とそれに伴い拡大する経済活動によって、水資源にかかる負担も増大しつづけたため、失敗している。政府の介入などによる制度の手直しは、規制や経済活動に関わるものであったが、これも十分ではない場合が多かった。そこで、地

元コミュニティや地方政府が意思決定に参加すれば、水保全の活動の成功に貢献するものとなるであろう。

多様なステイクホルダーが直面している水問題は、水の市場の外部性のものである。このことは、水の価格に反映されておらず、被害を受けるステイクホルダーが問題の原因に関係しているわけではないことを意味している。環境への悪影響のなかには、健康被害、収量の減少、事業運転コストの高騰などがある。通常、汚染者と被害者とは別で、汚染者に報告の義務はないので、紛争はさらに多くのステイクホルダーのグループを巻き込むことになる。それによる影響を定量化したり、貨幣に換算し、これらを意思決定のなかに組み込むことも問題解決の一つの方法である。

7.3.1 住民の参加

- ・ 水質管理計画政策にコミュニティと農業団体の参加は欠かせない。これは、水の利用者が適切なレベルで公開討論の場を設けることで実現される。
- ・ 地方、地域、州、国のレベルでの意思決定に、すべてのステイクホルダーが意思決定に参加することが必要である。

インドネシアなどで成功した例にならい、社会的圧力を利用した水質管理を推進すべきである。

7.3.2 意識の啓発

- ・ 持続的で対象を絞ったキャンペーンを展開すれば、水管理への住民参加を実現することができる。住民すべてが対象であるが、なかでも女性、子供、農家、高齢者を重視する必要がある。

7.4 需要管理戦略

需要管理にとっての主要な問題点は、需要の競合から生ずる対立を克服し、水の乱用を最小限にして需要を減らすことである。需要管理の戦略では管理、技術、紛争解決そして価格政策を通して行われるべきである。

7.4.1 管理戦略

- ・ 物的資源の合理的な配分が、関係機関において採り入れられる必要がある—意思決定は、最適な便益配分を基準とする。
- ・ 作付パターン／作付密度や地域における企業用地の選定において、水の利用可能性による制約をもとに計画づくりが行われるべきである。

7.4.2 技術介入

- ・ 農業、工業、家庭といった競合部門における水の乱用や過剰利用を防止するため、大規模な技術介入が必要である。
- ・ 農業部門では、科学的に用水路の配置計画が策定されなければならない。点滴やスプリンクラー灌漑は、とくに水資源が乏しい地域で推進されるべきである。点滴やスプリンクラー灌漑は農業からの流出や水汚染を減少させる。
- ・ 工業部門では、効率的な水汚染防止技術の導入を義務づけるべきであり、特に新規の企業で

は必須とすべきである。古くからの企業には、水汚染技術を導入するようなインセンティブを与える必要がある。水を多く利用する企業には水の再利用と再生処理を義務づけ、その後、期間を決めてすべての企業にも義務づけるべきであろう。

- ・ 家庭では、水道管の適切な維持管理によって、漏水量を減らすことができる。節水器具の使用や節水キャンペーンによって、過剰使用を防止すべきである。
- ・ 家庭廃水が全体の約75%を占めることから、家庭廃水を農業や工業の用水として再利用したり再生処理するよう最大限の努力すべきである。農業や工業に配分される淡水を家庭用に転換して、家庭廃水を再生処理して農業や工業の用水に充てるなどして送水管理を適切に行えば、この目標を達成することは可能である。

7. 4. 3 価格メカニズム

水が社会経済的な資産であると認識すれば、需要削減のために水利用者にさまざまな形で賦課金を課すべきであろう。需要を削減するために、農業、工業、家庭の各部門における水利用者に適切な価格づけを適用すべきであろう。

すべての部門で、水利用量に応じた水料金を採用すべきである。水料金は資源の希少価値を反映したものとすべきであり、すべての機会費用と環境の外部費用を含んだものでなければならない。

8. 結論

すべての町に上下水道と下水処理工場を整備するにあたっては、地方の電化にあたる場合と同じような努力が必要となる。

汚染防止委員会は、設備の整った汚染計測所を設置したり、汚染物質測定のための自動車を用意するなど、技術面での充実を図る必要がある。体系的な取組みが不可欠となっている。

- ・ 資金面では、近代的な設備や訓練された人材をもった望ましい組織がこれを支援する。
- ・ 管理面では、責任をもった訓練と促進の協調作業の文化がこれを可能とする。
- ・ 法律面では、柔軟性なガイドラインによる汚染管理についての十分な権限を与える。
- ・ データの回収と監視の多様性を合理化する。

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コメント

ビシュヌ・バンダリ

1. 考察

ジョティ・パリキ先生、タタ・ラグ・ラム先生、クリット・パリキ先生による論文は、環境システムの保護をインド政府に義務づけている憲法の再検討から始められている。この条項を解釈している部分では、インド政府は環境や汚染に関する75以上の関連法を公布し、また環境管理や戦略計画を実施する制度を設けている。これらの法律は、危険な事故に対する強制的な予防措置から、生物多様性の保全にまで広がっている。さらに政府は、産業界に対して、減価償却など財政的インセンティブや、ソフトローン、汚染防止装置の設置、指定装置や汚染削減についての租税軽減、下水や廃水の処理設備への水税の割り戻しといったことを規定している。5か年計画によると、政府は環境と経済に対する関心事と開発計画とを統合している。こういったコマンド・アンド・コントロールの方法があるにもかかわらず、環境の状態は国全体において悪化してきている。大気や水の汚染は、都市において激しく増大している。特に大都市においては、森林は明らかに減少し、人為的改変を受ける危機に瀕しており、また豊かな多様性に支えられている森林は重大な脅威の下にある。薪炭や資材としての木材に対する高い需要、人口と家畜の増大、不十分な保護策、森林地帯の非森林利用への転換、環境法実施の欠如、実施機関の職員数の不足、環境基準の実施に費用がかかることなどによって、森林枯渇が進行している。この論文は、生物多様性の保全、大気汚染、水汚染に関する問題について焦点をあてている。

- 1) 生物多様性の保全: 441個所の野生生物保護区や80個所の国立公園がインドの面積の5%を占めているにもかかわらず、この論文では、それらを取り巻くコミュニティが保護区(PA)を野生生物略奪の拠点だと今なお理解しているという点を論じている。彼らは「社会全般が保全によって生じる利益に恵まれる一方で、それを取り囲む地方のコミュニティはそのコストのすべてを負う」と論じる。しかしながら、環境開発、エコツーリズム、公園利用者プログラムや緩衝地帯の管理といった最近の展開は、地域の人々の保護区や野生生物保全に対する態度を転換させるのに効果的である。
- 2) 大気汚染: 都市や屋内における大気汚染の問題はインドにおいて深刻な関心事である。インドの都市の多くでは、浮遊粒子状物質(SPM)の平均値がWHOの標準よりも高いことがしばしばある。それは健康、経済活動、資源被害、自然災害の危険性の増大に直接影響を与える。女性と子どもは、日常発生している汚染の沈黙した被害者である。この論文は、都市から古い乗用車の段階的削減、グリーン産業に対する高い信用付与、国内の排水に対して生物学的な扱いなどをすること、などを提案するものである。しかしながら、代替策の無いまま車両の段階的削減を政治経済の問題に含めることは、これらの車両が輸送の最も迅速な手段であり続けてきた以上、深刻な社会問題を引き起こすであろう。
- 3) 水汚染: 量質ともに新鮮な水を利用できることは、国家的な課題である。水の供給は、急速な工業化、人口増加、農業排水によっても被害を受けやすい。水の過度の使用は、国内の多くの地域で地盤沈下を引き起こしている。論文では、灌漑に雨水を利用すること、水利用を少なくするためのキャンペーン、小さな洗面所の利用、消費量の割り当て規制、過度利用への制裁

と水使用を削減する装置の使用を提案している。水と植物連鎖システムにおけるグリーン革命の消極的な影響は、同程度注目に値する。この論文は、環境にやさしい実践とエコ農業の推進を提案する。採用されている環境にやさしい農業実践は、環境保護にとってもっとも良い方法である。しかしながら、外部からの援助なしには灌漑に雨水を利用するシステムへの転換は極めて困難であろう貧しい農家について、考える必要がある。評価したいポイントのもう一つは、人口成長のニーズを満たす科学技術の能力と、それから有機栽培作物の一般者の入手可能性である。

前述のインドにおける環境のシナリオは、主に3つの疑問を投げかけている。3つの疑問とは、すなわち資源の持続的利用に関してである。

- コミュニティはどのようにして地下水や森林といった一般資源の過度の利用を削減することができるのか。
- 大気汚染によって他の地域にどの程度の被害をもたらすのか。
- コマンド・アンド・コントロールのシステムは、環境の保護にとって効果的なのか。

2. 将来の方向性

筆者らは、「環境ガバナンス」が広範にわたる用語で、その用語の中に地球、大気、水、森林、エネルギー、生物多様性などといった環境資源の管理を含めるべきであると示している。「環境ガバナンス」は、需要と供給の問題から、利用者、規制者、供給者、政策決定者などといった人達を指揮するマネジメントの質までも問題に含めるべきである。なぜならば、環境ガバナンスは、環境問題が社会においてどのように管理されるかということと深く関わっているからである。Onchan (1999)は、「ガバナンスとは、伝統、慣習、どのように権力が行使されるか、どのように重要な決定がなされるか、そしてどのように多様な関心が、意志決定過程において一致していくかを定義する過程を含める」と指摘する。Kato (nd)は、ガバナンスはフォーマルな慣習とインフォーマルな慣習の相互作用に関係し、プロセスとともにアクターをも含めると述べる。環境ガバナンスが複雑で広い範囲を持っているために、それは思慮深い方法で促進される必要がある。環境ガバナンスの促進に対する私の考えは、簡単に書き留められる段階にはない。私は、これらの指摘が環境ガバナンスプログラムの成否の鍵を握っているといつてよい。

- 1) 「グローカリー(**glocally**) に考える」: グローカリズムのコンセプトは、主として「地球規模で考え、地方で行動する」という一般的なスローガンから派生したものである。それは地球の地域化を意味する。Hempel(1996)はこう考える。「エコロジーと政治経済学(国境を越える貿易と投資の広がりなど)におけるグローバルチェンジは、権限の地方分権化推進と、国民国家の権限縮小と、ガバナンスの超国家的、地域的・地方的なレベルへのより大きな依存への始まりである。環境志向の新しい世界秩序はおそらく、状況を設計した結果、または状況によって強いられた結果として現れる。その政治的組織の特徴は、『グローカル』であろうし、すなわちそれは、危機にある生物圏と、世界市場の膨張によって傷められた経済のグローバルとグラスルーツとの相互の関わり合いを反映する二元的特質である。適当な『グローカル』な政治的秩序を構築することは、21世紀における環境ガバナンスの中心的な仕事である。」国家の枠組みを超えた権力や権威について語る時、その国家の枠組みを超えたレベルでの環境ガバナンスの柔軟な機能を確実にするような、新しい組織の枠組みについて考える必要がある。
- 2) 環境教育の促進: 現代の環境問題は、人類の干渉による結果である。人類の行動を転換あるいは修正し、これらの問題を軽減する必要がある。環境教育は、人々の関心、知識、態度、

技能、そして社会への参加において、望ましい変化をもたらす中心的な役割を担う(Bhadari, 1999)。そのため、教育は環境ガバナンスの促進を強めるものであるべきである。筆者らもまた、環境問題を改善するための関心と研修の重要性を強調している。

- 3) 政府と市民社会との間におけるパートナーシップの促進: 環境ガバナンスはプロセスと同時にアクターによって構成されるので、政府と市民社会との間のパートナーシップを促進することが決定的に重要である。政府と市民社会はお互いに敬意を表することができ、また改善施策の重複や分裂を避けることができる。
- 4) 参加型管理の促進: 社会の構成者間における定期的な対話と意見交換は、環境ガバナンスを促進するのに絶対的に重要である。これは、積極的かつ情報に通じたステイクホルダーの参加を促進し、信頼と自信を伸ばすのに役立つだろう。ひとたび信頼が形成されたなら、参加は必然的に自然に発生する。

・政策的意図と決定の提示: 健全で持続的な環境の発展は、しっかりとした政策的意図と決定とが無いことには達成することはできないし、それにはプログラムやプロジェクトの成功の秘訣といったものを含む。関連機関は、それぞれの政策的意図や決定を提示するべきであるし、それは言葉で表すだけでなく、行動によるものである。

最後に、インドにおける環境ガバナンスについての論文の筆者達に御礼を申し上げる。このワークショップでの討論が、環境ガバナンスプロジェクトが当該地域内で研究にとって堅実で現実的な枠組みを発展させるのに十分な基礎を与えることを期待するものである。

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討議の要約

1999年3月18日に「アジアの環境ガバナンス・国際ワークショップ」が開催された。財団法人地球環境戦略研究機関(IGES)の主催によって開催されたこのワークショップでは、中国、日本、タイ、そしてインドの環境ガバナンスについてのカンタリー・スタディの報告がなされた。数多くの国々から、次のような環境分野の専門家が参加された: 司会進行の加藤久和教授(名古屋大学、日本)、ミランダ・シュロース博士(メーランド大学、米国)、周新氏(国家環境保護総局/環境経済・政策研究センター、中国)、加藤峰夫博士(横浜国立大学、日本)、パカティップ・チュンピバット氏(タイ環境研究所、タイ)、ジョティ・パリキ教授(インディラガンジー開発研究所、インド)、神野健二教授(名古屋大学、日本)、ジェームス・ニッカム博士(東京大学、日本)、百村帝彦氏(IGES、日本)、ビシュヌ・バンドリ博士(IGES、日本)、サントシュ・シャーマ氏(デベロップメント・オルタナティブズ、インド)、そして、原嶋洋平博士(IGES、日本)。

このワークショップには約70名の参加者があり、活発な討議が行われた。

このワークショップにおける討議によって、アジアの4か国における環境ガバナンスについて得た結論は、次のように要約することができる。

- 1) アジアの4か国では、環境ガバナンスについて数多くの望ましいトレンドを見出すことができる。特に、1970年代、そして再び1990年代に、環境法が強化されている。環境分野で新しい数多くのアクターが出現しており、地方、国内、アジア地域の各レベルで環境問題への意識も向上してきている。
- 2) これらの国々では、依然として、環境政策の形成と政策実施がトップダウンによるものが多い。しかし、各国で、地方政府や市民社会の役割が徐々に拡大しており、環境政策のプロセスの多元化が進んでいる。非公式で、コミュニティを基礎とし、NGO主導による環境問題の解決策が必要であり、地方の状況を考慮に入れるために環境政策のプロセスにおける住民参加が強調されるべきであることが認識されるようになっている。
- 3) アジアの4か国では基本的な環境情報とその公開の必要性を重視している。これらの国々では、環境影響評価(EIA)制度が導入されており、EIAの改善が環境情報の公開に貢献するものとなるであろう。さらにアジアの発展途上国では環境モニタリングが不十分であり、このことが効果的な環境政策の実施にとって大きな問題となっている。
- 4) アジアの4か国では、依然として、環境政策は経済計画のプロセスと分離されたままであることが多い。経済計画に環境問題を統合して考えていくことが必須となっている。これを実現するために重要な課題として、各国で、経済的/財政的な手法を環境保全のために活用すること、そして省庁間の協力関係を構築することが挙げられている。
- 5) これらの国々は、環境ガバナンスにおける産業界の役割が増大している。特に、小規模な企業が環境汚染の発生源となってきている。小規模な企業による規制遵守の問題について注意を払う必要がある。アジアの発展途上国では、小規模な企業によるクリーン技術の導入が推進されるべきである。

これらの結論に関して、ワークショップの参加者は、アジア諸国における環境ガバナンス・メカニズムのより詳細な分析が必要であることに同意し、こうした分析が地方的／準地方的な環境分野の制度的な対処能力の向上に寄与するものであることも認識した。このことは、アジア地域の多様性と解決すべき環境問題を理解するうえで重要なことである。

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Environmental Governance in Indonesia

FX Endro Susilo and Hyronimus Rhiti

1. Broad Introductory Overview

1.1 History of Environmental Protection in Indonesia

Indonesian environmental awareness has not come up until 1973 when, for the first time, environmental policy was incorporated in its guidelines of state policy.¹ Before 1972 environmental issues were not addressed either in national or local level. The emergence of national environmental policy was much influenced by the outcome of the 1972 Stockholm Conference on Human Living Environment. In preparing national report on environmental problems for that conference, there was national seminar held in Bandung, and Mochtar Kusumaatmaja, one leading legal expert in Indonesia, presented the paper entitled “Regulating Environmental Affairs: Thoughts and Recommendations”. He was then often regarded as the first legal expert who triggered the commitment for environmental protection.²

The administration of Indonesian government shall, according to the 1945 Constitution, be based upon the guidelines of state policy set forth by the highest state institution called the People’s Consultative Assembly. The state policy is further elaborated in the 5-year term Development Plan set forth by president as the head of executive branch. The environmental policy as stipulated in the 1973 Guidelines of State Policy read as follow:

In the implementation of development, Indonesia’s natural resources should be rationally utilized. The exploitation of these natural resources should not destroy the human environment and should be executed by a comprehensive policy, which takes into account the needs of future generations.

Environmental policy was then always provided in the following guidelines of state policy. During the 1979-1984 administration based upon the 1978 guidelines of state policy, the State Ministry for Development Supervision and Environment was established, and the Act no 4 of 1982 on the Environmental Management (hereinafter called EMA) as an “umbrella” for regulations related to environment was promulgated. Since its promulgation, Indonesia has taken an integrated approach, rather than a fragmentary one, in dealing with environmental problems. However, due to some weaknesses of its provisions and enforcement, and in anticipating more various and serious environmental problems in Indonesia, the Act no 4 of 1982 was later replaced with the Act no 23 of

¹ GBHN (Guidelines of State Policy) 1973.

² Koesnadi Hardjosoemantri, *Hukum tata lingkungan*, Gadjah Mada University Press, Ed. Ke 6, Cet.

1997. The old EMA was often criticized as less operational since many of its implementing regulations were not yet promulgated. Based on the old EMA, only few environmental cases were brought before courts since there were difficulties in proving the causation. In civil procedure, the victims tended to be disadvantageous since the burden of proof was placed on them. In this regard, the legal principle applied in civil procedure is “liability based on fault.”³ Fault is the constitutive for liability.

In the middle of 1997 Indonesia encountered with serious economic and political problems, and it was getting worse related to the forced resignation of Soeharto administration on May 21, 1998 due to the increasing reform movement pioneered by university students across the nation. The Habibie administration, the successor of Soeharto, was, in general, regarded as temporary government, and people were still waiting for the definitive and legitimate one. The current government under Abdurrahman Wachid resulting from the mostly-regarded democratic general election in 1999 has widely been regarded legitimate.

During the serious economic and political problems starting from 1997 when Central Bank (Bank Indonesia) changed its policy to float Indonesian currency (Rupiah), public attention focused on how to get out of the severe crisis since most Indonesian people had suffered from it. Meanwhile, the environmental issues were not addressed vigorously though the new EMA of 1997 had been promulgated.

1.2 Legal Aspect of Environmental Protection

The promulgation of EMA 1982 as further replaced with EMA 1997 was aimed at providing environmental quality and society with legal protection. According to Article 5 of EMA 1997, every person is entitled to healthy environment. Besides, EMA 1997 also guarantees the existence of right to access of environmental information and right to participate in environmental management. Since regarded as subjective rights, those rights grant a legal claim to the individual to have his or her interest in a decent environment respected. The claim related to injuries in environmental cases covers rights to monetary compensation and rights to having the damaged or polluted environment restored and improved.

Rights to monetary compensation are granted to individual victims based upon the “liability based on fault” principle, while rights to have the polluted environment restored and improved also called rights to demand the performance of an act to restore, preserve or improve the environment) are granted to government which is represented by district attorney in a civil case,⁴ and Environmental NGO (now, according to EMA 1997, called Environmental Organization). The standing of NGO in environmental

Ke11, Yogyakarta, p. 32.

³ Article 1365 of Indonsin Civil Code.

⁴ Article 27 (2) Act no 5 of 1991.

cases has now been legally recognized.⁵ All the claims will be examined by district courts based upon the liability based on fault principle.

Since “fault principle” as stipulated in Article 1635 of Indonesian Civil Code shall be used in environmental disputes while environmental disputes are always concerned with two different parties, that are, business activities with stronger socio-economic position and common people with weaker socio-economic standing, courts’ rulings will have tended provided victims (as well as environmental quality) with less sufficient legal protection. The consequence of fault principle is that plaintiff has to bear the burden of proof of causation. And since scientific proof related to environmental cases has proved to be a complicated problem for environmental disputes settlement through courts, common people as plaintiffs have proved to be in a more disadvantageous situation.

Weaknesses of fault principle have made EMA 1997 introduce some breakthroughs in dealing with environmental disputes, that is, among others, the implementation of “strict liability” principle. An importance feature of strict liability principle is the absence of the requirement of fault. What the plaintiff shall prove is only the causation of damage.

Another important factor related to the doctrine of strict liability is the burden of proof. The universal principle, commonly called liability based on fault principle, places the burden of proof on the plaintiff, and plaintiff shall prove the defendant’s fault. The strict liability principle, on the other hand, does not put the burden of poof of fault on the plaintiff. Plaintiff will only prove the causation of damage. And if the defendant wants to be freed from liability, he or she shall prove that the fault is not on his/ her hand; instead, it shall be proved on someone else’ hand.

1.3 Environmental NGO

Environmental NGO was recognized by EMA 1982. It was regarded as government's partner in environmental management in Indonesia. As a result, Environmental NGO developed, and environmental awareness pioneered by Environmental NGO-s was on the rise. They were coordinated in a forum called WALHI (Environmental Forum in Indonesia). However, in its development, Environmental NGOs have tended to be regarded as the strong critics against the government's policy. Therefore, when EMA 1982 was replaced with EMA 1997, some changes concerning Environmental NGO-s were obvious. Under EMA 1997, the name of Environmental NGO has been changed into Environmental Organization. The term “non-government” which has, so far, been considered being opposition against government has been omitted. In addition, to establish Environmental Organization, three requirements, shall be fulfilled, namely:

1. It shall be taking the form of legal body.

⁵ Article 38 of the 1997 EMA.

2. Its statute shall stipulate that the main focus is concerned with environmental conservation.
3. It shall be proved that it has worked out its duties as stipulated in its statute.

The most controversial requirement is the requirement number 3 since the existence or recognition of Environmental Organization has been drafted to be dependant upon the entity outside the organization. For instance, Environmental Organization files a lawsuit against a polluting company before court. In that case, if the court denies the fulfillment of requirement number 3, its lawsuit will be rejected by the court. Therefore, provisions concerning Environmental Organization have strongly been criticized by Environmental NGOs. Criticism was also staged during its process of promulgation, since the process was not considered transparent.

Apart from the above-mentioned criticism, the EMA 1997's provision related to Environmental Organization can also be regarded a progress since its standing to sue is now legally recognized. Before the enactment of EMA 1997, its standing to sue was still debated. EMA 1982 did not expressly recognize it, so there was debate among legal practitioners and theorists when there was a case filed by an Environmental NGO. According to EMA 1997, Environmental Organization has expressly been recognized to have legal standing in environmental cases. However, its legal standing is limited to claim for environmental restoration or conservation, and it does not cover monetary claims.

1.4 Environmental Impact Statement (EIS) and Industries

Environmental protection related to industrialization was, for the first time, introduced by government by enacting Governmental Regulation no 29 of 1986 on EIS to be effective a year later. In order to adjust to the existing environmental problems, this regulation was then replaced with Governmental Regulation no 53 of 1991 on EIS. And again this regulation was replaced with Governmental Regulation no 27 of 1999. However, the latest regulation is not effective until the end of year 2000.

According to the existing governmental regulation (no 53 of 1991), every plan, which is considered likely to have a significant impact on the environment, shall be accompanied with an analysis of environmental impact. The EIS shall be made to apply for business permit. EIS is therefore aimed at preventing in early stage the possible pollution or environmental damage. As one of environmental policy instruments, EIS is basically, an administrative measure to prevent and control pollution or environmental damages, and this instrument is made part of the permit system.⁶ Problems related to industries' activities and EIS have lied on the enforcement level. EIS has often been criticized as a mere formality or administrative requirement. In many cases, EIS was only produced after decision on certain programs or projects was already made.⁷ It has, therefore, been proved that an industry,

⁶ Siti Sundari Rangkuti, *Hukum Lingkungan Dan Kebijaksanaan Lingkungan dalam Proses Pembangunan Hukum Nasional Indonesia*, unpublished dissertation, Universitas Airlangga, 1987, p. 85.

⁷ Otto Soemarwoto, *Analisis Mengenai Dampak Lingkungan (Environmental Impact Statement)*,

though having been granted business license when its EIS has been regarded feasible, could cause serious environmental problems during or after its operation. In this regard, there has been dilemma related to the permit system; on one hand, permit system has theoretically been admitted as a government's legal instrument to prevent environmental problems, but on the other hand, permit system has commonly been used as a source of income. As a result, there has been strong tendency of violations related to the function of permit system. Legal enforcement with regard to licensing system should therefore be seriously taken into account to put the permit system on its right direction.

1.5 Environmental Institutions

During the 1979-1984 administration based upon the 1978 Guidelines of State Policy, the non-portfolio Ministry of Development Supervision and Environment was established. It was the first national-level institution assigned to deal with environmental problems though the focus on the environmental issues was not clear. In order to make the focus of environmental issues clearer, the Ministry of Environment and Population then dealt with the environmental issues during the 1984-1989 and 1989-1994 administration since it was convinced that environmental issues were closely related to population problems.

However, during the 1994-1999 administration, different ministries dealt with population issues and environmental issues. The Ministry of Population dealt with population issues, and environmental issues were placed within the authority of the Ministry of Environment. And it remained the same during the transitional government under President Habibie following the forced resignation of Soeharto administration on May 21, 1998.

Until the formation of new legitimate government following the June 7 1999 general election, environmental issues are still dealt with by the Ministry of Environment. Under Abdurrahman Wachid administration, environmental issues remain within the authority of the Ministry of Environment, which has coordinative function.

In addition to the Ministry of Environment, another institution called BAPEDAL (Environmental Protection Agency/EPA) was established in 1990 based on the Presidential Decree no 23 of 1990 which was twice amended by the Presidential Decree no 77 of 1994 and no 196 of 1998. EPA is a non-department agency assisting and being responsible directly to the president in the prevention and control of environmental impact. Due to the width of Indonesian area, three Regional EPAs (called BAPEDAL WILAYAH) aimed at assisting EPA have also been established.

In local government level (provincial and regency/mayorality), the establishment of Local EPAs was recommended by the Presidential decree no 196 of 1998. Provincial EPA, called BAPEDAL

Gadjah mada university Press, Yogyakarta, 1997, p. 57.

DAERAH, is an institution assisting and being responsible for the governor in the prevention and control of environmental impact in the provinces, meanwhile, the regency/mayorality-level EPAs have not, so far, been established. The provincial-level EPAs has been established gradually in each province since it was dependent upon the readiness of the available budget and sufficient human resources. The establishment of a new agency in local government requires budget, and the economic capability of each provincial government (as well as regency/mayorality level) has proved various. The fact has shown that most provincial-level EPAs was only transformed from the previously existing environmental issues-related bureaus in provincial governments.

1.6 Responses to Global Environmental Problems

The development of environmental policies and regulations in Indonesia has been triggered by the outcomes of the 1972 Stockholm Conference on Human Living Environment which was followed by the subsequent conferences such as Nairobi of 1982 and Rio of 1992. Realizing that environmental problem has no boundary, Indonesia has also responded international measures in dealing with global environmental problems. Indonesian government has ratified several important international and regional conventions such as the 1992 Climate Change Convention, the 1992 Biodiversity Convention, Basel Convention of 1989 on the Control of Hazardous Wastes Movement, CITES of 1973, Civil Liability Convention of 1969, the 1995 Treaty on the Southeast Asia Nuclear Weapon Free Zone, etc.

2. Contextual Overview

2.1 Economic Conditions

Economic crisis in Indonesia came to surface around July 1997. Early July conversion rate of rupiah to US Dollar was at around Rp 2,400. The rupiah further plunged when floating rate system was applied to replace the previous fixed rate system, and the conversion rate once even hit the Rp 16,000 line per US dollar. It further caused serious government and private sectors' debt. According to President Habibie's accountability speech addressed before General Assembly Session on October 15, 1999, the Indonesian debt amounts to \$ 149 billions consisting of \$ 81,5 billions private sector and \$ 68,4 billions of government's debt. The prices have soared to the sky and inflation rate has skyrocketed to the unbelievable line. Interest rate soared to 70 %.⁸

The economic crisis was also intertwined with political instability. The existing government began to lose people's confidence. Reformation movement pioneered by university students across the nation strongly pressured the existence of Soeharto administration, and it culminated on May 21, 1999 when Soeharto had no choice but to resign, and Habibie, the then vice president, replaced him. During Habibie administration, often considered as transitional government, economic crisis as well as political

⁸ Kwik Kian Gie, KOMPAS Daily, October 18, 1999, p. 3.

instability remained.

The severe economic crisis has inevitably forced Indonesia to propose bailout program by IMF. IMF based on Letter of Intent approved the US \$ 43 billion bailout program. However, the involvement of IMF in getting Indonesia out of severe economic crisis caused heated argument in Indonesia.

Various arguments and criticisms were often staged against the bailout program. Some critics said that the IMF did not get Indonesia out of the crisis. It is necessary to note that the bank liquidation as one condition required by IMF further caused socio-economic and political problems. Lying off level was high, it increased unemployment rate from 13.7 millions to 60.76 millions.⁹ It further resulted in protests, mass demonstrations, sometimes accompanied with riots, in many places.

In addition to the severe plunge of rupiah, there was no confidence by foreign or domestic investors due to the unpredictable political instability, and it further caused the economic crisis worse. In this regard, it should be noted that during 1998, the economic growth was minus 13.4%.¹⁰ Lying off took place everywhere. The number of people living under poverty line significantly increased.

2.2 Social Condition/Demography

The number of Indonesian population now is over 210 million. The Indonesian population is expected to increase though the population growth declines. In the year 2010, the population is predicted to reach 233-235 millions.¹¹ In order to seriously deal with population problems, the Ministry of Population was established in 1998. Programs designed to restrain population growth are concerned with family planning and transmigration. Due to the severe economic crisis, the number of people living below poverty line has increased from 30 millions to 136.91 millions or 66% of Indonesian population.¹²

3. Current State of Environmental Governance Mechanism

Indonesia, according to the 1945 Constitution as amended in 1999, is a unitary state taking the form of republic. There are five high-rank state institutions that are, Presidency, Supreme Court, Audit Agency, Supreme Advisory Board, and People's Consultative Assembly as the highest state institution. As unitary state, the Indonesian government is divided into Central Government and Local Government consisting of Provincial Government and Regency/Mayoralty Government. Indonesia had 27 Provincial Government, but since the August 30 ballots concerning East Timor, the youngest Indonesian Province (East Timor Province) is no longer part of Indonesian Government.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Agenda 21 Indonesia, Strategi Nasional Untuk Pembangunan Berkelanjutan, p.75.

¹² Kwik Kian Gie, op cit.

3.1 Central Government

3.1.1 Government's Roles in Environmental Governance

The Ministry of Environment coordinates environmental management in Indonesia. The main duties of that ministry are as follow:

- a. Formulating government policy on environmental management
- b. Coordinating and improving the cohesiveness of agenda setting on environmental management among departments, non-department state institutions, local governments, society, and business sectors
- c. Upgrading the operational works of EPA
- d. Improving public participation in environmental management
- e. Providing the president with reports, suggestions and recommendations
- f. Implementing other duties further assigned by the president

In addition to Ministry of Environment, there is Environmental Protection Agency (EPA) established based on Presidential Decree no 23 of 1990 as amended by the Presidential Decree no 77 of 1994, and further replaced with the Presidential Decree no 196 of 1998 aimed at improving the roles of EPA. As earlier mentioned, EPA is a state institution directly responsible for president in the prevention and control of environmental impact.

The question commonly raised has been concerned with the independency of EPA since it is established based only on presidential decree, instead of statute/act which involves the House of Representative. In its development, EPA has been assisted by three Regional EPA located at Makasar, Denpasar, and Pekanbaru.

3.1.2 Policies and Measures in Anticipating Pollution Problems

The policies on environmental management has been reiterated in the recent Guideline of State Policy (1999-2004), and as its consequence, it binds the government in designing and implementing the environmental management programs.

The structure and role of EPA have been improved to prevent and control environmental impact more effectively. Besides, in anticipating pollution problems, the government has taken measures as follow:

- a. Improving the use of technology in preventing and controlling pollution, and it is required for activities having significant impact on the environment
- b. Setting environmental quality standards

- c. Applying incentives in the prevention and control of pollution problems
- d. Requiring activities having significant environmental impact to make Environmental Impact Statement (EIS)

3.1.3 Measures to Conserve Natural Resources

The Act no 5 of 1990 on Conservation of Natural Resources and Ecosystem was promulgated to regulate the protection of life-supporting system, conservation of biodiversity, and sustainable use of natural resources. Sustainable Development has been made a principle governing the exploitation of natural resources. In this regard, permit system was one of the keys in conserving natural resources. EIS has been required for business activities potentially causing pollution or environmental damages in applying for their business permit.

3.1.4 Measures to Respond Global Environmental Problems

In response to global environmental problems, Indonesia has participated in environment-related conferences and ratified some important global and regional conventions. National regulations were further drafted and enacted to implement the international convention related to environmental protection.

3.1.5 National Agenda 21

Following the Rio Conference, Indonesia has set forth its National Agenda 21 on National Strategy for Sustainable Development. In its Agenda 21, Indonesia has determined four major programs, namely public services, waste treatment, management of resources, and management of natural resources.¹³ The National Agenda 21 has been made the basis for designing the Local Agenda 21. The implementation of National Agenda 21 is expected to comprehensively reduce environmental problems in the future. The problem related to National Agenda 21 is that the agenda was not granted a legal basis. It is just a program. Legally speaking, it is not binding.

3.2 Local Government

With the promulgation of the Act no 22 of 1999¹⁴ on Local Government, the government has placed the focus on local government autonomy, including wider autonomy related to environmental management in provincial and regency/ mayoralty levels. Local governments have been granted more autonomy in conserving their natural resources. Before the enactment of that statute, the government/ administration was more centralized and local governments had only limited autonomy, including that

¹³ Agenda 21 Indonesia, op cit.

¹⁴ The implementing regulations of the Act no 22 of 1999 are needed to make the act operational

related to environmental management.

3.2.1 Policies and Measures in Dealing with Pollution Problems

Each local government (consisting of provincial and regency/mayorality levels) has its own policies and measures in dealing with pollution problems dependant on its own geographical condition, human resources, economic capability, and pollution level. However, local governments shall base their policies on national policy and regulations.

Local governments also have environment-related institutions, including Local EPAs as recommended by the Decree of Interior Minister no 98 of 1996, and pollution-controlling team responsible for the governor (in provincial government) or mayor/regent (in mayorality/regency government). The establishment of provincial EPAs has proved to be gradual dependant upon the availability of budget, and sufficient human resources. In this regard, the fact has also shown that the economic capability of each provincial government is not the same. This was the reason why the establishment of provincial EPA in one province was earlier or later than the one in another province.

3.2.2 Measures to Conserve Nature

The key in conserving nature is also placed on the local governments, since nature and natural resources, such as forest, minerals, etc are located within the local governments concerned. With the promulgation of the Act no 22 of 1999, the autonomy of local government was made broader.

The establishment of provincial EPAs was aimed at coordinating all institutions related to environmental issues in provincial government. Report on the condition of provincial-level natural resources has also been released periodically.

3.2.3 Response to Global Environmental Problems

Since Indonesia is a unitary state, response to global environmental problems is conducted by the central government. Local governments focus more on there own environmental problems based on national policy or national-level regulations which are further implemented through provincial or regency level regulations.

3.3 Business Sector

3.3.1 Industrial Attitude toward Pollution Problems

Pollution is partly caused by industrial activities. Pollution abatement programs were introduced through incentives and command and control approaches. Industries were forced to abide by the

environmental quality standard through the requirement of EIS, which is part of the permit/licensing process. However, there have been strong criticisms towards the implementation of EIS since it is often regarded as a mere administrative requirement. Voluntary approach such as incentives, eco-label certification or ISO 14000 certification on Environmental Management System has pushed industries to abide by the existing environmental regulations.

3.3.2 Participation in Nature Conservation

Commitment to nature conservation by industries is committed through permit system since EIS is a part of the licensing process. For examples, forestry concession or mining concession holders shall produce EIS and fulfill other environment-related requirements. In this regard, the Decree of Environmental Minister no 39 of 1996 has set forth the list of activities required for producing EIS. Nature conservation has also been pushed by the incentive policy although it has proved unsatisfactory since its implementation has not yet got full support from public. Environmental movement was not strong enough to control the implementation of incentive policy.

3.3.3 Response to Global Environmental Problems

Response to global environmental problems by industries can be seen through the promotion of eco-label certification or ISO 14000 certification program for oriented-export products. There were mixed responses, some tend to be indifferent since they questioned the value of ISO 14000 certification, and some responded positively since they were aware that without ISO 14000 certification, they would lose chances of competition in global market.¹⁵ The number of business activities having ISO 14000 certificate was no more than twenty-five. However, ISO 14000 certification program has pushed export-oriented business activities to a bide by the environmental regulations or environmental quality standards since international trade has also been driven by pro-environment consumers. It was different from the situation in Indonesia where the environmental movement was not strong enough.

The problem raised is that public participation has tended to be placed on the implementation level only, not covering the planning or evaluation stages. The involvement of public in those three levels of participation in environmental management will provide people with more protection, and it will also help people to comply with environmental regulations.

3.4 Environmental Organization

As earlier stated, the term “non-government” in Environmental NGO has intentionally been omitted in EMA 1997 due to the image that NGO has often been regarded as a strong critic against

¹⁵ H. Bambang Hadiwardjo, ISO 14001, Panduan Penerapan Sistem Manajemen Lingkungan, Gramedia Pustaka Utama, Jakarta, 1997, p. 43.

government policy. To establish environmental organization, three requirements shall be fulfilled, not like the establishment of Environmental NGO that did not require certain qualification. This issue caused heated argument during the drafting of EMA's provisions related to environmental NGO.

However, the progress has also been made by EMA 1997. Environmental Organization has expressly been granted standing to sue though it is only limited to environmental conservation purpose. It is not entitled to sue for monetary compensation.

4. Case Study

4.1 Forestry

4.1.1 Policy and Regulations on Forestry

Indonesia is a thirdlargest tropical Forest State after Brasilia and Zaire. Forestry management in Indonesia was based on three principles, namely social welfare, economical benefit, and sustainability.¹⁶ Department of Forestry and Plantation have dealt with forestry management. In provincial levels, there are forestry agencies responsible for governors in forestry management.¹⁷ Forest is categorized into four categories, that are, reserved forest, production forest, protected forest and tourism forest. Forestry concessions were granted only for production forest.

Forestry management is regulated by the Act no 5 of 1967 concerning Forestry as further amended by the Act no 41 of 1999, and various implementing regulations.

4.1.2 Implementation and Problems

Department of Forestry and Plantation conduct implementation of forestry management. This department has the authority to set forth national policy on forestry, including the granting of forestry concessions.

The recent serious problems related to forestry are forest fire mostly in Sumatera and Kalimantan during 1997 till middle 1998 due to mismanagement by the concession holders.¹⁸ Two million hectares per year have reduced Indonesian tropical forest. Besides, according to recent report of Indonesian UK Tropical Forest Management Programme, 800,000 hectares of forest has been illegally cut off per

¹⁶ Alam Setia Zein, *Hukum Lingkungan:Kaidah-kaidah Pengelolaan Lingkungan*, PT Raja Grafindo Persada, Jakarta, 1995, p.5-7.

¹⁷ The tasks of forestry agencies have recently been viewed as overlapping with those of Forestry Office in provincial government. In some provinces, there is a tendency to abolish forestry agencies.

¹⁸ *Prosiding Simposium DampakKebakaran Hutan terhadap Sumber Daya Alam dan Lngkungan*, UGM, Yogyakarta, 16Desember 1997, p. iv.

year.¹⁹

The recognition of indigenous people rights related to forestry was also questioned since forestry industrialization has tended to disregard the interest and existence of those people's rights to improve their quality of life. The spirit of defending the environment was more dominant than that of respecting the rights of the indigenous people. They were almost driven out by the development of forestry industrialization.²⁰ Public control is therefore needed to protect the quality of forest as well as the indigenous people suffered from the development of forestry industrialization.

4.1.3 Policy Recommendation

In dealing with forestry problems. Two measures are recommended. Firstly, government policy concerning forestry should be reviewed, including the overlapping regulations. Secondly, law enforcement dealing with licensing procedure related to forest concessions, supervision, and sanctions imposed on those causing forest fire or forest damage should be given priority.

4.2 Water Pollution

4.2.1 Broad Description of Water Pollution

Industrial, agricultural, and domestic wastes have mostly caused water pollution. The burden of water pollution is more in Java Island since Java has been the central industrialization, and it is a most densely populated area. The amount of industrial hazardous wastes dumped to river/water media was 250,000 ton per year.²¹ The most serious water pollution problems are located in big cities, such as Jakarta, Medan, and Surabaya.

4.2.2 Policy and Regulations Related to Waters

Commitment to prevent and control water pollution has much been stronger since the promulgation of Governmental Regulation no 20 of 1990 concerning Water Pollution Control. Water has, according to this regulation, been divided into four categories, namely class A (directly drinkable), B (as a source of drinking water), C (for fisheries and agricultural purposes), and D (the lowest level).²² Technically and legally, water pollution will be proved if there is declination from one class to a lower class of water. A special program, called PROKASIH (which means clean river program), has been established to cope with water pollution, and it started in 1989. The program is aimed at technically preventing

¹⁹ Suara Pembaruan Daily, September 6, 1999.

²⁰ Rimbo Gunawan, et.all, *Industrialisasi Kehutanan dan dampaknya terhadap Masyarakat Adat*, Akatiga, Bandung, 1998, p.2-5.

²¹ Kantor Kementerian LH, 1997.

²² Article 7 of Governmental Regulation no 20 of 1990 concerning Water Pollution Control.

water pollution at the earliest stage. The quality of river water had, therefore, to be maintained and improved to meet the needs for clean water, both for domestic and purposes of economic development. The scope of PROKASIH in its initial stage of implementation was limited to several provinces, rivers, and waste resources, and it was the gradually expanded and deepened in accordance with the development of implementation of capability.²³

4.2.3 Implementation

The implementation of water pollution prevention was conducted through voluntary and commands and control approaches. Voluntary approach was applied in the form of clean water program. The PROKASIH was focused on rivers for which its water was used for standard drinking and/or rivers for which its water was already very dirty. Besides, voluntary approach was also promoted through a performance-rating program conducted by EPA. Command and control approach has been applied through EIS requirement for those business activities potentially causing significant environmental impact.

4.2.4 Policy Recommendation

Since water is a vital human need, its conservation should be prioritized. Water management and water pollution control should be conducted with cross-sectional approach, which takes into account economic, ecological, and social function of water. The enforcement of regulations related to environmental quality standard should be taken more seriously.

4.3 Air Pollution

4.3.1 Brief Description of Air Pollution

Air pollution in Indonesia's big cities has mostly been caused by mobile sources of transportation vehicles, non-mobile sources, and forest fire. In this regard, regulations concerning air pollution control are not as sufficient as those related to water pollution control.

4.3.2 Implementation

EPA has taken voluntary approach through implementing "blue sky program". It is aimed at improving air quality, the quality of human resources, institutions. Ministry of Environment has also promulgated decree no 35/MENLH/10/1993 concerning Effluent Environmental Quality Standard imposed on transportation vehicles. However, since the existing air regulations are not as complete as

²³ Koesnadi Hardjosoemantri, The principle of the Basic Environment Law in Japan and the Applicability in Indonesia, Institute of Developing Economies, VRF Series no 273, Aug 1996, p.84.

those of water pollution prevention are, the outcome has not been satisfactory.

4.3.3 Policy Recommendation

In order to improve air quality and prevent air pollution, the government should abate air pollution at the earliest stage, improve licensing procedure related to forest concessions as the main cause of forest fire, closely watch the implementation of Air Quality Standard, and conduct more energy saving. In this regard, law enforcement should also be given priority in the era of supremacy of law as many expect from the new legitimate government.

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Environmental Governance in Malaysia

Wan Portiah Hamzah

1. Introduction

1.1 The History of Development Planning and Environmental Management

To understand better the relationships among environmental quality, resource utilization, the need for development and environmental governance, a brief account of Malaysia's historical environment that has influenced and continues to influence the country's development planning is called for. Briefly, Malaya's¹ early economy was based on the production and export of raw materials, of which tin and rubber were by far the most important. The colonial capitalist system exploited the natural resources generating little value-added activity in the country. Immigrants from China and India were brought in to work the mines and clear the forests to make way for plantations. Malaya, after independence, continued with the colonial economic system and was highly dependent on exploitation of natural resources for export (Vincent, Rozali & Associates, 1997). Primary sectors were the major component of the economy: 37 % of GDP, 53 % of employment and 83 % of exports in 1965. The country was faced with regional and ethnic income disparities, rural poverty, concentration of development activities in a few areas which had ready access to available infrastructure, and persistent disease hazards.

Ethnic tensions in 1969 led the government to formulate the New Economic Policy (NEP) with the objectives of eradicating poverty among all Malaysians irrespective of race and restructuring of society to reduce and eventually eliminate the identification of race with economic function and geographical location. Under the NEP, the economy changed from one that was over-dependent on primary commodities to one that was more diversified and industrialized. Major efforts to expand resulted in rapid growth and structural changes especially in the 1970s and 1980s. As experienced elsewhere, economic growth in Malaysia has been accompanied by pollution problems and degradation of the environment. However, Malaysia began monitoring these problems in the early stages of industrialization with the establishment of a national system of monitoring stations for air and water

¹ Malaya became independent in 1957 and later in 1963 formed the Federation of Malaysia (which originally included Singapore until 1965) with the inclusion of Sabah and Sarawak. The country's natural wealth combined with its strategic location along the maritime routes has made international commerce an important feature of its economy for centuries. In the 14th Century, Malacca was founded and served as an ideal harbour as well as a meeting place for the exchange of goods. From the Malay Peninsula came gold, tin and forest products. Traders from Arabia, India, Burma and Siam brought ivory and precious stones while the Chinese and the Bugis merchants brought gold, silk, porcelain, spices and articles of ancient commerce. The fall of Malacca to the Portuguese, Dutch and later the British marked the influence of the British in the Far East and the beginning of natural

quality in the late 1970s (Vincent, Rozali & Associates, 1997). This was made possible through the Department of Environment (DOE) created in 1975 under the Ministry of Science, Technology and the Environment (MOSTE) which marked the beginning of a specific institutional arrangement for the management of environmental quality in Malaysia.

This is not to say that what we now recognize as environmental management and legislation were absent. Prior to 1975, attention to the environment had been dispersed. In fact, an early form of management response to impending environmental problems in the country was through the enactment of legislation (Sham Sani, 1993). A significant body of legislation did exist, such as the Straits Settlement Ordinance No.3, 1894, which protected several species of wild birds, as well as the Waters Enactment of 1920. The Waters Enactment contained provisions prohibiting diversion or abstraction of water, the modification of channels, and construction in proximity of riverbanks unless prior permission had been obtained. Subsequently, this was followed by other legislation, which had relevance, though often indirect to the environment. These include the Mining Enactment, 1929, the Forest Enactment, 1934, the Drainage Works Ordinance, 1954, the Road Traffic Ordinance, 1958, the Land Conservation Act, 1960, the Fisheries Act, 1963, the Factory and Machinery Act, 1967 and the Protection and Wildlife Act, 1972. However, much of the above-mentioned legislation was largely sectoral in character and was designed to promote sound housekeeping practices in the specific sectors in line with the government policies of the time rather than to address environmental problems per se. In any case, over time they have been amended and supplemented by new legislation to take into consideration the broader environmental concerns. Currently, there are some forty to fifty environment-related laws in Malaysia (Table 1).

Although it is not possible to establish a direct linkage between the Stockholm Conference of 1972 and the impetus for environmental legislation in Malaysia, the Environmental Quality Act, under which the DOE was established, was an important tangible milestone for the national environmental policy framework in the country (Rozali, 1995). Malaysia's EQA was among the first examples of specific environmental legislation in the developing world. The Act signaled the advent of a comprehensive approach to environmental management, incorporating cross-sectoral concerns into the body of legislation. It provided the basis for addressing the adverse environmental impacts arising from the large number of new economic activities that accompanied the country's industrialization process. The spirit embodied in this Act was endorsed officially in the Third Malaysia Plan (1976 – 1980) and continued to be the thrust in the Fifth (1986 – 1990), Sixth (1991 – 1995) and Seventh Malaysia Plans (1995 – 2000). Commitment to the environment by the policy-makers was further reinforced in the Malaysian Government's Second Outline Prospective Plan (OPP2) (1991 – 2000) as well as in the First Malaysia Statement: The Way Forward toward Vision 2020.

The introduction of the EQA and its related Regulations was a reflection of the concerns and the

resource exploitation plus some early guidelines for resource management.

magnitude of the pollution problems that existed at that time. In the 1970s and early 1980s, palm oil and rubber wastes were the major problems. In the second half of 1970s, the problem of air in large urban centers began to surface. Hence the Regulation on clean air. Later, problems with toxic and hazardous wastes necessitated the introduction of Regulations on scheduled wastes. In a similar manner, the Regulations related to sewage and industrial effluents, control of lead concentrations in motor gasoline, and motor vehicle noise were introduced following concerns over their interference with air and water quality.

Sham Sani (1993) reported that not all the Regulations enforced during the first ten years have been equally effective; some were more successful than others were. An early success was the remarkable reduction of emissions of agro-based effluents from the crude palm oil and raw natural rubber industries. However, the EQA subsidiary regulations on clean air, sewage, industrial effluents and scheduled wastes were reported to have been less effective than those involving crude palm oil. On the other hand, it was argued that the effectiveness was more difficult to assess due to several variables. Finally, it is well recognized that the enforcement of the EQA, particularly the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987, which was gazetted in 1988, has not been without difficulty.

The EIA is essentially a preventive measure and is designed to identify and predict the magnitude of the environmental impact of proposed projects so that adverse environmental effects may be avoided. However, more often than not, the EIA process has been regarded as a hindrance, and in countries like Malaysia with a federal-state system, it has at times been regarded as an infringement on State rights ², if the process was conducted and interpreted at the federal level. Controversies surrounding the EIA process have been well documented and are beyond the scope of this paper for elaboration. Suffice it to say that the EIA process, whether carried out at the federal or the state level, must be strengthened to ensure accountability, and uniformity through guidelines must be introduced to promote transparency. The administrative structure must also be well in place with enough experts and relevant manpower available for assessment and follow-up procedures.

² Malaysia is a federation of thirteen states and two federal territories: Kuala Lumpur and the island of Labuan, off Sabah. Under the Constitution of Malaysia, legislative powers are distributed according to three lists: the Federal List, the State List and the Concurrent List. The Federal List enumerates those matters over which the federal parliament has authority to legislate, such as commerce, trade and industry. The State List defines the states' legislative powers over matters such as development control, local government, land, water, forests and mining, while matters on the Concurrent List are those over which competency is shared between the federal and state legislatures. The term 'environment' does not exist in any of the Lists. Environmental matters can fall under the jurisdiction of federal authorities, state authorities, or the concurrent jurisdiction of both federal and state authorities. This is so because the federal government, by virtue of the specific powers granted to it, is regarded as responsible for general environmental protection and pollution prevention, while matters which concern natural resources such as land, water and forests are in the State List and thus come under the exclusive purview of the states. However, in any federal-state system, complexity does arise over the interpretation of Constitutional provisions and pose a challenge to cooperative federalism.

To identify the weaknesses and inadequacies of the EQA 1974 and its regulations, an Environmental Law Review Committee was established in June 1991. Amendments to the EQA and the series of regulations took effect in 1996. Before this date, DOE did manage to examine and strengthen certain legislative requirements pertaining to specific environmental issues but the latest amendments have certainly increased the success of its enforcement activities. The amended Act introduced new dimensions to prevent and control pollution as well as to manage new environmental issues and problems, such as environmental audit, environmental management system, environmental fund and research cess, deposit and rebate schemes, environmental labeling and environmental hazardous substances.

1.2 Primary Environmental Issues and Greater Awareness

In the review of the first decade of environmental quality management in Malaysia 1975 – 1984, about fifty-five issues or problems were identified by four major environmental interest groups in the country. These were, the Environmental Protection Society of Malaysia (EPSM), Sahabat Alam Malaysia (SAM) or Friends of the Earth Malaysia, Federation of Malaysia Consumers' Association (FOMCA), and the Environmental Quality Council (EQC) (Abu Bakar Jaafar, 1995). The issues ranged from air pollution, water pollution, soil erosion, loss of natural habitats for endemic or endangered flora and fauna, littering and garbage disposal, to piggery waste, noise and contaminants, as illustrated in Table 2.

In 1996, to gauge the level of public awareness and understanding of environmental issues, a survey was conducted involving some 3,500 respondents (Environmental Quality Report, 1996). The survey revealed that 90 % of Malaysians were aware of environmental issues and their health impacts; only 25 % of them had participated in environmental activities of some sort. It also indicated that 80 % were concerned with negative environmental impacts on the economy and a majority would prefer stricter environmental control. Following this survey, another survey was also conducted later in the year involving about 2,111 respondents. The latter survey ascertained that the majority of respondents were not happy about the state of the environment, citing haze and air pollution, river pollution, and garbage collection and disposal as their main concerns. As for suggestions on how to improve the environment, top priority was given to environmental education, followed by greater public participation, more transparency of decisions, and an increase in penalties. The understanding of environmental laws as well as the lack of awareness of the responsibilities of various government agencies involved in environmental management were highlighted and it was felt that more effort should be made to rectify the situation.

In Malaysia, the print and electronic media play a key role in creating environmental awareness. The haze phenomenon, which was first realized as early as the 1960s, but has now become almost a regular feature of the Malaysian environment, have been well highlighted. The haze of September 1982 and April 1983, which coincided with the occurrence of widespread bush fires and agricultural waste

burning in East Kalimantan made headlines. The 1994 haze, which was associated with the El Nino atmospheric pattern, was also widespread. However, the haze of 1997, termed an “environmental disaster,” and the forest fires in Indonesia termed an “environmental emergency” by the United Nations, created concern not only in Malaysia but also the Southeast Asian region. This haze again occurred in an El Nino year. The State of Sarawak had to declare an emergency situation when the Air Pollutant Index (API)³ passed the “hazardous” level and reached values of over 800. A 1998 study by the Economics and Environment Program of South East Asia (EEPSEA) and the Worldwide Fund for Nature (WWF) estimated that regional economies in total suffered over \$ 1.3 billion losses in health, tourism and airlines because of the fires in 1997. (Table 3) (EEPSEA and WWF, 1998). The haze highlighted the visible realities of transboundary pollution and resulted in the call for environmental cooperation and governance.

The 1998 water crisis in the Klang valley (Kuala Lumpur and parts of Selangor) affected domestic as well as industrial needs for months and the situation also spread to other ‘water stress’ areas in the northern states of Peninsular Malaysia and Sabah where agricultural production was affected. The crisis, which was well captured by the media, was a result of a number of factors: prolonged drought caused by El Nino, river contamination, and losses in the distribution system and supply management. The water demand, both in quantity, and quality is expected to increase significantly as shown in Table 4. Malaysia recognized the need for greater cooperation and governance for water management. Several studies, the latest by the Academy of Sciences Malaysia (1998), have strongly recommended the need for an integrated water resource management.

Early in 1999, to overcome water problems, the State of Selangor announced plans to build a dam at the catchment area of Sungai Selangor. The RM 1.96 billion project includes the building of a 110-meter dam wall and a 600 ha reservoir, two treatment plants, as well as the realignment of the Kuala Lumpur – Fraser’s Hill road and the relocation of a youth training center. The dam started another series of debates. Two villages belonging to the *Orang Asli* (indigenous people) sit on the proposed dam site. Secondly, the area to be inundated covers several scenic picnic spots, privately-owned land, two internationally-renowned whitewater rafting centers and several fish farms. The habitat of the famous fireflies of Kuala Selangor is also threatened as their food source, that is the *berembang* trees, could be depleted if water flow is regulated by the dam. Controversies surrounding dams are not new. Earlier, from 1994 to 1997, it was the Bakun dam of Sarawak that got the headlines.

³ In Kuala Lumpur, a peak of 300 was reached. The high values of the API were caused by elevated levels of suspended particles in the air. Malaysian API values are analogous to U.S. EPA Pollutant Standard Index (PSI) values, in that both the API and PSI value of 100 is assigned to the concentration of the 24-hr standards in the respective countries (in this case the Malaysian 24-hr PM10 standard is equivalent to the comparable 24-hr PM10 U.S. National Ambient Air Quality Standard [NAAQS]) by Pinto, Grant & Hartlage, 1998. API or PSI values of 101 to 200 are categorised as “unhealthy”, values of 201 to 300 are categorised as “very unhealthy”, values of 301 to 500 are categorised as “hazardous” and values of 500 or more are considered to pose “significant harm” risks.

Another issue of concern is that of the disease outbreaks, and to be more specific, cases of viral encephalitis which have been occurring in Malaysia since October 1998. Information indicated that both Japanese encephalitis (JE) and a second virus, a new member of the *paramyxovirus* family, which is closely related to the Hendra virus, found earlier in Australia, have been circulating. Actually in Malaysia, between 9 to 90 cases of JE have been reported each year. Major outbreaks occurred in Langkawi in 1974, Penang in 1988 and in the Serian district of Sarawak in 1992. The initial stages of the 1998 outbreak pointed to JE because of the association of all the cases with pigs and piggeries. However, JE usually affects children; this outbreak affected young male adults, workers or those closely associated with piggeries therefore suggesting the presence of another virus.

The JE outbreak renewed discussions regarding the swine industry. The problem of pollution from pig wastes was compounded by communal sensitivities. This has been well recognized in Malaysia (Choo & Taiganides, 1988). The swine industry is a major livestock industry but is reported to be relatively less developed compared with the poultry industry. Issues on higher production efficiency and waste management, religious and social sensitivities as well as proposals for pig farm resettlement programmes have been argued and discussed. The 1998 outbreak resulted in drastic economic losses, disruption and the loss of several lives. It certainly reiterated the necessity for strict regimentation of farmers, and very effective disease control measures. Besides modernization plans, uniform legislation for the industry, and training and better coordination involving the various actors is required.

Next to be considered are the incidents of landslides and landslips – the physical manifestation of the consequences of highland development. The collapse of the Highland Towers condominium block killing 44 people in 1993 highlighted the tragic consequences of hill land clearing. The Genting Highlands landslide, where at least 21 people were found dead and the massive slope failures along the East-West Highway and other expressways have raised questions on whether these incidents are indicators of unsustainable development.

In the above episodes, practically the whole nation, in one way or another, was affected. They witnessed not only the difficulties that hinder the development of appropriate responses to the problems but also the attempts of different parties – political masters, bureaucrats at the federal, state and local levels, the business community, professional societies, non-governmental organizations and the general public - to come together and tackle the issues.

It is important to note here that although the environment did not appear to be an acute preoccupation of the public at large in the early years, Malaysians did witness a number of incident involving the environment and did observe their conflict resolutions (IDCJ, 1993). For example, in the 1960s to late 1970s, the quarrying activities were carried out Batu Caves, a unique ecosystem with archaeological and religious significance. During that same period, the pollution of the Juru river in the rapidly industrializing Seberang Perai region of Penang, provided a clear example of unforeseen undesirable

effects resulting from poor planning and monitoring of resource utilization. In the mid 1970s, there was the logging of Endau-Rompin, an area designated as a National Park, and towards the late 70s and early 80s, there was concern over radioactive hazards from the Asian Rare Earth Sdn Bhd (ARE), a joint venture project between BEH Minerals and Mitsubishi Chemicals Industry.

There are other examples and in the study conducted by the International Development Center of Japan (IDCJ) with contributions from ISIS Malaysia, details on the cases – Batu Caves, Juru, Endau-Rompin, ARE – as well as the major actors involved in the conflict resolutions are well documented. This paper will not repeat the findings but will highlight the important role played by the non-governmental organizations (NGOs). The NGOs have been active and vocal in presenting their views, providing scientific and intellectual inputs as well as, in marshalling public support. Today, they focus not only on environmental protection and conservation, but also on environmental rights, intellectual property rights, trade issues and many more. Representatives with green mandates have therefore been invited for consultations on changes in domestic policy because not only are such changes a means of influencing the negotiations of international regimes, but also because global environmental developments may affect domestic policy and actions.

1.3 Responding to Global Environmental Problems

Malaysia not only cooperates and participates in international programmes but also actively contributes to all-important discussions on international, legal and institutional arrangements relevant to the area of interest. The country took a lead role in obtaining consensus of the Commonwealth Heads of Government in the Langkawi Declaration on the Environment in 1989. Under the umbrella of the Association of South East Asian Nations (ASEAN) Committee on Science and Technology (COST), Malaysia has been involved in a number of ASEAN Subregional Environment Programmes (ASEP), and is involved in the ASEAN Senior Officials on the Environment (ASOEN), ASEAN Ministerial Meetings on the Environment (AMME) and in the implementation of the ASEAN Plan of Action

On ASEAN, two issues need to be elaborated. Firstly, as a grouping, ASEAN took its first step forward on the environment in 1978, and its first Ministerial level declaration on cooperation on environmental issues followed in 1981. Malaysia together with ASEAN members have undertaken some steps towards improving environmental cooperation amongst themselves in the “spirit of ASEAN” or in the “ASEAN way”. However, of late, the “ASEAN way” and policy of the non-interference in the domestic affairs of member states have been questioned, particularly in situations of transboundary pollution/harm such as in the forest fires/haze episodes.

Secondly, the ASEAN region witnessed the consolidated exploitation of resources, and industrial expansion, partly through the various “growth triangles”. Investments from Southern countries such as Malaysia in Burma, Laos, Cambodia and Vietnam are growing as part of South-South cooperation. And there are already reports of the negative impact of the practices and behavior of many Malaysian

transnational corporations. The Malaysian Government is concerned and with the governments of the region should address the private sector excesses and development abuse.

For Malaysia, in the arena of international negotiations on the environment and related matters, the Ministry of Foreign Affairs actually takes the lead role, with support from other Ministries such as the Ministry of International Trade and Industry (MITI), Ministry of Primary Industries and a host of other agencies including the DOE. Malaysia adopted an active role in environmental discussions at a very early stage, dating from the time of the negotiations for the Montreal Protocol on Substances that Deplete the Ozone Layer. Malaysia recognized that the proposed terms of the protocol restricting and eventually phasing out the use of chlorofluorocarbons could impact the country's manufacturing industries. In that particular event, the protocol acknowledged the need for differentiated targets for developing and industrial countries.

The experience with the Montreal Protocol enabled Malaysia to adopt its position in international environmental policy, particularly in the negotiations on the Framework Convention on Climate Change, on the Convention of the Conservation of Biodiversity, and in the meetings of the Preparatory Committee for UNCED. The need to satisfactorily adopt a balanced approach to environment and development, the principle of 'common and differentiated responsibilities', as well as to develop consensus among the South so to prevent erosion of their sovereign rights and to protect their right to development, were well articulated. At many of these meetings, the Malaysian NGOs, often unacknowledged, played a major role. They managed to emphasize the need for a holistic view of global development and equity, and helped to stimulate higher levels of public environmental awareness within the country.

Malaysia, being a party to major international agreements relating to resources and the environment, has been working towards incorporating the principles of these agreements into the national policies. Some of the international agreements include the Law of the Sea, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, the International Tropical Timber Agreement, the Vienna Convention on Protection of the Ozone Layer, the Convention on Conservation of Biological Diversity, the Ramsar Convention on Wetlands of International Importance, the Basel Convention on Transboundary Movements of Toxic and Hazardous Wastes, and the Framework Convention on Climate Change.

2. Contextual Overview of Malaysia

2.1 Geography

Malaysia covers an area of 330,000 km² and is divided into two landmasses, separated by the South China Sea. Peninsular Malaysia, in the west, has an area of about 132,000 km² and is composed of eleven states and the Federal Territory of Kuala Lumpur. East Malaysia, occupying about 198,000 km²,

consists of Sabah, Sarawak and the Federal Territory of Labuan. Malaysia's territorial waters cover an area of 549,500 km². The principal water bodies are the Straits of Malacca, one of the world's busiest shipping passages, and the South China Sea. The South China Sea is significant because the continental shelf is resource rich. Both Peninsular Malaysia and East Malaysia differ in historical development, geographical and physical features as well as in the ethnic distribution of the population. The country is not only rich in biodiversity and natural resources but is also culturally rich. Almost all of the world's major religions have substantial representation in Malaysia, reflecting the multi-ethnic character of the population.

2.2 Social Framework

Malaysia's population was estimated to be 22.2 million in 1998 (Ministry of Finance, 1998). About 80% of the total population reside in Peninsular Malaysia, with 9.9% in Sabah and 9.4% in Sarawak. The latter two states have large, non-Malay indigenous populations compared to the Peninsula. An important factor of population distribution is the rural-urban dichotomy. Urbanization has occurred at a rapid rate in Peninsular Malaysia, as it has in many developing economies, almost doubling its urban population in a period of two decades 1970 – 1991. The west coast states of Peninsular Malaysia, with high levels of development and industrialization, are definitely more urbanized than the other states. In the case of Sabah and Sarawak, the population is largely rural with a gradual but steady shift towards urbanization. The slower pace of urbanization is attributed to East Malaysia's largely indigenous peoples, many of whom still retain a way of life that is associated closely with, and is dependent on, the forests. The biodiversity of the forest is therefore important to their culture and livelihood (MOSTE, 1997).

The Government, in order to create a peaceful and prosperous nation and to ensure economic and social justice, and quality of life, has taken, for example, various measures to reduce and eradicate poverty. The thrust of poverty alleviation measures is to reduce poverty among Malaysians to 5.5 % by this year (2000). This involves raising productivity and real incomes as well as improving access of the lower income group to better social services and income opportunities. Implementation takes into account all communities, living in both urban and rural areas. In this context, Malaysia is often faced with the challenge of meeting competing demands for the limited resources *vis-à-vis* national priorities and international obligations.

2.3 The Economy

For many years Malaysia enjoyed rapid economic growth. From 1990, up to the time of the economic crisis in July 1997, the country's economy was achieving annual average growth rates of 8.7%. The spread of the crisis was reflected initially in sharp falls in Malaysian share prices and the external value of the ringgit. Despite the early measures taken, equity prices and the exchange rate continued to weaken. The crisis caused sharp declines in business and consumer confidence, which was reflected in,

and contributed to the falls in asset prices, including property prices. This led to a pronounced contraction of consumer and investment spending in early 1998. Difficulties were felt in the financial sector as financial institutions were faced with rising non-performing loans and capital losses. All these problems contributed to increasingly cautious lending practices thereby causing further contraction in domestic spending. The contraction was severe and unprecedented. For the first time since 1985, Malaysia's GDP contracted by 2.8% in the first quarter of 1998 and 6.8% in the second quarter (Ministry of Finance, 1998).

In the second half of 1998, the Government implemented the National Economic Recovery Plan under its the National Economic Action Council. The measures included the easing of monetary policy, the injection of fiscal stimulus to invigorate the economy, as well as the imposition of selective exchange controls to insulate the economy from the contagion effects of global financial crisis. Forecasts for economic growth for 2000 are robust. The GDP for 1999 is estimated by some analysts to be around 4.5 to 4.8 %.

3. Environmental Governance Mechanisms

3.1 Government Structure

The Federation of Malaysia is a constitutional monarchy with the *Yang DiPertuan Agong* (King) as head of state. The *Agong* serves a five-year term and is selected from among the sultans of the nine states with royal families. The heads of the remaining four states (State Governors or *Yang DiPertua Negeri*) are appointed by the King.

Malaysia has a bicameral Parliament, consisting of the Senate (*Dewan Negara*) and the House of Representatives (*Dewan Rakyat*). Elections to the House are held every five years, while the Senators are appointed. The Cabinet, headed by the Prime Minister, comprises of ministers chosen from among members of Parliament. It is collectively responsible to the Parliament. To effectively govern the country, Ministries are created, each the responsibility of a Minister, usually with a deputy to assist him in performing his duties. The chief administrative officer in each ministry is the Secretary-General. The Chief Secretary-General is under the Prime Minister's office, that also heads the Malaysian Civil Service.

The organizational structure at the state level is similar to that at the federal level. In each state there is a legislative assembly and elections are held every five years to the State Legislative Assemblies. Each elected member of the State Assembly represents a part of the community from a part of the state. In each state, the State Assembly with the blessing from the Ruler or Governor, elects the head (termed Chief Minister/*Menteri Besar*) of the executive council that then appoints Executive Council (Exco) members. They are responsible for governing the State. To facilitate management, Exco members are given responsibilities similar to cabinet ministers at the federal level. The specific allocation of

responsibilities varies among states. Each state is assisted by administrative machinery headed by the State Secretary

Local governments, which constitute the third level of government, are administered by municipal councils, and by city halls in the case of Kuching, Johor Bahru, Ipoh and Kuala Lumpur. In so far as Malaysia is concerned, the local governments are empowered by three main laws in performing their functions i.e. the Local Government Act, 1976; the Street, Drainage and Building Act, 1974 and the Town and Country Planning Act, 1976. According to the Local Government Act, local governments in Peninsular Malaysia are given a wide range of services to perform. These can be summarized under five main categories: Environment, Public Health and Cleansing, Enforcement and Licensing, Public Amenities and Social Services and Development functions. While the law allows local authorities to carry out a whole range of functions, in practice, certain services are not adequately performed due to factors such as financial and administrative constraints, manpower availability, complacency or even biased decisions.

Councilors of local governments are appointed by the respective State Governments. These councilors are local residents who, in the opinion of the state authorities, have wide experience in local government affairs and are capable of representing the interest of the communities. The objective of local government is to provide the local community an opportunity to participate in the administrative process in the area they inhabit. Matters directly related to them should therefore be handled by the local community. This calls for greater local community involvement in decision-making and of course a higher level of awareness. The local government has to play a pivotal role since the expectation of any citizen of its local government is good governance in terms of clean, safe and healthy cities, friendly habitats and better opportunities.

With regard to the Court system, the highest judicial authority is the Federal Court of Malaysia, headed by the Chief Justice. The Court has jurisdiction to interpret the Constitution, besides ruling on disputes among states and between the State and Federal Governments. The Federal Court is divided into the High Courts in Peninsular Malaysia, Sabah and Sarawak, each headed by a Chief Justice. The Session Courts, Magistrate's Courts and Penghulu's (Village Headmen) Courts are subordinate courts with limited jurisdiction. There is also the Muslim religious court or Syariah Court, established by State legislature, which enforces religious observance and codes relating to domestic and matrimonial matters of Muslims.

At this point, it must be highlighted that a study of the existing Malaysian case law in relation to environmental matters reveals only a very limited number of cases. This is probably due to the legal rights and remedies available to victims of environmental violations, which do not appear to be very encouraging at all.

3.2 The Constitution

The Malaysian Constitution prescribes what laws may be made by Parliament and what laws may be made by State legislatures. Matters regarding which laws may be made are divided by the Constitution into three lists: the Federal List, State List and the Concurrent List. Under the Federal and State Lists, the powers to enact laws are very clear, but under the Concurrent List laws could either be made by Parliament or State Legislative Assemblies. Notwithstanding this division of power, there is a provision under the Constitution (Article 75) which states that if any state law is inconsistent with a federal law, the federal law shall prevail. A further provision (Article 76) enables the Parliament, under special circumstances, to make laws in respect of matters in the State List. It is upon this basis that some of the natural resources (for example, forestry, fisheries, wildlife protection, mining and water) and environmental management legislation in Peninsular Malaysia have been enacted. In practice, the formulation of such legislation is very often carried out in close consultation with state governments, and the eventual adoption of the legislation, and implementation of its provisions, is still very much a matter within the states' discretion.

Thus the administering of the over 40 pieces of environment-related legislation is a shared-responsibility of both federal and state authorities. Some government agencies are responsible for administering certain aspects of the environment with full legal powers, while other legally-empowered agencies are equipped with enforcement officers who can summon or compound offenders. Local authorities are also empowered to safeguard the environment against pollution, especially in areas where DOE does not have jurisdiction.

The Constitution also allows for distribution of resources. Most natural resources, including land, onshore minerals, agriculture, forests, riverine fishing, and turtles are on the State list. Again under the Constitution, revenues from lands, mines, forests, and water supplies including water rates accrue to the states. In addition, states may receive a certain proportion of resource-related taxes. Consequently, natural resources are important sources of revenue in most states. On the other hand, marine and estuarine fisheries (excluding turtles) are on the Federal List. The most important resources under federal control are offshore oil and gas deposits. Protection of wild mammals and birds, and national parks, are on the Concurrent List.

The constitutional arrangements therefore translate into a mix of federal and state agencies in the natural resource and environmental sectors, with state agencies being strong in Sabah and Sarawak. Key federal agencies include the Departments of Mines and Forestry under the Ministry of Primary Industries, the Departments of Agriculture and Fisheries under the Ministry of Agriculture, and DOE under MOSTE. Most have state-level offices staffed by federal or a mix of federal and state officers.

It must be mentioned that under the federal system of government, federal-state cooperation forms an essential element for administrative purposes. This is ensured in several ways. Article 81, for example,

indicates that the executive authority of every state should be so exercised so as to ensure compliance with any federal law applying to that state and not to impede or prejudice the exercise of the Federal executive authority. The onus for cooperation had thus been placed on the states.

3.3 The Policy Framework

Policies are again sectoral in nature. The National Forestry Policy (NFP), for example, seeks to maximize social, economic and environmental benefits through the adoption of sound forest management practices. The National Agricultural Policy's (NAP) (1992-2010) goal is to create a market-led, commercialized, efficient, competitive and dynamic agricultural sector in the context of sustainable development. The 1992 National Mineral Policy (NMP) which aims to balance the expansion of the mineral industry with the protection of associated environmental and social impacts led to the 1994 Mineral Development Act. And in 1998, a National Policy on Biological Diversity was launched. This policy aims to conserve, manage and promote the sustainable utilization of biological resources. To protect coastal and marine resources, a National Coastal Zone Management Policy is being formulated. The National Policy on the Environment (NPE), which has yet to be passed by Parliament, is intended to serve as a guide to achieving economic, social and cultural progress through environmentally sound and sustainable development. The NPE is based on eight inter-related and mutually supporting principles:

1. Stewardship of the environment;
2. Conservation of nature's vitality and diversity;
3. Continuous improvement in the quality of the environment;
4. Sustainable use of natural resources;
5. Integrated decision-making;
6. Role of the private sector;
7. Commitment and accountability; and
8. Active participation in the community of nations.

State policies often comply fairly closely with the guidelines suggested by federal legislation, even for items on the State list (Vincent, Rozali & Associates, 1997). However, there have been instances where states have been inconsistent such as in exceeding their share of logging, or have failed to gazette new forest reserves to replace those which they have converted to other land uses. This is a problem with sectoral demarcation of policies – such as the NFP or the NAP – which has the potential for inconsistency in terms of decision-making of the various implementing agencies. For example, while the NFP may highlight the need to protect forests for water catchment purposes, this aspect is not similarly addressed in the NAP nor the NMP. This inconsistency may result in the exploitation of the forested catchment area for agricultural or mining purposes.

The constitutional division of powers has often been cited as a major obstacle to integrated planning

and implementation of environmental policies and legislation and has, on occasion given rise to tension between the state and federal governments. However, it has also been argued that the constitutional provisions should not be regarded as obstacles. Given the current framework, Malaysia can explore different alternatives. One possible option for Malaysia to resolve federal-state conflict on the environment is to rely on indirect constitutional powers such as external affairs, finance, or trade, commerce and industry. This would require political will on the part of the Federal Government to take the leadership role. Although countries with similar federal-state systems, such as the Commonwealth Government of Australia has attempted to do so by relying on the indirect constitutional powers, in Malaysia this has never been exercised.

3.4 The Legal Framework

The enactment of legislation usually follows the formulation of policies and strategies, as mechanisms to assist in the implementation and attainment of the policy objectives. Legislation is useful because it clarifies the legal position by, among others, establishing rights, granting authority and defining responsibilities. The previously mentioned 45 environment-related legislations have been enacted at federal level. EQA 1974, the Sewerage Services Act 1993 and the Merchant Shipping (Oil Pollution) Act 1994, for example, have been enacted initially with the main purpose of tackling problems related to pollution of the environment. Other legislations are actually natural resources laws, which are sectoral in nature, dealing with land, water, forests, marine, fisheries and mining. Most of these legislations deal with policy matters to ensure uniformity in use by the various states.

At the state level, most of the available legislations deal with environmental resources such as land, forests and water, which are enacted in accordance with the powers vested in the States under the State List of the Federal Constitution. There are also numerous other legislations made at the state and local levels which are actually laws adopted from the Federal legislations for use by state and local authorities, thus paving the way for harmonization of laws and regulations in the states. However, due to provisions in the Federal Constitution for Sabah and Sarawak, these states still retain their own legislations.

The states of Sabah and Sarawak have taken the initiative to generate and implement their own legislations relating to “the environment”. Sarawak, for example, amended the Natural Resources Ordinance (NRO) 1949 and established the Natural Resources and Environment Ordinance (NREO). With this enactment and the gazetteing of the Sarawak Natural Resources and Environment (Prescribed Activities) Order 1994, certain prescribed activities that have an impact on natural resources, are now under the purview of the State. As a result, controversies surrounding the EIA for Sarawak surfaced with the Bakun dam EIA which subsequently had the legal and non-legal communities scrutinizing the Constitution, the decision of the High Court and later the Court of Appeal, as well as the federal-state process. It is not unusual for states to carry out their own EIA provided the process is made uniform in line with the federal EIA process, if not more stringent, and

provided normal procedures such as public participation are in place.

3.5 The Institutional Framework

Briefly, the highest level of decision-making council in matters of economic and social policy is the National Planning Council (NPC) which is chaired by the Prime Minister. NPC is assisted by the National Development Planning Committee (NDPC) which is responsible for formulating, overseeing implementing and reviewing all development plans as well as making recommendations on financial allocations. The Development Planning process is based on the five-year National Development Plans. These are supplemented by longer-term outline perspective plans (which specify the policy framework, programmes, and targets to be achieved in the different sectors of the economy). The guiding principle of the current development planning which sets the agenda for socio-economic development remains the Vision 2020.

Planning at federal level is undertaken by the central agencies through the Inter-agency Planning Group (IAPG). The Economic Planning Unit (EPU), the Public Services Department, Manpower Planning and Modernization Unit (MAMPU), Treasury and Central Bank as well as the planning sections of various ministries and agencies are represented in the IAPG. The IAPG is central to the planning process, providing inputs for policies. Potential policy drafts are first discussed by the NDPC, subsequently, sub-committees such as the IAPG and the Technical Working Group (TWGs) are set up to discuss specific areas or topics such as environment and natural resources.

Planning is also done in collaboration with the private sector. Besides a number of councils and committees such as the National Economic Consultative Council and the Malaysian Business Council, private sector involvement is obtained through various dialogues conducted by the Treasury, the Ministry of International Trade and Industry (MITI) and the Central Bank, with industry organizations such as Federation of Malaysian Manufacturers (FMM).

An agency that must be noted is the EPU, which is directly under the Prime Minister's Department. EPU is the central economic planning agency responsible for formulating medium and long-term policies and strategies for economic development and development planning. It is also the most influential agency concerned with economic planning and the economic aspects of resource-use planning, although there is no specific section on environmental and natural resource planning. The real powers of EPU are in its influence over the allocation of development funds through the drafting of the five-year plans, control over access to foreign technical assistance, and crucial roles in negotiating, together with the Treasury, economic assistance with foreign partners.

At the state level, the equivalent of EPU is the State Economic Planning Unit (UPEN), which coordinates and implements macro planning in each state. UPENs prepare state development programmes and submit their plans to the Federal government for funding considerations. Although

directly responsible to the state government, UPENs work closely with Federal agencies, especially the EPU in the formulation and implementation of development programmes and projects in their respective states. Administratively, the UPENs come under the state secretariat and answer to a committee chaired by the Chief Minister/Menteri Besar.

A brief mention of MOSTE is necessary. MOSTE, with its mandate on general environmental protection and management, is an exception to the strict sectoral demarcation in the institutional framework. The cross-sectoral approach is reflected in the Ministry's approach towards the recently launched National Policy on Biological Diversity. The implementation of MOSTE's mandate is tasked to several departments including DOE. Although DOE is primarily responsible for environmental enforcement and monitoring activities, it is also engaged in planning, policy, advisory and prevention services. DOE maintains an office in each state. The DOE state office serves as the state conduit for the DOE Headquarters, and also serves the State Government by jointly resolving, whenever possible, some environmental issues.

3.6 Federal and State Integration

There is a need to facilitate and integrate the federal-state, as well as inter-agency, decision-making processes. For this purpose, coordinating mechanisms in the form of councils and committees have been established. Councils are generally consultative bodies established by law to advise the federal and state governments on policy formulation and legislative changes. On the other hand, committees are set up to consider particular issues and are normally short-term in nature.

The National Council on Land (NLC), for example, was established by the Federal Constitution with a mandate for the promotion and control of the utilization of land in Peninsular Malaysia. Under Article 91 of the Federal Constitution, the NLC is provided with wide-ranging powers which can be used to integrate considerations of natural resource management into policy, legal and institutional frameworks. The NLC consists of 22 members with equal representation from federal and state governments and a voting procedure which ensures that the state cannot be out-voted by the federal representatives; this accords with the state rights over land as provided for in the Constitution.

The NLC serves as a forum for the federal and state governments to resolve common problems and issues relating to land and forestry policies, administration and management. Similarly, the National Forestry Council (NFC), established by the NLC, advises both federal and state governments on forestry issues and serves as a forum to ensure a harmonized implementation of forestry policies. Although their functions are clearly articulated, these are not necessarily easy to put into practice. Political sensitivity over state control of natural resources often hinders the efficient running of the NLC and NFC. This does not mean that they cannot be made to work. The setting up of the National Water Council (NWC) under the umbrella of NLC following the water crisis indicates renewed concern at both the federal and state levels in addressing vital issues of land, forests and water in a

holistic and integrated manner.

There is no council directly responsible for the environment. The Ministry of Science, Technology and the Environment currently maintains a relationship with states through regular council meetings involving the Minister and State Executive Councilors on the Environment. MEXCO therefore functions mainly as a consultative body on matters relating to the environment, and especially issues that arise between federal and state authorities.

Other Federal-State institutions for resolving government level matters do exist, e.g. the Federal-State Liaison Committee and the Meeting of Chief Ministers. Both have an important role in resolving federal-state conflicts. In addition, State DOEs, conduct dialogues with the private sector, in some states, to gain a better understanding of the policy needs as well as on industrial compliance. In practice, however, those private sector companies in most need of assistance and with the highest rates of non-compliance rarely have access to, or the opportunity to participate in, such discussions.

3.7 Other Actors in the Socio-political Process

The role of the media has already been mentioned. Next, further elaboration on the role of the NGOs in the environmental arena is perhaps required. In the early years, NGOs functioned as a watchdog by monitoring the implementation of environmental thinking into the development process. They aimed to ensure that the interests of the public are not compromised in the development process. They operated mainly by applying pressure to the authorities through lobbying and public campaigns. NGOs still do act as watchdogs and are invited to air their views at dialogue sessions such as the annual dialogue between the Minister of Science, Technology and the Environment and the NGOs. This has been encouraging and has resulted in greater interaction. It must be mentioned though that the operation of a NGO is defined by several pieces of legislation, namely the Societies Act 1966, the Societies (Amendment) Act 1981 and the Internal Security Act 1960. The latter is often regarded as a barrier to “open” views and actions.

An interesting feature about environmental NGOs is that the environment, being multi-sectoral in nature has been able to draw interest from various groups including the Women’s NGOs, the Muslim Youth Movement and Interfaith Groups. Their involvement is beneficial in that they provide a diversity of inputs on how the environment should be managed.

Other initiatives by NGOs include the undertaking and promoting of sustainable development projects and concepts. For example EPSM has been working actively in implementing Local Agenda 21 concepts among various stakeholders. The Center for Environment, Technology and Development Malaysia (CETDEM) has been in the forefront in promoting organic farming as a viable alternative to conventional/unsustainable types of farming practices in the country.

A new “think-tank,” namely the Socio-economic and Environment Research Institute (SERI), Penang conducted a project called ‘Sustainable Penang Initiative’ to assess the State’s status in terms of sustainability, social justice, economic productivity, cultural vibrancy and popular participation. Currently, SERI is developing indicators to assess and monitor the direction of economic development in relation to social well-being and environmental health. An integral part of the initiative is to mobilize public participation in the planning and development process, so that the policies and actions correspond with people’s needs and desires.

Other organizations such as the Institute for Environment and Development (LESTARI) carried out a study to develop a sustainable development strategy and action plan based on the Agenda 21 format for the Selangor State Government. The study re-examined the State’s direction, and provided insights on how to achieve sustainable development objectives in future structural plans for the state. The public will have a role to play and to set new priorities.

Next, the Business community too has played its part and formed various groupings to address environmental issues. For example, the Business Council for Sustainable Development in Malaysia (BCSDM) was registered as a non-profit organization in 1992. It aims to act as a catalyst for the business community in adopting, and contributing to, the goal of sustainable development, which combines the twin objectives of environmental conservation and economic growth. Others include the Federation of Malaysian Manufacturers (FMM), Malaysian International Chamber of Commerce and Industry (MICCI) and the Malaysian Industry Government Group on High Technology (MIGHT). MIGHT has recommended the concept of “Smart Partnership” as an innovative approach in dealing with matters involving the common good. It is a process which unites people in growing prosperity and functions in ‘win-win’ relationships among partners.

4. Case Studies

4.1 Water and Marine Pollution

Water pollution poses serious consequences in certain areas in Malaysia. DOE reported that the number of clean rivers had decreased from 42 in 1996 to 24 in 1997, slightly polluted rivers had increased from 61 in 1996 to 68 in 1997, and polluted rivers had increased from 13 to 25 within that period. The significant change in 1997 compared those in the other years could be attributed to the reduction in rainfall, the prolonged drought and higher temperatures experienced throughout 1996 to 1997 as a result of the El Nino.

Studies have shown that the major sources of pollution are agro-based industries, livestock farms, sewage discharges, earthworks and land clearing, and manufacturing industries. In 1997, 37 major rivers were reported to be polluted by suspended solids as a result of earthworks and land clearing activities. The 1998 Environment Report showed an improvement in quality of water in the rivers

compared to their quality in 1997.

In 1997, DOE started preliminary groundwater monitoring to evaluate the status and extent of groundwater contamination. Findings later detected contamination in areas where solid wastes and household garbage were dumped. Results indicated that some of the parameters exceeded the acceptable value for raw water quality under the National Guidelines for Drinking Water Quality (1990). For example, 3% of the samples taken were detected to exceed the acceptable value for Mercury (Hg), Cadmium (Cd) and Lead (Pb), whilst 46% were detected with values exceeding the acceptable value for Arsenic (As) and 23% for phenolic compounds.

Besides rivers and groundwater, another water resource, which is increasingly being polluted, is that of the surrounding seas. Marine pollution from land-based and sea-based sources remains a perennial problem. Oil pollution could be due to oil prospecting operations, oil spills, oil tanker accidents, bilge pumping, and deballasting of vessels. The Straits of Malacca, with its heavy traffic, has become one of the most polluted waterways. Other problems in the coastal zone include silting and coastal erosion, discharge of industrial effluents, and human and animal waste disposal.

4.2 Air Pollution

The major sources of air pollution in Malaysia are transportation, fuel combustion from stationary sources, industrial processes and solid wastes. In the transport sector, motor vehicles accounted for a major share of the pollutants generated. The number of vehicles in Peninsular Malaysia has increased from about 670,000 in 1970 to 5.5 million in 1990. Enforcement campaigns for vehicular smoke emissions are therefore carried out regularly.

Increased urbanization and human activities in urban areas, coupled with the nature of urban settings have also resulted in temperature increases in the urban centers compared to the surrounding countryside. Studies carried out in some of the major urban centers in the Klang Valley region have shown increased occurrences of urban heat islands.

On climate change, the issues have not really received attention from the Malaysian public. This is so because few are able to relate everyday activities like greenhouse gas emissions to environmental consequences. Although there is still insufficient data, climate change is reported to bring about an increase in the frequency and intensity of extreme events such as droughts, storms and floods. It has been observed that since 1977, there have been more frequent El-Nino Southern Oscillation warm phase episodes, which have significantly influenced rainfall in Malaysia. The primary concern related to climate change is the potential threat it poses to food security and export earnings from plantation crops. Unfavorable changes can have an impact on the crops, aquaculture and animal husbandry.

4.3 Deforestation

Peninsular Malaysia's forest areas and timber stocks were depleted rapidly during the 1970s and 1980s, continuing trends that started soon after independence (Vincent, Rozali & Associates, 1997). The chief cause was agricultural expansion, and in some cases, forests were logged under the guise of conversion fellings for land development. Administratively, State Governments, were responsible for the rapid deforestation as they had the authority over land alienation and granting of timber concessions. This was partly due to the limitations of the Land Capability Classification system, which established five classes of land and recommended economically best uses for each. Thus, mining and agriculture were deemed more valuable than forestry. The National Forestry Policy was reported to be a well-crafted policy document but short on specifics as to how the objectives would be achieved. The Policy, the National Forestry Act and efforts by the Forestry Department to protect remaining forests had little impact on states' activities. Deforestation only slowed down considerably in late 1980s as a result of falling agricultural returns brought about by industrialization.

Malaysia is now committed to managing her forests in a sustainable manner not just for economic reasons but also for maintaining environmental stability and ecological balance. To achieve this, Malaysia is committed to maintaining 50% of her land under forest cover. Natural forest make up 18.9 million hectares out of a landmass of 32.9 million hectares. Out of this, 14.1 million hectares have been designated as Permanent Forest Estate (PFE) which will be permanently managed to ensure that the proper balance among the various purposes such as production, protection, social and education objectives will be achieved.

What would be the future trends of the Malaysian forestry sector and the timber trade? Changes in technology, new players and the shift in consumption patterns from virgin forests to regenerated forests will certainly impact on the Malaysian timber trade. With the implementation of the International Tropical Timber Organization (ITTO) guidelines on sustainability in the year 2000, can the wood-based industries invest in sustainable forest management in order to maintain harvest levels? Malaysia has attempted to operationalize the ITTO guidelines. At the same time, in view of the international pressures to certify or eco-label Malaysian timber and timber products, the country is seriously working towards the establishment of a timber certification scheme, based on the ITTO criteria and indicators which are being elaborated to suit local conditions. Whilst these measures are being undertaken, Malaysia's stance continues to be that certification should not be used as a unilateral trade barrier in the guise of sustainability and that certification moves should cover other types of timber and competing materials.

5. Challenges

The agenda-setting function in the environmental arena has been dominated by the Federal Government and the various key agencies. This is due largely to the allocation of powers under the

Federal Constitution and the centrally-biased planning mechanism. In Malaysia, NGOs and the media do play an important role in pushing many of the environmental issues on the agenda. And initiatives such as those by SERI will see a unique way of involving the public in setting the agenda and being involved in environmental governance.

Examples of NGOs taking the initiative could be seen in the Juru and Endau-Rompin cases. In the case of Juru, pollution was the result of the rapid industrialization programme. Assisted by some local NGOs, the residents formed an Action committee, organized their protest and sought to further lobby through political channels. Academicians from the Science University conducted research on the extent of pollution and the media helped to spread the plight of those affected nationally and internationally. At the federal level, the EQA had just been enacted and DOE was brought in to set up monitoring stations. The new machinery however appeared uncertain as to the framework within which action should be taken. At the state level, the Penang State Pollution Committee was set up to alleviate pollution problems and was instrumental in providing an alternative source of living.

The logging of Endau-Rompin again witnessed NGOs setting the agenda. This subsequently drew the attention of the Cabinet Ministers, the National Forestry Council, the International Union for the Conservation of Nature and Natural Resources (IUCN), and the Prime Minister, in addition to the Ruler of Pahang, who held the right to grant logging concessions and received some royalty in return through the state. The federal government interest was, *inter alia*, in forest conservation and therefore took action and finally banned timber exports from Endau-Rompin. This did not stop the timber extraction. The State's interest was in generating as much revenue as possible from a resource which is under its jurisdiction. The Federal Government was not without some constitutional powers but opted for a consensus-building approach. It was the new state Chief Minister who, upon taking office, took steps to stop the logging.

Environmental governance put to the test not only the federal-state relationship within Malaysia but also bilateral and regional cooperation and the strength of the ASEAN spirit on issues of environmental politics. Within Malaysia, various steps have and are being taken. Active programmes of research to assess the effects of environmental degradation and resource accounting are already underway. The legal and regulatory framework will be complemented with the use of innovative economic instruments. In addition, performance and efficiency can be enhanced through proper incentives, the most important of which are price-based. Within the current administrative and institutional framework, Malaysia is exploring different alternatives. A federation such as that present in Malaysia is like a partnership. Like all partnerships, its success and smooth working depends on the goodwill on the part of all its partners and a willingness to make it work. The need to resolve federal-state arrangements for the environment is a shared concern and a cooperative effort of the Federal, State and Local Governments. None of the governments can work in a vacuum, for their paths often cross. Each should know what it can or cannot do, and what it may do only after consultation with or with the consent of the other. More importantly, there is a need to adopt the

concept of smart partnership to promote cooperative harmony and prosperity.

At the ASEAN level, there is a need to recognize not only economic recovery but also a transformation for sustainable development. As members of ASEAN, Malaysia and the member countries must develop rational and transparent systems of governance, and a stronger networking for sharing experiences as well as strengthening commitment. Specific policies may need to be reviewed and members may need to adopt some kind of environmental standard to ensure the integrity of the environment. International and bilateral relationships may need to be redeveloped into a more workable and positive framework, in line with the principle of common but differentiated responsibilities.

The changes within the region and around the world have had a significant impact on Malaysian environmental attitudes and policy, and this will possibly continue in the years to come. Actions taken by Malaysia must be based on sound reasoning and be aimed towards an improvement in the human and surrounding conditions. Undoubtedly, the key to better conditions is partnership and good governance.

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Environmental Governance in the Philippines

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1. Introductory Overview

1.1 Historical Note

It is of interest as a footnote to the history of environmental regulation and governance in the Philippines that the earliest legal material relevant to the present discussion consists of the Spanish Law of Waters of 1866, which was applied by the Spanish colonizers to the Philippines in 1871. It authorized the Spanish Governor General to suspend industrial operations if it caused contamination of water resources injurious to public health.

In one particular respect, this law serves to typify a regulatory approach that is sectorally specific in dealing with a problem in social and economic life affecting aspects of the environment. The object is the protection of public health or welfare and the concern on the environmental condition takes an incidental or secondary importance. Primarily, legal regulation of this category differs from a regulatory system concerning the environment as a whole as its direct object and treated as an integral situation. This integrative approach did not come until the early 1970's, curiously enough during the onset of the martial-law regime, which turned out to be a watershed in environmental protection, in terms of formal law at least.

The "piecemeal-approach" to environmental protection is represented by a considerable body of laws. By no means are these laws taken as outmoded regulation. They are still in force, and side by side with the comprehensive and integrated regulatory system, they constitute the intensive or focal points of environmental protection.

Among the earliest piecemeal or use-oriented approaches which differ conceptually from the modern regulatory system of environmental protection were enacted in the early period of the American colonial rule. Act No. 2152 provided for water quality management and appropriation of public waters. Act No. 2812 prohibited the cutting and utilization of fruit trees in public or communal forests. Act No. 3992 regulated disagreeable sound, noise, odor or smoke from motor vehicles. Act No. 3983 protected wild flowers and plants.

During the Commonwealth period of the US colonial administration, from 1935 to the Second World War, Commonwealth Act No. 383 was enacted to punish dumping of waste matter into any river. What proved to be of long-term importance is the passage of C.A. No. 141 providing for a system of disposing and conserving public lands. C.A. No. 137 was enacted for the conservation and

development of mineral lands.

Among the major policies of the postwar period following the country's political independence, are those pertaining to the prevention and control of industrial pollution, for which Republic Act No. 3931 established the National Water and Air Pollution Control Commission in 1964. The Reforestation Commission was created under Republic Act No. 2706 relative to the spreading problem of deforestation. Pollution of Laguna Lake has seriously affected not only the lake waters but the ecology of the lake basin as well. The legislative response was the creation of the Laguna Lake Development Authority. Republic Act No. 5752 established the city forests, tree parks and watersheds.

Presidential Decree No. 1151, promulgated on 6 June 1977, marked a significant change in the character of environmental policymaking and management. Entitled "Philippine Environmental Policy", this law departs from what it calls "the piecemeal-approach concept of environmental protection" and describes this as a "tunnel-vision concept [that] is not conducive to the attainment of an ideal environmental situation." In place of this approach, it provides for "an intensive, integrated program of an environmental protection that will bring about a concerted effort towards the protection of the entire spectrum of the environment through a requirement of environmental impact assessments and statements." Following this orientation, on 11 June 1978, Presidential Decree No. 1586 instituted the "Environmental Impact Statement System as a means of reconciling socio-economic undertakings with requirements of environmental quality." It prescribes that the system shall apply to "every proposed project and undertaking, which significantly affects the quality of the environment" on the part of all government agencies as well as of private corporations.

A companion measure to the Philippine Environment Policy Decree, issued on the same day, was Presidential Decree No. 1151, known as the "Philippine Environment Code." It provides for basic standards and programs in the management of air quality, water quality, land use, natural resources, and waste. This Code was intended to be implemented by the National Environmental Protection Council, which was established at about the same time. Created by Presidential Decree No. 1121 of 18 April 1977 and headed no less by the President of the Republic, the Council is intended to achieve coherence in the activities of government agencies relating to environmental protection, to propose new policies and laws on account of "changes in the environment status of the country", and to review impact assessment of government projects.

The martial-law period gave a rich harvest of legislative enactments between 1975 and 1977. These included the Code of Sanitation, the Water Code, the Fisheries Decree, the Marine Pollution Decree, and the Coral Resources Development and Conservation Decree. This period also saw the promulgation of Presidential Decree No. 1181 providing for "a systematized legal regulation for the prevention, control, and abatement of air pollution from motor vehicle." Before the Local Government Code of 1991, Presidential Decree No. 1160 granted authority to heads of *barangays* (villages) to enforce pollution and other environmental control laws.

The need for a modernized system of environmental protection during this period found official expression in Presidential Decree No. 1121 creating the National Environmental Protection Council. It articulates the government's awareness of "the continuing deterioration of the Philippine environment caused by rapid urbanization, industrial growth, population expansion, natural resources extractions, [and] the use of modern technology".

These legislative developments came in the wake of the United Nations Conference on the Human Environment in Stockholm in 1972. The Stockholm Conference proved to be a consolidating influence in the making of an integrated approach to environmental protection and it gave impetus to a more unified national action towards this objective.

Reflecting on the integrated system of environmental management, government reorganization undertaken by the post-martial-law Aquino administration transformed the old administrative structure into the Department of Environment and Natural Resources (DENR) under Executive Order No. 192 (1987). The new structure is now carried over into the Administrative Code of 1987.

A comprehensive response to damage to human health and environment caused by hazardous wastes and toxic substances did not come until the enactment of Republic Act No. 6969, the "Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990." The Philippines is a party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, which was concluded in 1989. Republic Act No. 6969 implements the Philippine commitments under the Basel Convention.

In 1992, Republic Act No. 7586 established the National Integrated Protected Areas System. The protected areas covered by the system consist of "habitats of rare and endangered species of plants and animals, biographic zones and related ecosystems, whether terrestrial, wetland or marine." It is placed under the administration of the DENR which operates on the basis of a management plan to maintain a strategy of protection.

A comprehensive air pollution policy is enacted in Republic Act No. 8749, which took effect on 17 July 1999. It provides for a "holistic national program of air pollution management" with primary focus on prevention rather than on control of pollution. It sets emission standards for motor vehicles, regulates the allowable content of additives in all types of fuels, and phases out ozone-depleting substances.

1.2 Social Awareness and Government Concern

Public anxiety and apprehension over the state of the environment is on high level, on account of disasters involving loss of lives and damage to property, caused by floods which are attributed to

deforestation or by massive pollution of bays and rivers. Issues in environmental protection are connected by public perception to widespread corruption in the administration of laws and to neglect of official duties. High degree of social awareness is maintained by mobilization of public opinion through civil society organizations in close touch with their broad membership. The impact of international conferences is considerable, bringing into the country perspectives and insights on environmental approaches to the benefit of non-governmental organizations (NGOs) as well as to government administrators.

In the last 30 years, the Philippines has become a seriously deforested country and broad masses of people have increasingly suffered the consequences. And thus deforestation has become the focus of social awareness, pressuring the government for effective rehabilitation and conservation measures. Deforestation issues have acquired broader dimension in the accumulation of wealth on the part of a few commercial loggers at tremendous social costs. The sharp edges of conflict between the affected private sectors and the government are at times moderated by advocacy of a total log ban policy on the part of some government agencies and by increasing participation of NGOs and communities in reforestation and forest management.

But public memory lingers on the flood of November 1991, which submerged the entire Ormoc City in the province of Samar. More than 4,800 were counted dead, drowned by water rising to ten feet in three hours. The people attributed the flood to massive denudation of mountain ranges, which to their perception made clean profits to a few families engaged in logging business.

Pollution is on such an intolerable scale in river systems and coastal zones that it chokes communities by slow death. Heavy pollution is traceable to mining operations of the country's largest companies. More than 63 million tons of mine tailings had been generated by the mining industry in 1987, in addition to other hazardous wastes. Public indignation rose to a high pitch in 1996 when tons of mining tailings from the mountain-top operations of one of the country's largest mining companies descended on the Boac community in Marinduque province, choking to death the Boac and Makulapnit rivers, poisoning the waters of Lalay Bay, dumping more toxic waste into the dying Calancan Bay, and displacing hundreds of families.

Even as public attitude is still conditioned by such explosive disasters, social awareness has grown into a more general outlook that the industrialization of the environment inevitably results in the fast deterioration of environmental quality. There is increasing consciousness too of population pressure on the country's ecosystems as this acquires focus in the rapid pace of urbanization. This outlook contributes to the receptiveness of the public to the campaign of environmental NGOs for greater "direct action" of citizens in approaches to environmental governance.

1.3 Regional and Global Risks and Perils

While it did not cause general alarm, the spread of smoke and haze from the recent Indonesian forest fires drove home to the Philippine public the interconnectivity of environmental conditions in the region. Some NGOs engaged in consultation conferences as to what assistance would be feasible.

Owing to the impact of the worldwide debate and consultations generated by the United Nations Framework Convention on Climate Change, public awareness related this to the archipelagic reality in which the people live. NGOs play a significant catalyst role in sharpening public awareness of how their situation is affected by such phenomenon as global warming, ozone depletion or greenhouse effects unheard of in their lives a decade ago. Government monitoring of the global climate has dramatized the need that no less than concerted action on the national and international levels can give the population a sense of preparedness for what might be an impending global crisis, the consequences of which are not amenable to regional containment.

Increasing concerns over the global dimension of environmental problems and risks have acquired focus in instruction and research in international environmental law and policy. Notable developments along this direction are the research program in international environmental law at the University of the Philippines Law Center and the expanded course offerings at the College of Science of that University.

2. A Contextual Overview

2.1 The Archipelagic Nature of the Philippines

The Philippines is an archipelago of 7,100 islands. It is one of the largest island groups in the world. It has more water than land. The islands range from the largest of 141,395 square kilometers (Luzon) and 101,999 square kilometers (Mindanao) to those less than 1.6 square kilometers. Only about 470 islands have areas bigger than 1.6 square kilometers. Ninety-two percent of its 300,000 square kilometers of land area are contained in the 11 largest islands.

The country has the largest discontinuous coastline in the world, 34,600 km. in length. It is more than twice longer the coastline of the United States and twice that of Greece. Within its jurisdiction are 212 million hectares of marine waters. Two-thirds of the country's 1,452 municipalities are located along the coast. Seventeen of its 84 cities are in coastal areas. Overall, more than 50 percent of the population live in the coastal villages. About 304 major rivers traverse the most populated provinces, provide means of transportation, and irrigate vast tracts of ricefield and other plantations.

The archipelagic nature of the country, together with its river systems and 59 lakes, makes it vulnerable to pollution of the marine environment by dumping as well as to pollution from land-based sources.

Its vulnerability is expected to be increased by the implementation of the United Nations Convention on the Law of the Sea (UNCLOS) of which the Philippines is a party. UNCLOS requires the Philippines to establish archipelagic sea lanes, together with air routes, four or five of which will cut across the Philippine archipelago, each measuring at least 50 nautical miles in width. Under the UNCLOS, all ships and aircraft enjoy the right of passage in such sea-lanes and air routes. Moreover, the country's internal waters lying between and dividing the islands of the archipelago are to be transformed into archipelagic waters, which under the UNCLOS are open to right of innocent passage by foreign ships.

Easily transmitted across the seas, organic wastes are reported to constitute 55-75 percent of pollution affecting the major areas of water. Based on reports of the Department of Environment and Natural Resources (DENR) since 1980, wastes from sewage, garbage, poultrys, piggeries, refineries, mine tailings, and toxic substances, have caused the death of rivers, including all the rivers in Metropolitan Manila, as combined with siltation. Largely caused by soil erosion, siltation of the country's waters is estimated to be at the rate of 60 million tons a year. Loss of forest cover and degraded watershed precipitate soil erosion which throws topsoil into the sea at the rate of 100,000 hectares a year. Industrial wastes dumped into the sea and carried across the islands are considerable.

The country's coastal zone, which provides the people food security primarily through fisheries production, is also the location of residential districts, tourism sites, chemical plants, food processing facilities, and shipping infrastructures, thus presenting problems in management of environmental protection in correlation with the demands of economic development.

This predicament is exemplified by the mining industry. Side by side with its contribution to the economy, it results in serious degradation of the environment. Tremendous amount of mine wastes and tailings are generated by mineral extraction, which are carried to rivers and into the seas. In 1991, mines wastes reached as high as 47.44 million metric tons and mine tailings, 42.70 million metric tons. The environmental impact of the mining industry may be a cause of increasing concern as the new Mining Code provides impetus for its productive potential.

It is the archipelagic character of the Philippines that complicates the problems of governance for environmental protection, as centralized in Metropolitan Manila. Administrative effectiveness in the implementation of environmental laws is weakened by the division of the country into islands vis-à-vis the inadequacies in the means of transportation and communication.

In the long view, on account of the archipelagic character of the Philippines, the global greenhouse effect and the deterioration of the earth's ozone layer may have disastrous consequences. Human settlements and key sectors of civil and political life along the coastal stretch of the country would be seriously affected by the rise of ocean levels as a consequence of the thermal expansion of the sea.

2.2 Demographic and Socio-Economic Factors

As of the end of 1999, the country's population is estimated to be 73.9 million, with an annual growth rate of 2.3 percent. Metropolitan Manila, ranked as the world's 18th largest Metropolitan area, has a population of about 9.45 million. The Philippines is the sixteenth most populous, out of the more than 190 countries.

Nationwide, population density is about 232 per square kilometer. For Metropolitan Manila, it is 14,865. Between 1980 and 1990, urban population increased at the annual rate of 5 percent.

Average family size is 5.3. Seventy-two percent of families live in rural areas and 60 percent of them are agricultural workers. Per capita income was US\$770 in 1992, which increased to US\$960 in 1994. GNP per capita as of 1997 is US\$1,265. GDP per capita has increased to US\$3,520 as compared to US\$28,565 in Singapore, \$6,285 in Thailand, \$3,275 in Indonesia, \$1,775 in Vietnam, \$1,350 in Cambodia, and \$820 in Myanmar, all in the ASEAN. GDP growth for 1999 is 3.2 percent.

In 1999, the labor force reached 32.08 million people, an increase of 3.3 percent over the 1998 figure. Unemployment rate in 1999 was 9.8 percent, a decrease by 10.1 percent from the previous year.

More than one-third of the country's households has income below the poverty line. Poverty is more pervasive in the rural areas; 68 percent of the population in these areas are below the poverty line. Based on the 1994 survey of family income and expenditure, between 1991 and 1994 the percentage of families below the poverty line was 35.5, and the percentage of individuals of this category was 41.3. Infant mortality rate (number of death of infants under one year old per 1,000 births) is 35, as compared to 26 in Thailand, 29 in Vietnam, 31 in China and 47 in Indonesia.

Income distribution in the period 1965-1991 exhibits the basic pattern of inequality in the percentage share of income. The top 10 percent of the population received 40.1 percent of income in 1965 and 37.8 in 1991. Whereas, the lowest 10 percent had only 1.1 percent and 1.8 percent, respectively. The top 50 percent received 82.7 percent of income in 1965 and 81.1 percent in 1991, but the lowest 50 percent had only 17.3 percent of the income in 1965 and 18.9 percent in 1991.

Literacy rate increased from 87.7 percent in 1993 to 94.4 percent in 1995. Life expectancy was 66.3 years in 1995, as compared to 65.16 recorded in 1994. The recent Human Development Report indicates that in 1997, life expectancy increased to 67.21 years.

As to energy resources and utilization, production rose to 159.9 million barrels of fuel oil in 1995, an increase by 9.1 percent from the 1994 production. Coal production was about 1.12 million metric tons in 1996, but consumption reached 3.2 million metric tons. Level of electrification in mid-1996 was 97 percent or 1,380 out of 1,417 target municipalities and cities nationwide. Thirty-five percent of

electricity consumption is accounted by the industrial sector.

The 1996 report of the National Telecommunication Commission records a total of 1.489 million telephone lines installed. Telephone density is 4.66 as of 1996. In the same year, cellular phone subscribers increased to 959,024 from 493,862 in 1995. Total road network is about 161,009 kilometers. In 1996, 2,387 kilometers of national roads were completed. Average road density is about 2.48 kilometers per 1,000 population.

2.3 Economic Development and Investment Trends

The Philippines is an industrializing economy and, until the advent of the Asian financial crisis, its political leadership aspired to the status of a “new industrializing country.”

The Philippine bid for industrialization arrived at a turning point in late 1960s when the course of economic development shifted from import substitution to export-oriented manufacturing of labor-intensive industrial products. This strategy has become the basis of a policy focus on attracting foreign direct investments for this type of manufacturing. In the last two decades export-led industrialization has created conditions for the rise of component industries as rising costs in the traditional industrial centers caused transnational corporations to locate certain segments of their productive processes in lower-wage countries. It is within this framework of economic development worked out with the World Bank and the International Monetary Fund (IMF) that the Philippines pursued a series of five-year development plans since the start of the martial-law administration up to the close of the 1980s.

A dynamic feature of this economic development strategy is the relocation to the Philippines of a great number of Japanese corporations, in some cases together with their subcontractors. The world's largest manufacturers of motor vehicles and electronics as well as those in telecommunications, banking and financial services have established investments in the Philippines. By law, the entire country has been divided into 37 special economic zones, in order to “effectively attract legitimate and productive foreign investments.” Assisted by Japan's Overseas Economic Cooperation Fund (OECF) and Japan International Cooperation Agency (JICA), Project Calabarzon is on the way to realizing its central role “to become a driving force of further industrialization in the country.” It is planned primarily for foreign investments in export-oriented, assembly-type industries together with their linkage industries.

The magnitude of resources within Project Calabarzon – together with the concomitant environmental impact – is suggested by the fact that it covers a land area of 16,229 square kilometers or 5.4 percent of the country's total land area, with a population equivalent to 10.5 percent of the national total. This massive industrialization project requiring tremendous natural, human and technological resources exemplifies the situation of the Philippines torn between the horns of a dilemma: qualitative socio-economic development, on one hand, and environmental rehabilitation and protection, on the

other.

And yet Project Calabarzon is only one of the many industrialization sites emerging in other parts of the country that would demand increased land utilization, raw materials development, construction of infrastructure systems for transport, communications, and power resources. The environmental implications of foreign investments are aggravated by the relocation to the Philippines of industrial processes involving sources of pollution and other environmental hazards, such as the transfer to the island of Mindanao of the Kawasaki sintering plant, after it was “expelled” from Chiba, Japan, on account of protests against its pollution effects.

The Philippines may have to rely on external sources of capital for significant economic development, on account of its limited capital and credit resources. Its gross domestic savings (GDS) as percentage of GDP ranged from 16.80 to 20 percent in the period 1994-1998, lower than 48.8 to 52.2 percent in Singapore, 38.8 to 48 percent in Malaysia, 32.9 to 35.9 percent in Thailand, and 19.10 to 29.10 percent in Indonesia. For the same period, its gross domestic investment as percentage of GDP is also the lowest in comparison to these ASEAN countries, ranging within 19.3 to 23.8 percent. Given appropriate conditions, foreign direct investments may generate a more dynamic force in the industrialization of the environment, together with its problems.

3. Current State of Environmental Governance Mechanisms

3.1 Constitutional Policy

The Philippines is governed by a Constitution, the fundamental law that defines the powers and functions of the government, and its relations with the citizens, as well as the limitations of those powers. The Constitution also sets forth the basic economic and social policies, which are to be carried out by the government.

Among these policies, it is provided in Section 16, Article II, of the Constitution that “the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.” The Constitution also mandates that the State shall protect the nation’s wealth in its archipelagic waters, territorial sea, and exclusive economic zone.

In Article XIII, entitled “Social Justice and Human Rights,” the Constitution provides for “the right of the people and their organizations to effective and reasonable participation at all levels of social, political and economic decision-making.” It carries the mandate that the right shall not be abridged. It also directs Congress to facilitate the provision for adequate consultation mechanisms by which the people’s organizations can actualize this right. As a distinct constitutional policy, the fundamental law enjoins the State to give encouragement to “non-governmental organizations, community-based, or sectoral organizations that promote the welfare of the nation.”

The highly centralized mechanism of environmental governance may have been necessitated by the concept under the Philippine Constitution that “all lands of the public domain, waters, minerals, coal, petroleum and other mineral oils, all sources of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are owned by the State.” From the viewpoint of this “regalian doctrine,” it becomes logical for the national government in representation of the State as owner to monopolize governance as it did, until the advent of policy changes in the late 1980s onwards and the devolution of environmental functions to the local government units under the Local Government Code of 1991.

Being the supreme law of the nation, the Constitution is established as the standard of validity of laws, policies, regulations, ordinances and programs relating to environmental protection and governance. Constitutional principles are the primary bases of the courts in interpreting and applying the laws, regulations, and programs when challenged by opposing parties.

3.2 Formal Locus of Policymaking and Management

In terms of formal law and structures, the center of policymaking and management for environmental protection is Metropolitan Manila, located in Luzon, the largest island of the archipelago. Environmental laws are enacted by Congress, the national legislative body composed of the Senate (upper chamber) and the House of Representatives (lower chamber). Legislative proposals or bills are initiated by the members of Congress, or they may be recommended by the Office of the President or members of his Cabinet. In particular, on account of the nature of his responsibility, the Secretary of Environment and Natural Resources is the logical source of legislative proposals based on problems encountered in the process of governance. When approved and signed by the President bills passed by Congress become law.

In the division of constitutional powers, the Executive branch, led by the President, takes the accountability in the execution of environmental policies and laws. Within the Executive branch of the government, it is the Department of Environment and Natural Resources (DENR) that is directly engaged in the implementation of laws and policies. It is granted by Congress the authority to promulgate appropriate rules and regulations that translate the generality of the law into concrete terms and makes it suitable to peculiar conditions. As discussed below, the social and political dynamics involved in governance brings into play a more intricate relation between the public sector and the civil society participants.

3.3 Role of the Department of Environment and Natural Resources

The Department of Environment and Natural Resources is officially the mechanism for the implementation of the State policy on the development and utilization of natural resources “consistent

with the necessity of maintaining a sound ecological balance and protecting and enhancing the quality of the environment.” Intertwined with its function relative to natural-resources development and conservation, is the mandate to enforce environmental protection laws, and to promulgate regulations for the control of pollution as well as standards for water and air quality. Annex “A” shows the DENR organizational chart.

The Department is headed by the Secretary of Environment and Natural Resources, who advises the President on the promulgation of regulations and standards for the enforcement of environmental laws, the exercise of supervision and control over all functions and operations of the Department. The Secretary is assisted by five Undersecretaries.

The Department maintains staff sectoral bureaus, among which are the Environmental Management Bureau, the Forest Management Bureau, the Ecosystems Research and Development Bureau, and the Protected Areas and Wildlife Bureau. The bureaus recommend proposed legislation, policies, standards, and regulations in their respective areas of responsibility.

In every administrative region of the country, the Department has established an Environment and Natural Resources Regional Office. In each of the 78 provinces, it maintains a Provincial Office, and in municipalities, it may establish a Community Office.

Each Regional Office is headed by a Regional Executive Director who is assisted by the Assistant Regional Director for Environmental Management, for Forestry, and for Ecosystems Research. The Regional Office carries the main burden of implementing policies, laws, regulations, standards, and programs within the administrative region of its responsibility. It also coordinates the work of local government units and other agencies of the national government in environmental protection.

The present structure and functions of the DENR emerged from the reorganization of the old Department of Natural Resources in January 1987, and they signify the installation of governance for environmental matters as an integrated system. Before DENR came into being, environmental administrative mechanism was organized along specific fields of concerns.

Thus, to maintain standards of quality for air and water, Republic Act No. 3931 created the National Water and Air Pollution Control Commission in 1964. Later, with the addition of more regulatory powers, this agency was transformed into the National Pollution Control Commission (NPCC) under Presidential Decree No. 984. In mid-1970s, as degradation of the natural environment came into official view, a more integrated approach to environmental protection was recognized. This perspective led to the formation of the Inter-Agency Committee on Environmental Protection under the Department of Natural Resources (DNR) in July 1976. The Committee made a comprehensive assessment of the country’s environmental situation and inquired into the adequacy of government policies and programs on environmental protection. The Committee’s findings disclosed that there was

utter lack of coordination in the operations of 22 government agencies in carrying out their respective responsibilities relating to environmental protection. In addition to the need for extended regulatory powers on the part of relevant agencies, a major gap came into the fore; there was no mechanism to assess the environmental impact of development projects. Hence, the Committee recommended the creation of a national coordinating agency for environmental protection.

Thus, Presidential Decree No. 1121 created the National Environmental Protection Council (NEPC) on 18 April 1977. Chaired by the President, the Council took charge of rationalizing the functions of various government agencies into an integrated system of environmental governance. It formed inter-agency committees for specific concerns, such as Environmental Officers Committee, Coastal Zone Committee, and Committee on Proliferation of Toxic and Hazardous Wastes.

Following the formation of a new government in February 1986 after the fall of the martial-law regime, NPCC and NEPC were abolished. In January 1997, the Department of Natural Resources (DNR) was organized into the Department of Environment, Energy and Natural Resources (DEENR) under Executive Order No. 131. Executive Order No. 192 was issued six months later, reorganizing the DEENR into the Department of Environment and Natural Resources (DENR) as it stands now, charged with the responsibility to “ensure the sustainable use, development, management, renewal and conservation of the country’s forests, mineral lands, offshore areas and other natural resources, including the protection and enhancement of the quality of the environment.”

3.4 Local Government

The Philippines is divided into 16 administrative regions. Each region is divided into provinces. Over all, the country is composed of provinces, which are divided into cities and municipalities. Cities and municipalities are sub-divided into *barangays* (villages). Local Government Units (LGUs) consist of provinces, cities, municipalities, and *barangays*. The Philippines has 78 provinces, 84 cities, 1,452 municipalities, and 42,000 *barangays*.

The enactment of the Local Government Code in 1991 is a watershed in environmental governance. The Code restructures the system of administrative implementation of laws by decentralization of relevant powers and functions. Accordingly, Section 3(I) of the Code gives the directive that local government units “shall share with the National Government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction.”

Under this partnership principle, it becomes the duty of every agency of the national government to consult with LGUs in the planning and implementation of any program that may cause pollution, climatic change, or loss of forest cover. The Code defines the legislative power of LGUs to “protect the environment and impose appropriate penalties for acts which endanger the environment.” In particular, they now have the authority to enforce forestry laws and engage in community-based and

social forestry programs.

A notable feature of the Local Government Code is the close relation it enjoins to be established between the LGUs and the non-governmental organizations (NGOs) in carrying out socially oriented projects. The LGUs may provide assistance to NGOs in the implementation of environmental programs. In practice, NGOs participate in social forestry projects.

3.5 The Courts

The function of courts has been limited to prosecution of offenses, involving forestry laws and relating to destruction of corals. Occasionally, however, questions of far-reaching policy are decided by the Supreme Court. A recent landmark in Philippine jurisprudence is *Oposa v. Factoran*, promulgated on 30 July 1993, in which one member of the Court in a concurring opinion referred to as lying down the “seminal principles ... [that] are likely to influence profoundly the direction and course of the protection and management of the environment.” The Court proclaimed that “the right to a balance and healthy ecology” is a self-executory right, “no less important than any of the civil and political rights enumerated in the ... [Bill of Rights].” It recognizes the right of the children who appeared as parties in the case, to come to court “to sue in behalf of the succeeding generations ... based on the concept of intergenerational responsibility.”

3.6 Formal Structure and Process of Public Participation

In the composition of the municipal legislative body (*sangguniang bayan*), it is required by the Local Government Code that sectoral representatives from the women, agricultural or industrial workers, and the urban poor, indigenous communities, or disabled persons be included. In practice, sectoral members of the *sangguniang bayan* are representatives from non-governmental organizations (NGOs) who, thus, directly participate in local legislative work for environmental protection. The same sectors, organized as NGOs, are required by law in the membership of the provincial legislative body (*sangguniang panlalawigan*).

The evolution of the present Integrated Social Forestry Program entailed the involvement of the community, households, and non-governmental organizations (NGOs). As a means of curtailing massive deforestation by slash-and-burn shifting cultivators, the Kaingin Land Management began in 1971. This developed into the Forest Occupancy Management Program (FOM) in 1975, which authorized some communities to occupy specified forest areas. In 1978, FOM was transformed into the Community Tree Farming Program, designed to enlist the participation of cities and municipalities in tree farming and reforestation. The Family Approach to Reforestation developed in 1979 called for participation of households based on short-term contracts. After a review participated in by NGOs, features of these approaches were combined into the Integrated Social Forestry Program (ISF) in 1982. The ISF gives security of tenure to occupants of forest areas based on individual and communal forest

stewardship contracts. As revised in 1991, community forest stewardship contracts may be concluded with indigenous communities in addition to NGOs. In 1994, 39 community-based groups had forest stewardship contracts covering an area of 94,916 hectares and involving 18,140 beneficiaries.

Through contract reforestation, assistance of families, communities, NGOs, and corporations as contractors is involved in the planting of specified areas with fast-growing species, on cash payments in three tranches.

In 1993, control and supervision of ISF were transferred from DENR to LGUs, which brought the administrative mechanism nearer to the community beneficiaries. In the same year, 73 community-based projects under ISF were declared by the DENR as the Center for People's Empowerment in the Uplands.

Pursuant to the Coastal Environment Program of the DENR, mangrove reforestation has taken the community-based management approach. By the end of 1995, 6.9 million hectares of mangrove areas had been planted by family and community-based contractors through contract reforestation. More than 105 NGOs were awarded contracts, covering 7,118 hectares of mangrove areas.

The Cabinet approved the Philippine Strategy for Sustainable Development in 1989. This document has become the main reference point in undertaking economic-development programs within the framework of environmental protection. It gives emphasis on the approach that "NGOs will be enjoined to mobilize the citizenry and make them active participants in environmental management, through the formation of the network among the NGOs and the government institutions, to organize communities, conduct public information campaigns, conduct research/situation assessments, undertake environmental surveillance and monitoring, and other similar activities." The integral environmental strategy contained in this policy paper is the product of consultations with NGOs.

The DENR maintains an NGO desk, which has been established to provide information on government plans and programs concerning environmental management. In 1992, the President created the Philippine Council for Sustainable Development in which NGOs and people's organizations work with the government sector.

NGO officers and members were among the beneficiaries of the 1992-94 training program for environmental planning and management methodologies, which the UNDP funded, in response to the need for a trained manpower base for this purpose. Entitled "Human Resources Development in Environmental Planning and Management for Sustainable Development in the Philippines", the training project was part of the 1987-1992 Medium-Term Philippine Development Plan.

Since mid-1980s NGOs in environmental protection have prominently increased their presence. The second part of that decade saw a shift in the direction of the NGO concerns. Fresh from the struggles

against the martial rule regime, in the post-1986 period, NGOs and people's organizations (POs) turned their activism from political and economic issues to environmental questions. Protest actions projected NGOs into public notice and consolidated their ranks. Campaign against the dumping of mine tailings into Calancan Bay in Marinduque Island by Marcopper Mining Corporation resulted in a change of disposal scheme in DENR policy.

Environmentalists organized a protest movement against the building of nuclear power plant in Morong, Bataan province. A broad coalition of support groups carried their "anti-nuke" mobilization drive into the advent of the Aquino administration. In 1987, academics and engineers belonging to the Philippine Institute of Chemical Engineers staged a successful protest against an incinerator scheme in Iligan City, in particular against utilization of wastes imported from industrial countries as fuel to the incinerators. Businessmen and religious people led an alliance of Metro Manila-based NGOs against smoke belching in 1989, calling themselves "Groups Against Smoke-Pollution" or GASP! Earlier in 1989, NGOs and residents in Irosin, Sorsogon province united on the rejection of a geothermal project for fear of environmental degradation as a consequence. Raising as an issue the annihilation of ecosystem in Palawan province, Haribon Foundation campaigned for one million votes for the banning of commercial logging, trading in wildlife, and for declaring Palawan a protected area. In 1989, it convened the Green Forum Philippines, a broad coalition of NGOs within the frame of sustainable development.

The formation of networks and alliances on environmental concerns between 1965 and 1990, marked a new stage in the development of the social role of civil society organizations in the Philippines. After 1986, the Philippine Federation for Environmental Concern (PFEC) found itself in the company of Solid Alliance of Vigilant Environmentalist (SAVE), the Philippine Ecological Network (PEN), the Philippine Environmental Action Network (PEAN), the Public Education and Awareness Campaign for the Environment (PEACE), the Environmental Education Network of the Philippines (EENP), the Philippine Environmental Journalists, and the Green Forum Philippines.

By the end of the 1980s, a framework of cooperation developed in the relationship of NGOs and the government sector. The DENR report, entitled "The Philippine Environment in the Eighties" described this new turn, thus: "While this was initially characterized by wariness and general distrust from both sides, it has gradually changed for the better. Barriers are gradually being broken down to give way to possible avenues of cooperation, particularly in rebuilding degraded critical ecosystems such as the uplands and the coastal zone."

3.7 Social and Political Dynamics Involved in Governance

Environmental governance in the Philippines is: (1) multisectoral, (2) multilevel, and (3) problem-focused (mainly, on pollution and the degradation of major resources).

Multisectoral. The Government (public sector) is an established player on environmental matters but later (particularly after the EDSA Revolt in 1986) private sector players have been taking more active roles and responsibilities in addressing the nation's environmental woes.¹

Table 1. Environmental Governance Mandates of Different National Government Agencies in the Philippines

Agency	Functions
Department of Environment and Natural Resources (DENR)	Management of mineral resources Land management Forest management Protected area management Wildlife protection Pollution prevention and control Ecosystems R&D
Department of Agriculture (DA)	Fisheries & aquatic ecosystems' management Soil and water management Water conservation and allocation
National Water Resource Board (NWRB)	Flood control; landslide mitigation
Department of Public Works and Highways (DPWH)	Earthquake, typhoon, climate
Department of Science and Technology (DOST) Forecasting and R&D	
Department of National Defense (DND)	Disaster preparation and response
Department of Social Welfare and Development (DSWD)	Disaster relief
Department of Health	Sanitation; pollution control

Source: Malayang 1998a.

Within *Government*, environmental governance is done by many agencies (Table 1). And because State environmental policies often extend into their different mandates, public sector actions often require consensus and coordination among them.²

Private sector players on their part have been building networks with those in other countries to undertake interventions that address local environmental problems. There are many of these groups³ although only a few eventually stand out in terms of their credibility, consistency and advocacy. And because most are engaged in activities that complement or pose alternatives to government action (Table 2), many tend to coordinate their activities and, when doing policy advocacy, seek (like the case of government agencies) for a consensus among themselves to jointly push a common agenda (See PCSD).

¹ Include NGOs, people's organizations (POs), private business groups (PBGs) or local communities acting collectively on their own. See Malayang 1998b for a detailed discussion of this trend.

² One example is biodiversity conservation. It runs across different ecosystems including marine and terrestrial. Wildlife management itself is under DENR but fisheries and aquatic wildlife are under the DA. The same is true with water which is covered by the mandates of DENR, DA, NWRB and DPWH.

³ Today, the DENR lists over 10,000 NGOs and POs in the country which it recognizes as legitimate private sector organizations involved in environmental work (See DENR-EMB 1999).

Table 2. Environmental Engagements of Some Selected NGOs, POs and PBGs in the Philippines

Organizations	Nature	Major Engagements*
Center for Alternative Devt Initiatives	NGO	RM, CO, BD, LD, SC, WP, LP
Center for Environmental Concerns	NGO	RM, CO, BD, LD, SC, AP, WP, LP
CO Trng & Res Advocacy Inst	NGO	CO, RM
Green Forum	NGO/PO Network	RM, CO, AP, WP, BD, LD, SC
Haribon Society	NGO	RM, AP, BD, LD, SC
Lingkod-Tao Kalikasan	NGO	RM, CO, AP, WP, LP, SC, LD, BD
NGOs for Integrated Protected Areas	NGO/PO Network	BD, CO, RM
Org for Trng, R&D Foundation	NGO	CO, RM
Pambansang Kilusan ng mga Samahang Magsasaka	PO	RM, CO, LD, SC, WP, BD
Pederasyon ng mga Maliliit na Mangingisda-San Miguel Bay	PO	RM, CO, WP, BD
Phil Assn for Intercultural Devt	NGO/PO Network	RM, CO, LD, SC, BD
Phil Business for the Eenvt	Network of PBGs	AP, WP, LP, RM, BD
Phil Business for Social Progress	Network of PBGs	CO, RM, AP, WP, BD
Phil Eagle Foundation, Inc	NGO	RM, BD, LD
Philippine Environmental Education Network	NGO/PO Network	RM, CO, BD, AP, WP, LP, SC
Phil Foundation for Envl Concerns	NGO	RM, CO, BD, LD, AP, WP, LP, SC
Phil Rural Reconstruction Movement	NGO	CO, RM, BD, LD, SC
Phil Sustainable Devt Network	NGO/PO Network	RM, CO, BD, AP, WP, LD, SC
Upland NGO Assistance Center	NGO/PO Network	RM, SC, LD
Urban Poor Coordinating Network	NGO/PO Network	CO, AP, WP

* RM=Resource Management (e.g., Forestry; Fisheries; Minerals); CO=Community Organizing (for the environment); AP=Air Pollution; WP=Water Pollution; LP=Land Pollution (solid, toxic & hazardous waste mgt); BD=Biodiversity Development; LD=Land Degradation; SC=Soil Conservation. Source: PCSD 1999; DENR 1999; FPE 1999.

The *Philippine Council for Sustainable Development* (PCSD) is the national forum for formal government and private sector consensus-building on environmental governance in the country. Its composition includes government agencies and representatives of private sector groups doing environmental interventions or which are involved in shaping environment-development policies in the country (Table 3).

The PCSD was established by Executive Order 1 on September 1, 1992.⁴ It has four standing committees: (1) on Conservation and Management of Resources for Development (CCMRD), (2) on Social and Economic Dimensions (CSED), (3) on Strengthening the Role of Major Groups (CSRMG) and (4) on Means of Implementation (CMI). Two committees have standing subcommittees: biodiversity, atmosphere, land resources, and water resources (in CCMRD), and financing arrangements, science and technology, information & education, and legal & institutional arrangements (in CMI).

Table 3. Institutional Composition of the PCSD, by Sectoral Category⁵

Members ⁶	Academe ⁷	Civil Society*	Government	Labor	Business
NEDA (Chair and Coordinator)			x		
DENR (Vice Chair)			x		
DOLE			x		
DFA			x		
DOE			x		
DTI			x		
DILG			x		
DPWH			x		
DECS			x		
DA			x		
DOST			x		
DAR			x		
DND			x		
DSWD			x		
DBM			x		
DOF			x		
UPCN		x			
AMA		x			
PMM-SMB		x			
NUTD		x			
PILIPINA		x			
PKSM		x			
CO-TRAIN		x			
CADI		x			
CADENET		x			
LTK		x			
Green Forum-Philippines		x			
Gaston Z. Ortigas Peace Institute		x			
LACC				x	
TUCP				x	
PCCI					x
MAP					x

* Includes NGOs and people's organizations (POs)

Source: PCSD-PA 21 1997:182-183.

⁴ Later amended by Executive Order No. 370 on September 26, 1996.

⁵ The sectoral representations in the Council change almost yearly; the groups listed here were those representing their sectors at the time of the publication of the Philippine Agenda 21 (PA 21 1997) but the sectoral distribution is the same today.

⁶ See the list of abbreviations at the end of the paper.

⁷ Academe is regularly represented in the PCSD except that it has yet to be considered a formal member pending revision of the Council's charter; it has observer status but functions like any member.

PCSD decisions are not legally binding on members but are, morally and politically. This makes it a major environmental governance body in the Philippines and thus it has become the locus of multisectoral agenda setting on the environment in the country.

Multisectoral. Multisectoral governance requires that different stakeholders of the Philippine environment (both in public and private sectors) negotiate among themselves to arrive at a consensus on what must be done with each environmental problem of the country (Figure 1).

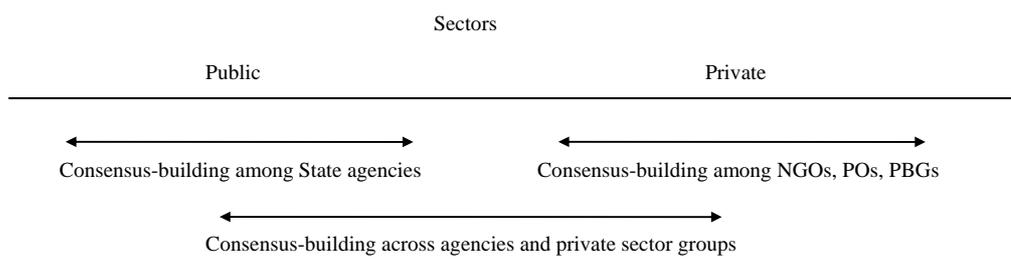


Figure 1. Schematic Illustration of Inter- and Cross-sectoral Consensus Making on Environmental Governance in the Philippines

Multilevel. Multisectoral governance of the environment in the Philippines occurs in different levels of decision and consensus making, mainly: (1) at the local community level (among individuals and groups in a neighborhood, village, municipality and province); (2) the subnational level (in a region)⁸; (3) national (the country as a whole); and (4) international (with other countries).

Local communities make the decisions that actually translate into direct actions on the environment (to cut a tree, dump wastes into a river, or use poisons and explosives to catch fish). They may act with due consideration of the decisions (policies, rules and regulations) of the larger society (e.g., the laws of the nation, the consensus forged in the PCSD, or treaty commitments of the country) but this depends on (1) the relative isolation of the community (its capacity to make autonomous decisions such as when government presence or the presence of the instrumentalities of public opinion and of social regulations like the media, is low); (2) the awareness of the community of such decisions; and (3) the extent that the community adheres and concurs to the decision.⁹ The Local Government Code

⁸ For administrative purposes, the Philippines is divided into sixteen regions: Region 1 (northwest Luzon); Region II (northeast Luzon); Region III (central Luzon); Region IV (southern Luzon); Region V (Bicol and Masbate provinces); Region VI (western Visayas); Region VII (central Visayas); Region VIII (eastern Visayas); Region IX (western Mindanao); Region X (northern Mindanao); Region XI (southern Mindanao); Caraga (eastern Mindanao); National Capital Region (Metro Manila); Autonomous Region of Muslim Mindanao (southwestern Mindanao); and the Cordillera Administrative Region (northcentral Luzon). Each region is composed of several provinces and provinces are comprised by municipalities and cities. A municipality or city is divided into *barangays* (a village-level household group) which is the smallest and lowest political unit in the country.

⁹ If they don't, they'll just go ahead and do what they want, particularly if they feel that they can handle the attendant risks, such as if they were caught.

provides the legal basis of community decisions but its focus is on formal local governance (State structures of local government) rather than on communities acting as independent social collectives.

Regions are a planning unit in the Philippines. It is in regions that local government plans (i.e., of *barangays*, municipalities and provinces) are consolidated to be consistent (a) with national plans (e.g., the Long- and Medium-Term National Development Plans) and (b) with the unique environmental and cultural conditions of the region. Regional planning is done by the Regional Development Council, which is composed of both governmental and private sector representations). In the case of the autonomous administrative regions, it is done by their prescribed legislative bodies composed of elected personalities residing in the region.

National governance refers to the actions of national governmental bodies (Congress, the courts and the agencies of the national government) and private sector groups acting at this level. The national agenda on the environment (as contained in national programs and legislation like the Philippine Agenda 21, National Biodiversity Strategy and Action Plan, Clean Air Act, Mining Act, Indigenous Peoples Rights Act, Forestry Master Plan and Coastal Resource Management Plan) is forged at this level. National planning – that incorporates environmental concerns with the other concerns of the country – is done at this level as well, steered by the National Economic and Development Authority.

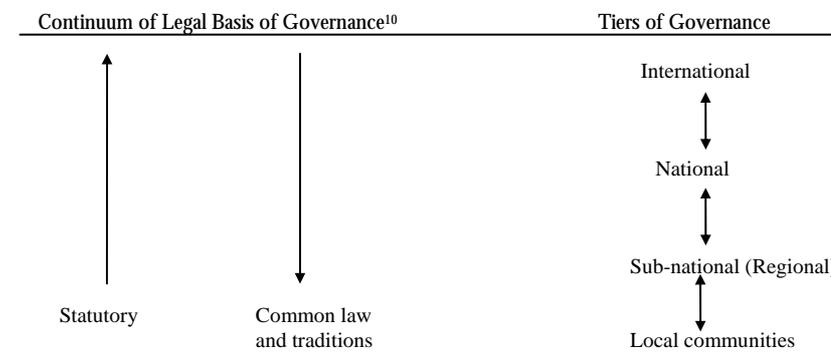


Figure 2. Tiers of Environmental Governance in the Philippines

International governance refers to the multilateral commitments of the Philippines. This includes treaty commitments (which are considered national laws in the country) and international commitments that might not be legally binding on the Philippines but which the country had pledged to observe nonetheless (e.g., UNCED's Global Agenda 21). Among the environmental treaties of which the Philippines is a party are the Convention on Climate Change; Montreal Protocol; Convention on Biological Diversity; United Nations Convention on the Law of the Sea; Basel Convention on the Transboundary Shipment of Toxic and Hazardous Wastes; WTO Agreements on Sanitary &

¹⁰ The higher the tier, the more statutory the basis; the lower, the less (in the sense that local customs

Phyto-Sanitary Measures and Technical Barriers to Trade; and environmental agreements in ASEAN and APEC. The fact that they limit and set the techno-political directions of Philippine environmental policy, make them an effective influence on environmental governance in the country.

Figure 2 shows the different tiers of environmental governance in the Philippines and their tendency to go up and down a continuum of legal basis of environmental actions.

Figure 3 summarizes the general structure of environmental governance in the Philippines, showing its multisectoral, multilevel and differentiated features.

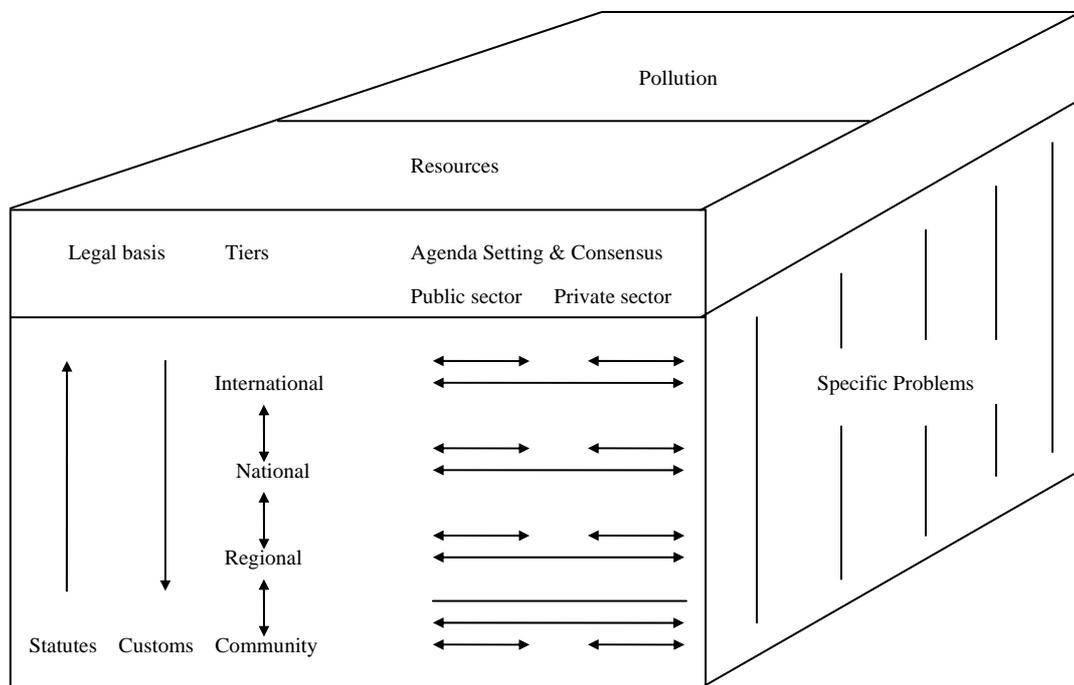


Figure 3. Structure of Environmental Governance in the Philippines

Problem-focused. There is a tendency to look at environmental problems separately: e.g., pollution as against resource degradation, and within the pollution, water pollution as against air pollution (Table 4). Different government agencies and private sector groups tend to specialize on a problem (e.g., see Tables 1 and 2) that their agenda and actions tend to focus as well on only the problems that they specialize.

tend to get more influential.

Table 4. Differentiation of Environmental Problems in the Philippines

First order	Second order	Third order
Pollution	Atmospheric	Inorganic (e.g. suspended particulates), chemical, climate change
	Aquatic	Marine or freshwater, domestic or industrial, organic or inorganic
Resources	Terrestrial	Solid or toxic/hazardous wastes, domestic or industrial, organic or inorganic
	Genetic	GMOs in foods, LMOs in the free environment
	Forest	Degradation or depletion, protection or production, industrial or community, plantation or agroforestry, upland or lowland, watersheds, agroforestry, land biodiversity
	Fisheries	Degradation or depletion, coastal or deep waters, marine or freshwater, aquatic biodiversity
	Minerals	Large commercial or small peoples' mining, open pit or tunneling
	Waters	Underground or surface, protection or production

3.8 Decentralization, Devolution and Co-Management

The Philippines had adopted different paradigms of governance to effect an integration of multisectoral, multilevel and problem-focused agenda setting on the environment. They follow as well the efforts of the central government to win back popular support for it after this was eroded during the Marcos martial rule.

Decentralization was the immediate action taken by the Aquino government following its unseating of Marcos in 1986. It involves the lowering of the loci of decision making of national government agencies to regions, provinces and municipalities/cities. The same agency acts on its mandated concern but makes decisions (with private groups as well) in their different locales where conditions might differ from those elsewhere (Figure 4).

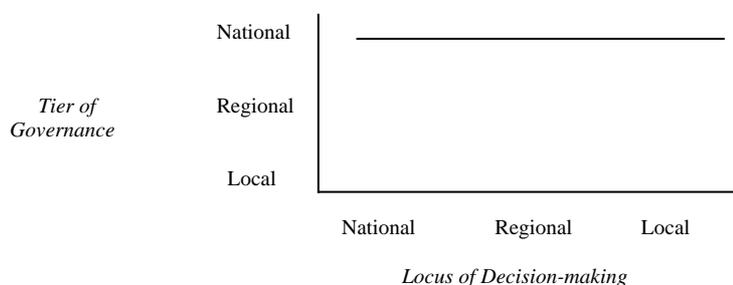


Figure 4. The Concept of Decentralization

Devolution was a governance arrangement instituted in the closing years of the Aquino government. It involves the transfer of some functions of national government agencies to local government units (provinces and municipalities/cities). It came at the time when the Aquino government was facing intense challenges to its legitimacy in the form of successive coups attempts against it and devolution had the effect of boosting its political base by sharing power with local elites. Devolution widened the participation of local governments in environmental governance in the country. National agencies focus on national concerns while regional and local agencies and governments (together with their private sector representations) focus on regional and local concerns (Figure 5).

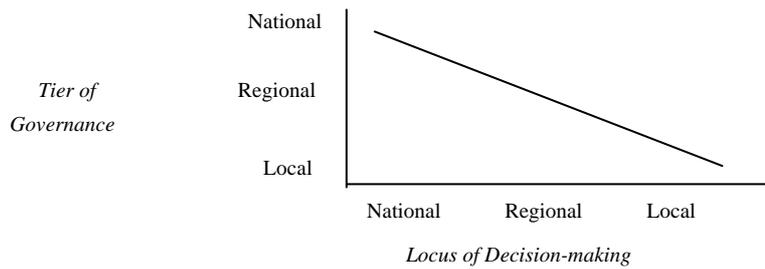


Figure 5. The Concept of Devolution

Co-management refers to government and local communities undertaking a joint action to address an environmental problem, usually (at least for now) concerning resources (e.g., forests or coastal fisheries). Governance powers (and agenda setting) is done by a government agency (or agencies) and the residents of a local community (including whichever private sector groups that are working with them), together. Co-management is a point in a space of comparative power of an agency and a community to do influence an environmental situation, in which the powers of the two are about the same (Figure 6).

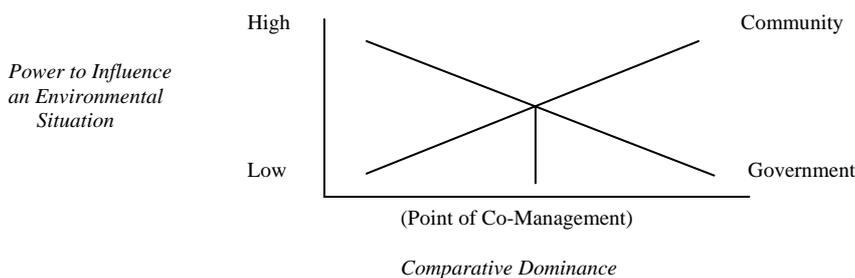


Figure 6. The Concept of Co-management

Decentralization, devolution and co-management are the current institutional basis and modalities of public-private sector collaboration whereby multisectoral, multilevel and problem-focused environmental governance is conducted.

3.9 International Assistance and Cooperation

Budgetary restrictions considerably weaken the management of environmental programs and operations. They disrupt the continuity of scheduled plans of action. On account of serious deficiencies in financial facilities on the part of the Philippine government, international assistance has become a necessary complement of national capability in environmental governance, as shown by some examples.

As of December 1997, 44 projects are on various implementation stages. Of these, seven are financed by loans from the World Bank and the Asian Development Bank (ADB) and 37 by grants from other foreign sources. Investments for all the 44 foreign-assisted projects amount to US\$1.008 billion, of which only US\$150.149 came from the Philippine government as counterpart contribution.

The United Nations Development Programme (UNDP) assists PCSD's Capacity 21 Facility and its Integrated Environmental Management for Sustainable Development (IEMSD). Capacity 21 aims to develop the capability to integrate the features of sustainable development into development plans and programs. IEMSD is a three-year assistance program for integrating sustainable development into decision-making and planning.

Philippine concern on climatic change received the support of the ADB by sponsoring the country's first comprehensive study of climatic change. The Country Study Program on Climate Change was assisted by the US government. UNDP funding assistance enabled DENR's Environmental Management Bureau (EMB) in 1989 to formulate the National Strategy for Environmental Education, with the collaboration of various academic institutions and NGOs. With the help of the same funding source in 1992, EMB carried out a training program in environmental planning and management for sustainable development. The implementation of the National Integrated Protected Areas Systems Act of 1992 (Republic Act No. 7586) has received the collaboration of the World Bank, the ADB, and the European Union in projects involving 19 priority protected areas.

4. Case Studies

The governance framework described here is clearly revealed in the manner that actions are taken to address environmental concerns of the Philippines, among them, marine pollution, atmospheric pollution and climate change, and deforestation.

4.1 Marine Pollution

The degree of marine pollution in the Philippines varies across areas. It tends to be severe in places where population density, urbanization and industrialization are high. These include places like Manila

Bay, Lingayen Gulf, Batangas Bay, Calancan Bay in Marinduque, the Iloilo-Guimaras Strait in Western Visayas, Cebu-Mactan Channel, Iligan Bay, Macajalar Bay, Ylaguen Bay and Davao Gulf. It is also high along some coasts in Northern Luzon, Southern Negros and some areas in Mindanao where mine tailings are being discharged or where siltation is high. Pockets of severe pollution have occurred elsewhere as well (like in Honda Bay in Palawan, Isabel in Leyte and along sea-lanes where boats tend to be careless with their oils and garbage). But in most seas in the Philippines, pollution is not known to be either significant or severe.

Organic wastes comprise from 55 to 75 percent of pollution in Philippine seas. These include litter, garbage, silt and other domestic wastes that find their way to Philippine inland waters and which in the process of their decomposition tend to increase BOD which depletes DO in areas where it is high. Solvents, oils and lubricants and industrial wastes including heavy metals comprise from 25 to 45 percent of the other pollutants in Philippine waters. They include acids, alcohol, enzymes and residues of agricultural chemicals that are drawn down to the coasts. Almost 90 percent of the used oil from the country's gasoline stations, motor repair shops and industrial plants are routinely disposed of as ordinary wastes (often finding their way to the sea) or are left to seep to underground water reservoirs. Ships have been known to be frequently dumping their used lubricants while in transit. Organic and inorganic residues in Manila Bay had reached as high as 14.5 ppm near shore.

River Sources of Pollution

Data from 30 percent of the rivers in the Philippines that have been monitored by the DENR since 1980 suggest that domestic wastes such as sewage and garbage, and wastes from poultry, piggyeries and refineries consisting of organic residues and enzymes, have combined with siltation to cause organic pollution in most rivers of the country. These then find their way, eventually, into the sea.

Fifty (50) of the four hundred twenty-one (421) rivers in the Philippines are reported biologically dead. These include the four major rivers in Metro Manila: Pasig, Tullahan-Tenejeros, San Juan and Parañaque Rivers; four rivers in Cebu: Guadalupe, Busay-Lahug, Mahig and Butuanon Rivers; and another four in Negros Occidental: Cadaguit, Minoluan, Lupit, and Malihao Rivers (CEC, 1996).

Water quality has been observed to have rapidly deteriorated in Angat, Apo and Bicti Rivers in Northern Luzon; Balagtas, Marilao and Meycauyan Rivers in Bulacan; the Palico River in Batangas; Jalaur and Ulian Rivers in Iloilo; Lupit, Salamanca and Pontevedra Rivers in Negros Occidental; Pantabangan River in Negros Oriental; and Cagayan de Oro River in Northern Mindanao (CEC, 1996 and Malayang 1997).

The Pampanga River had also been threatened by wastes from alcohol fermentation plants which reduce the DO of downstream waters that feed the fishponds and riceland in Bulacan and Manila Bay (AGRICOM, 1997).

A 1994 monitoring report of the seventy-four (74) stations around the country showed that sixty-five percent of these stations indicated water quality below the standards of their respective beneficial use. It is believed that this situation may have worsened at this time.

Causes of Pollution

Marine and aquatic waters are heavy with mixed pollutants gathered from the uplands and the lowlands conveyed through rivers and eventually flushed to the sea.

Severe loss of forest cover in rough and mountainous terrain leads to higher soil erosion and the subsequent sedimentation of surface waters. The country is prone to soil erosion with its high proportion of sloppy lands. Only 23 percent of the country's land area has no apparent erosion and most of the portion (77 percent) has slight to severe erosion. In severe cases, soil loss has reached 68.9 tons per hectare per year. (Malayang, 1997).

Deforestation by timber extraction also pollutes rivers through log ponds, which harbor organic pollutants. Agriculture exacerbates erosion and siltation; as of 1990, 13 provinces in the Philippines had suffered erosion in over half of their land area including half of the country's seasonally cropped areas (Malayang 1997). Lowland agriculture combines organic and inorganic fertilizer (20,100 tons in 1987 to 1989) and pesticides (1,474 metric tons in 1994) as inputs whose residues then dissipate to water bodies (Sly, 1993; Versteeg, 1994).

Mining scrapes off vegetation and produces 13,117,916 dry metric tons of mine wastes, and 22,250,848 dry metric tons of mine tailings from 1984 to 1994 alone (DENR, 1996).

An estimated 14,400 tons of domestic solid waste (calculated from 0.2 kg per capita at 72 million population) and 1.216 tons of BOD per year (calculated from 16.9 kg BOD and 72 million population) have been dumped into the country's rivers, lakes and coasts.

Industries outlying the Laguna Lake region dumped 34.8 million cubic meters wastewater in 1994 alone (EMB, 1996).

Consequences

Organic pollutants cause sudden surges in population of *dinoflagellates* associated with red tide. Red tides occur almost annually since 1908 but started in low toxicity. Severe toxicity had been observed in recent years raising the number of paralytic shellfish poisoning cases in the country (Table 5).

Table 5. Paralytic Shellfish Poisoning Cases in the Philippines, 1990-1995

Year	Place	Reported Cases	Deaths
1990	Camiguin	13	1
	Masinloc, Zambales	1	0
1991	Manila Bay	73	8
	Masbate	7	1
1992	Manila Bay	269	11
	Masinloc, Zambales	0	0
1992-1993	Carigara Bay Samar	231	11
1993	Masinloc, Zambales	6	1
	Manila Bay	45	2
1994	Cancabato Bay	5	3
	Manila Bay	36	2
	Dumanguillas Bay	9	0
	Juag Lagoon, Sorsogon	8	1
1995	Manila Bay	110	8
	Ticao Pass	11	0
Total		758	49

Source: Oceanography Section-Research Division, BFAR, 1995

Policies

The government is mobilizing private and local community participation in controlling water pollution where they occur. With the advent of co-management, cooperative arrangements have been set up so that local government units, academic institutions, industries, church organizations and NGOs/POs are able to collaborate with national government to effect local anti-water pollution measures. The Fisheries Sector Program and the NIPAS typically formalized these partnerships into multi-sectoral coastal management councils (Alino et al., 1998).

Several government agencies, private sector groups are involved in controlling water pollution in the Philippines. Different agencies and groups are engaged in addressing diverse problems in various places where they occur. The Metropolitan Water and Sewerage Administration (MWSS) which is composed of different government agencies headed by the Department of Public Works and Highways (DPWH), is actively collaborating with two private companies to ensure the safety and quality of drinking water for Metro Manila. MWSS and these two companies are essentially responsible for setting the policy agenda as to control of water pollution in the country's primary metropolis.

The Pollution Adjudication Board (PAB), a quasi-judicial body attached to the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR), assigns liabilities associated with water (and other) pollution cases in the country. As a body, it is

composed of government members (headed by the Environment Secretary) and members from the private sector (labor and industry). The decisions of the PAB whose authority is nationwide sets the direction and priorities for pollution control among both public and private sector implementers of investments and development projects in the Philippines. It hears cases individually, however, so that its influence on pollution control policy in the Philippines is both specific to the cases and cumulative in nature.

Agenda Setting

NGOs and POs influence water pollution control in the Philippines by way of advocacy and public awareness activities. They complement government's lack of field monitoring by making public (and protesting against) water pollution incidents in the country. The recent non-approval by government of a cement plant in Bolinao in Pangasinan, was mainly advocated by a coalition of local and national POs and NGOs working in tandem with academic institutions. Several other cases come to mind: the case of the Port Pulpandan in Negros Occidental, an oil mill in Macajalar Bay, a mining activity in Southern Palawan, and copper mining and processing in Marinduque. These and many more cases dramatically show how environmental advocacy and action by civil society organizations and local communities have set the intensity and direction of State efforts to control water pollution in the Philippines, thereby setting the agenda on water pollution control nationwide.

4.2 Acid Rain and Climate Change

Current Situation

Most acid rain incidents in the Philippines are due to industrial accidents and poor anti-pollution controls. The substances involved usually are ammonia (Antipolo and Leyte in 1990 and Tondo in 1995) and chlorine (Navotas in 1993). Another accident in Antipolo occurred in 1999 which caused serious respiratory illnesses and skin burns among residents of nearby communities.

The common sites of acid rain are areas close to geothermal plants such as Tiwi and MacBan and to coal power plants. Manifested by sulfuric odor, which can reach up to a 5-km radius from the plant, chronic exposure leads to illnesses. Residents complain of respiratory problems. The life span of galvanized iron sheets used in roofing nearby residential houses is shortened to five years.

Ambient air has a problem in highly urbanized cities. The most urban region in the country, Metro Manila, exceeded the allowable standard concentration (90 micrograms per cubic meter) of suspended particles from 1987 to 1994.

Major Sources of Emissions

There are two; one is natural, usually in terms of volcanic activities of the 21 active volcanoes forming the four major volcanic belts, namely, Westerly Convex Volcanic Belt in Luzon, Easterly Convex Volcanic Belt extending from Southern Luzon to Davao in Mindanao, Westerly Volcanic Belt in Negros and Panay, and Southeasterly Volcanic Belt from Sulu Archipelago to Zamboanga.

Table 6. Summary of Emissions from All Sources in Metro Manila, 1990 (tons per year)

Pollutants	Mobile	Stationary	Area	Total
TOG	100,954	1,816	5,162	107,932
%	93.5	1.7	4.8	(100.00)
CO	572,626	4,046	525	577,197
%	99.21	0.7	0.09	(100.00)
NOx	66,216	13,418	276	79,910
%	82.86	16.79	0.35	(100.00)
Sox	10,350	78,094	12	88,456
%	11.75	88.28	0.02	(100.00)
PM	13,220	9,323	102,286	124,829
%	10.59	7.47	81.94	(100.00)
PM10	11,450	7,494	51,042	69,986
%	16.36	10.71	72.93	(100.00)

Source: Environmental Management Bureau, 1995

The second consists of the anthropogenic sources which are further classified into mobile (motor vehicles), stationary (power plants and industries), and area sources (construction, aircraft operations, fuel combustions, etc.). Table 6 summarizes the emissions from all sources in Metro Manila in 1990, in terms of carbon monoxide (CO), total organic gases (TOG), sulfur oxides (SOx), nitrogen oxides (NOx) and particulate matter (PM).

Consequences

Volcanic eruptions cause direct and long-term impact on diverse life forms. Direct impacts are deaths, damage to properties, infrastructure, investments and agriculture. Long-term impacts are diseases, hunger, floods, mudflows and droughts consequential to the eruption.

In the anthropogenic side, the transportation industry is still the dominant source of air pollution in urban centers. Acid rains are usually traced from and blamed to the energy sector (mobile such as geothermal and bunker or coal fired plants) and the manufacture sector such as cement plants and other products. The consequences are similar to volcanic but can aggravate due to chronic exposure.

Agenda Setting

The Philippine Atmospheric and Geophysical Administration (PAGASA) of the Department of Science and Technology (DOST) is the lead agency in monitoring and consolidating national actions on climate change in the Philippines. It is in close collaboration with DENR (particularly the EMB) and the Department of Trade and Industry (DTI) in the implementation of the Philippine agenda of action to meet the country's commitment to the Climate Change Convention and the Kyoto Protocol. The country's commitment to the Convention has been shaped under the aegis of its agreements in ASEAN so that regional governance is very much reflected in the actions taken by the Philippine Government.

The DENR, particularly the PAB, is the primary agency of government tasked to control acid rain incidents and the EMB leads in implementing the country's commitment to the Montreal Protocol.

NGOs, POs and private businesses (labor and industry) influence the Philippine agenda on climate change and air pollution in three ways: (1) private firms undertake their own measures to control their emissions of carbon, methane, NO_x and SO_x; (2) POs and NGOs do public advocacy against air pollution; and (3) civil society representatives help shape the national policy directions on atmospheric pollution through the PCSD.

Incidents of collaboration in acid rain and climate change control in the Philippines are numerous. Prominent of these was the effort to curtail acid rain-related emissions by a factory in the province of Rizal which was investigated by the Philippine Senate last year (1999) for violation of the Toxic and Hazardous Substances Control Act (RA 6969); this came after the matter was brought to the Senate's attention and to the DENR by local citizens' groups and NGOs. Many members of the PCSD had been involved in formulating the Philippine position in Kyoto and in controlling haze in Southeast Asia. Educational institutions like the University of the Philippines have been contributing studies and technical advice to Congress on controlling the country's carbon emissions.

4.3 Forest Cover

Extent of Forest Cover

The country has an aggregate total of 15.88 million hectares classified forestlands. The actual forest cover in 1997 was estimated at 5.4 million comprising 0.805 million hectares of old growth forest, 2.7 million hectares of residual forest and 0.228 million hectares of pine forests.

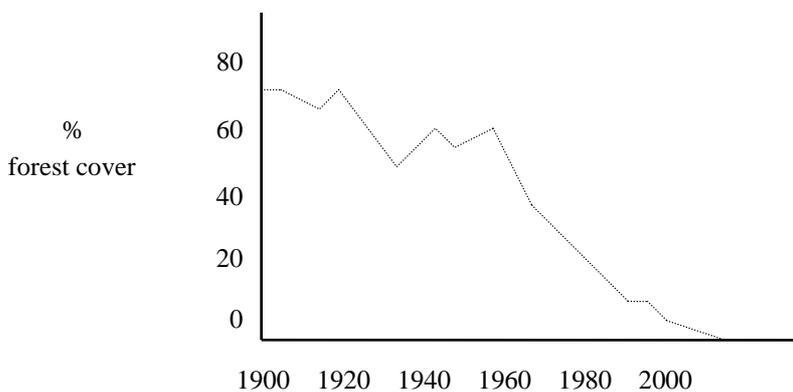
Intensity of Deforestation

Deforestation in the country is a chronic problem since Spanish times. It became most serious from

1960 to 1994. Earliest forest estimate (US Bureau of Census) put forest cover at 20,400,000 hectares. This declined to 18 million in 1939 (Food and Agriculture Organization). The post-Second World War estimate was at 17.7 million recorded in 1948. From then on, forest cover had declined rapidly. From 1969 to 1979, 30,000 hectares of forests were cleared annually. From 1990 to 1994, an average of 120,000 hectares was cleared per year.

Causes and Consequences of Deforestation

The major cause of deforestation in the Philippines, in the long term, is timber extraction, which started during the Spanish colonial period (1521 to late 1800s). Logs were then primarily supplied for shipbuilding and repairs in major commercial cities like Manila, Cebu and Legazpi. More and more forests were opened during the Marcos administration when forest concessions were expanded to prop up foreign earnings and pay a 32 billion dollar foreign debt (Figure 7).



Sources: AGRICOM, 1997 and Malayang, 1998

Figure 7. Forest Cover in the Philippines, 1900-1998

The consequence of logging on forests starts during pre-operation when earth moving occurs for the construction of logging roads and facilities. It is aggravated when logging companies abandon areas without replanting. Abandoned logging roads become arteries for forest migration which then open forestlands to inappropriate upland agriculture, poaching and land conversion. Deforestation has also displaced indigenous people’s communities. An estimated 3.5 to 6.6 million indigenous forests – dwelling people had been pushed out of homes due to deforestation.

Deforestation has also caused the extinction of a number of wildlife, both faunal and floral. This is due to complete annihilation, destruction of habitat and shrinking home range. The Protected Areas and Wildlife Bureau of the DENR lists 125 species of birds, 64 species of mammals and 11 species of reptiles in rare, threatened and endangered status in the country (CEC, 1996).

Deforestation alters local hydrologic cycle. Forests are watersheds to a total of 421 rivers and 60 lakes

in the country. Denuded uplands induce surface run-off thereby causing flashfloods in the lowlands, siltation of lakes, erosion of riverbanks, and sedimentation in coral reefs communities in coastal waters.

Denuded watersheds do not hold water long. The infiltration process during precipitation is enhanced, thereby contaminating water sources for irrigation, domestic and industrial uses. Major cities in the country have been suffering from water crisis, either through floods and contamination during the rainy season, and drought and salt intrusion during the dry months.

Agenda Setting

Deforestation has had a long history in the Philippines. But earlier attempts to control it has focused on command and control mechanisms, which essentially involved efforts of the national government to enforce the boundaries of public forests. In the past decade, there had been a clear shift in the strategy. Multisectoral Forest Protection Committees (MFPC) have been set up at both national and local areas where forests still exist or where illegal logging and illegal log transport might be interdicted. The involvement of local communities and of the private sector and civil society has been institutionalized by way of community-based and community forest development and protection programs of the DENR. NGOs are tasked to evaluate the performance of reforestation contractors under the Philippine-ADB Contract Reforestation Program. The current forestry development and protection programs of the DENR continue to involve NGOs/people's organizations (POs) and local communities although, lately, it has swung more to the latter than the former. Thus, even MFPCs have been de-emphasized by DENR for reasons more related to the focus of the present leadership of the Department to concentrate on programs by the administration rather than on its linkages with civil society. Participatory and multisectoral forest protection continues in deforestation control efforts in the Philippines. Civil society groups – example, the Task Force Macajalar of Northern Mindanao, a coalition of local NGOs and POs – have sustained their own MFPCs, which goes to show that government itself is increasingly losing its monopoly of forest governance in the Philippines at especially local implementation levels (Malayang, 1998)

4.4 Changes in the Involvement of Actors in Agenda Setting

There have been perceptible changes in the last two or three decades in the degree of involvement and influence of government and civil society institutions over agenda setting in environmental governance in the Philippines.

Following the declaration of Martial Law in 1972, the trend was toward consolidating the government control in governance. Water pollution control was increasingly centralized in first, the National Pollution Control Commission (which was later expanded into the National Environmental Protection Council), then in the Ministry of Human Settlements. Given impetus by anti-dictatorship issues, civil society organizations expanded in the last years of the Marcos regime. Gaining more strength in the

post-martial law period, they began to exert greater influence in environmental issues and policies. By 1992, their leverage culminated in the setting up of PCSD, which now represents the national environment co-management structure of the Philippines to date. In the PCSD set-up, government and civil society maintain some balance of power and influence on environmental governance, which had been, at no time more institutionalized and put in place in the country as then. Lately, however, the balance has been tipped again in government's favor as minimal involvement is felt on the part of non-government sectors in environmental governance. The PCSD has not been as activated as before, and the role of NGOs, and POs in environmental programs of the DENR has seen more challenges than encouragement from the government.

4.5 Actors' Interests and Changing Perception

More than ever, it has become apparent to both government and civil society sectors in the Philippines that environmental governance in the country must be localized, i.e., toward a local focus rather than as a uniform and centralized imposition by the central bureaucracy. This is necessitated by the high heterogeneity of ecological conditions in the Philippine archipelago, which can range over at least four climate types and a landscape of coasts and mountains. It has become evident that for environmental governance to be truly effective in the Philippines, it had to be localized and democratized, hence the option of multi-sectoral and multilevel involvement of public and private sectors to address specific problems occurring in various parts of the archipelago. While government and civil society perception of each other's ability to contribute to agenda setting in environmental governance in the country has changed from outright distrust to critical collaboration, there is a general and persistent recognition among them that, ultimately, they would need each other to effect a better governance of the Philippine environment.

Policy Options that Received Dominant Attention

In agenda setting, crisis-driven policy options received dominant attention. The dramatic effect (testimonials, media coverage, legislative interventions) of a given environmental issue generates public opinion which succeeds in mobilizing multisectoral actors. Consequently, the option of co-management has become pervasive and dominant as a national policy on resource management because of the higher demand for, and public and private sector recognition of the need to, localize and democratize environmental governance in the Philippines.

4.6 Strengths and Weaknesses of the Agenda Setting Process

The multisectoral (democratic) and multi-level nature of agenda setting integrate interests for the common good. While it has long term use, the process of deciding can be tedious and dragging. The issue-focused nature of the process can leave behind equally important related issues. For example, the disagreement of parties on whether to allow incinerators in the Clean Air Bill of 1999 delayed its

enactment. Meanwhile, since the water issue is having high popularity among constituents (voting public), as of July 1999, the Clean Water Bill had already gone through eleven drafts by different legislative authors in the Senate and the House of Representatives.

While NGOs and POs have become partners of government, cooperation has become a threat to authentic check and balance (NGOs against government and vice versa). Funding control, often in the hands of Government, has frequently limited the influence of civil society over environmental agenda setting.

The mass media has always been on the reactive stance. Proactive campaigns on policies and impending issues, such as those relating to international agreements, are hardly grasped. The mass media often fail to catch up with the bottom-up approach and remained trapped by the top-to-bottom stigma. It is slow to articulate new issues, such as ozone depletion and climate change which tend to be too technical for immediate media consumption, or too complex in their interrelatedness with other issues like globalization and free trade.

The legislative sectors too often shift focus to more pressing issues (issues identified by communities and media) confronting their constituents, thus missing significant and impending consequences emerging from environmental current events and the less articulated policies and international agreements. Local communities, expectedly, remain dependent on issues raised by the media, or those taken up in the legislature.

4.7 Implementation and Actors Involved in Implementing Government Policies

The formal bureaucracy of the government is primarily responsible for implementing environmental policies in the Philippines. Although the Local Government Code provides much responsibility over the environment to local communities through Local Government Units (LGUs), the national government through the DENR, Department of Interior and Local Government (DILG) and the Department of Finance (DOF), exercises so much control over LGU actions. Consequently, so far as environmental governance in the public sector is concerned, the national government and its agencies dominate and LGUs are acting as no more than local extension of the national government.

There appears to be more pluralization in policy implementation in the area of private sector participation. Recent national programs, including those stipulated by law (such as agricultural and fisheries modernization, community forestry and mining) include clear provisions of how the private sector (including civil society and local community organizations) may participate in implementing them. Small water bodies, for instance, are to be the responsibility of local farmers under the Agriculture and Fisheries Modernization Law. Indigenous peoples and their communities are recognized managers of community forests in the Indigenous Peoples' Rights Act of 1997. These laws, together with DENR directives such as those covering coastal environments, have allowed the private

sector to find legal basis for their involvement in environmental governance. The result is that many of them are actually doing it in their various areas of operation in the country and in varying scope and intensity of collaboration and coordination with government agencies. In the case of one civil society group in Mindanao, Task Force Macajalar, it has undertaken forest protection activities to implement national policies on anti-illegal logging, even in direct confrontation with DENR. Similar situations have happened in the case of NGOs and POs involved in other specific environmental concerns throughout the Philippines.

Changes in Actors' Involvement

Participatory approaches in resource assessment, planning, development and management have been widely introduced among many communities in the Philippines. However, the capacity of the communities to execute these tasks are still wanting. But the trend is continuing.

NGOs have shifted from advocacy to entrepreneurship, and from critics to partners, with the government. National government agencies have adjusted their role to giving more room for civil society initiative.

Devolution has seen broader social participation and community-based resource management flourishing in the local level, albeit with uneven effectiveness. But the trend has been for civil society organizations losing a significant portion of their involvement in environmental policymaking in the last two years or so, as a result of government being more aggressive to do things its own way under the present administration. Civil society diminished participation in agenda setting at the national level, but not so at the local ones.

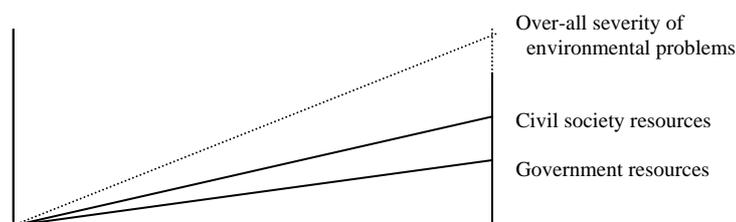
Actors' Interests in Implementation

For the government, involvement is anchored on its interest to ensure the proper implementation of public sector interests in environmental policy. That is, because its legitimacy and political sustainability rests on its ability to put credence to its policy intentions and to deliver environmental management services to the general population. On the other hand, civil society and other private sector groups have interest in how environmental policies are implemented because the policies themselves spell different combinations of costs and benefits to them. Cleaner air and water, for example, may redound to lower private sector health and medical costs and prevent flooding due to deforestation, which would mean lower costs to communities in lives and property.

Effectiveness of Policy Implementation

Multisectoral, multi-level and issue-centered environmental governance in the Philippines has resulted in the complementation of government and civil society resources to implement environmental policies

in the country. While in general, government tends to have the larger pool of resources to implement policies – supported as it were by taxation and foreign aid – they are hardly sufficient in light of the severity of the environmental problems of the country which had accumulated over the years, from colonial to present times. The ability of government to increase its resources for implementing environmental policies does not match the rate by which the problems have worsened over time. Thus, the efforts of the private sector and of civil society, although by themselves tend to be limited as well, go a long way toward adding to what government can do (Figure 8). For this reason, the participation of the private sector and of non-governmental institutions in implementing environmental policies in the Philippines is beneficial over-all toward improving the effectiveness of environmental policy implementation in the country, even if the fusion of their efforts with the government’s is not always convenient to either or both the bureaucracy, local communities or civil society (Malayang, 1998).



Source: Malayang, 1998

Figure 8. Complementation of Government and Civil Society Resources to Implement Environmental Policies in the Philippines in Relation to the Increased Severity of the Problems being Addressed by the Policies

5. Policy Recommendations

Given the preceding assessment, it is believed that both government and civil society institutions and local communities would need to redirect their efforts toward certain ends, to improve the effectiveness of environmental governance in the Philippines. The government may:

1. Expand civil society membership in national and local legislative bodies, specifically NGOs, POs and private business groups which are involved in environmental advocacy and policy implementation;
2. Make it legally and politically requisite on the bureaucracy to always involve civil society and local communities in environmental policy implementation;
3. Expand public sector initiative in pluralizing and widening co-decision making in environmental governance nationwide; and
4. Transfer more powers and environmental governance functions to local government units and communities, but expand and make more specific their accountability relating to the exercise of

such powers and functions.

Policies along these directions may spur public sector accommodation of civil society and local community investment of their resources to develop and implement environmental policies.

Civil society institutions and local communities may move toward improving their structure of collaboration with the Government towards developing sectoral consensus on how they might contribute to environmental governance. They may:

1. Institute mechanisms for developing joint resources to allow different groups to readily respond to policy opportunities. This is to improve the present situation in which NGOs, POs, and local communities are storing their own resources with hardly a ready mechanism to consolidate them in the event that their interests converge for broader action;
2. Develop effective measures to allow individual organizations freedom in advocacy while expanding their ability to collaborate with government at no loss of their integrity to catalyze it; and
3. Institute national centers of organizational development with which individual organizations may collaborate to develop themselves, without compromising their ability to pursue their own policy agenda. One model for this is the Foundation for the Philippine Environment which focuses on developing funding, to support environmental NGOs and POs in their work, without losing their independence.

If used as basis for directing their further institutional developments, these policies are likely to expand the ability of civil society and local communities to complement government efforts to develop and implement environmental policies in the Philippines.

To the extent that both government and civil society organizations together with local communities, will move towards better collaboration among them and expand their level of complementation of efforts, effective co-management of the Philippine environment will go far. This will allow environmental governance in the country to be more a product of a broader vertical consensus. This can create conditions for a more socially meaningful implementation of policies, as more segments of Philippine society would feel they “own” the policies themselves.

Potentials for Regional Problem-Solving

It can be anticipated that as environmental governance in the Philippines increasingly moves toward more localization and multisectoral and multi-level agenda setting and implementation, the country's ability to collaborate with other communities in Southeast Asia and the Pacific will improve as well. For two reasons: (1) the government's ability to make regional commitments will be strengthened when policy consensus within the country (between government, on one hand, and civil society and local communities, on the other) is high; and (2) to the extent that Philippine position in regional

negotiations over issues is the product of a wide national consensus, the legitimacy of Philippine commitments will be high as well and the government can negotiate from a position of domestic policy strength.

Obstacles to Regional Problem-Solving

Funding facilities will likely pose the major obstacles in the ability of the Philippines to collaborate with other countries in the region to address and solve environmental problems across national borders. Approaches to domestic problems and local environmental issues are perennially haunted by lack of government and private sector funding for them. The country's ability to contribute to regional problem solving is certainly much more limited in this sense.

For instance, the country is faced with more urgent issues relating to poverty. This dominates the national policy agenda and is likely to push environmental concerns to the backseat of priority governance in the short term. National commitments to regional efforts on the environment will be likely subordinated to domestic political priority to solve poverty in the nation first.

But there is one area of opportunity that the Philippines might contribute to regional environmental efforts. This is on sharing its experiences on widening the sectoral base of environmental governance, which it has accumulated over two to three decades of localizing and democratizing environmental agenda setting and implementation in the country. While certainly not all have been well in the country's experience, valuable lessons have been distilled which it can share with the region.

Acknowledgment

The assistance and contribution of Ms. Bella T. Desamito, Mr. Celso F. Espaldon and Ms. Princess M. Omaña to the completion of this report is acknowledged and appreciated. The authors, however, assume all responsibility for this report.

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Environmental Governance in Thailand

Somrudee Nicro

Preface

This paper is a shortened version of a research report prepared by Somrudee Nicro and Christine Apikul entitled "A Comparative Study of Environmental Governance in Asia: The Case of Thailand" submitted to IGES in October 1998 and published by the IGES in June 1999 as "Environmental Governance in Thailand," in *Environmental Governance in Four Asian Countries*. It is prepared at the request of the IGES for the presentation at the International Symposium on Environmental Governance in Asia at Sophia University, Tokyo, on March 9, 2000.

This paper is composed of 3 sections as follows: 1) Introduction to environmental protection in Thailand, 2) Current state of environmental governance mechanisms, and 3) Policy recommendations. Two sections in the original report not included in this paper are: Contextual Overview of Thailand and Case Studies (water and air pollution and deforestation).

1. Introduction to Environmental Protection in Thailand

1.1 The History of Development Planning and Environmental Protection

Modern day development planning in Thailand dated back to the 1961 when the first economic and social national plan was promulgated. Although Thailand has never been colonized, it has adopted the practice of five-year plans, widely implemented by newly independent countries, since the post-war period. Until now, Thailand has experienced 7 five-year plans and is now implementing its Eighth National Plan (1997-2001).

Two processes characterise the development in Thailand throughout these national plans: industrialisation and urbanisation. Three main features of these processes can be identified. Firstly, throughout these decades, Thailand had correlated development with economic growth. Secondly, it had chosen industrialisation as the pivotal means for achieving economic growth. Thirdly, the planning process is top-down in its nature. The National Economic and Social Development Board (NESDB) was set up precisely to prepare the five-year plans.

The development planning process of Thailand, like other developing countries, is greatly influenced by the World Bank. As mentioned previously, Thailand has generally followed a top-down command-and-control approach, based on 'blueprint' plans in which economic growth is the predominant focus. However, in the past two or three decades, it is becoming increasingly clear to the

world community and to Thailand that the economic growth-led economy has not eradicated poverty, but instead has increased inequalities between the rich and the poor; depleted natural resources; degraded the environment; promoted political unrest; and encouraged alienation and a loss of a sense of identity.

Visible environmental harm coupled with political pressure from social constituencies, experienced in most parts of the developing world, has triggered a paradigm shift with a new focus on sustainable development. The United Nations Stockholm (1972) and the Rio (1992) Environment Conferences are two international arenas where this new paradigm was manifested (Sandbrook, 1992). The Agenda 21 agreed upon by 157 United Nations member states, including Thailand, at the Rio Conference calls for these countries to help protect planet earth and make it sustainable for peoples of the next generations by the new millennium. Importantly, it should be noted that the Rio Conference has, at least in principle, lifted the status of the environment to that of development.

During the late 1970s, Thailand gradually recognised that its natural resources were at risk. Together with growing international pressure to solve the world's environmental problems, Thailand first showed a commitment to environmental protection in its 4th National Plan (1977-1981), after Thailand's participation at the Stockholm Conference. However, the Plan's priority was aimed at rehabilitating the economy, particularly since 1970s was a period of world recession.

Since the late 1980s and early 1990s, there has been a renewed interest and concern with environmental issues. Increasing enthusiasm to meet environmental challenges in Thailand has clearly been reflected and reinforced in the 7th and 8th National Plan which recognise environmental non-governmental organisations as important actors in environmental protection and has initiated the adoption of a bottom-up approach, focusing on the concept of "decentralisation".

Other equally important developments with respect to the environment include: the 1991 and 1997 Constitutions of the Kingdom of Thailand; and the enactment of the 1992 Enhancement and Conservation of National Environment Quality Act (hereafter the 1992 Environment Act), repealing the previous versions of the 1975, 1978 and 1979 Environment Acts, with the intent of improving the effectiveness of the enforcement of environmental law.

1.2 Environmental Legislation

The basis for environmental law in Thailand is found in the Constitution of the Kingdom of Thailand B.E. 2534 (1991). Article 74 states that "the State shall conserve the environment, balance the use of natural resources and their replacement, eliminate and prevent pollution, and plan for the use of land and water" (Baker & McKenzie, 1993). Based on the stated fundamental framework, the 1992 Environment Act was enacted.

Together with this Act, other environment-related laws were also amended or enacted in 1992, namely, the new Factory Act, the Hazardous Substances Act, the Energy Conservation Promotion Act, the new Public Health Act and the revised Cleanliness and Orderliness of the Country Act. In all, there is a total of approximately 70 to 80 regulations that are directly and indirectly related to environmental matters (TEI, 1997a).

The most significant and comprehensive is the 1992 Environment Act. New features that are different from the previous Environment Acts include (TEI, 1995: 1-2):

- Empowering the National Environment Board (NEB) to make decisions regarding national environmental issues, such as, the prescription of environmental quality standards and sanctions.

The NEB was originally created under the 1975 legislation, but whose authority was limited to an advisory one. In this new framework, the NEB is a ministerial-level Board chaired by the Prime Minister with the Permanent Secretary of the Ministry of Science, Technology and Environment (MOSTE) as secretary to the NEB (TEI, 1997a).

- Restructuring the governmental offices in charge of environmental protection by replacing the Office of the National Environment Board (ONEB) with the Office of Environmental Policy and Planning (OEPP), the Pollution Control Department (PCD) and the Department of Environmental Quality Promotion (DEQP). MOSTE delegates each department with specific responsibilities and functions.
- Delegating the environmental protection authority from the above three departments on the national level to the provincial level.
- Designating certain areas to become Environmental Protection Zones (EPZ) and/or Pollution Controlled Zones (PCZ).
- Requiring the provinces with EPZ to submit an Action Plan for Provincial Environment Protection. Other provinces may also submit an Action Plan if they so desire.
- Establishing an Environmental Fund chaired by the Permanent Secretary of MOSTE.
- Increasing the type of projects or activities requiring an Environmental Impact Assessment (EIA) (Nicro, et. al., 1997).
- Recognising the importance of public participation. Section six of the 1992 Environment Act stated that individual persons have the rights and duties to:

“...petition or lodge a complaint against the violator, where the petitioner is a witness to any act committed in violation or infringement of the laws relating to pollution control or conservation of natural resources.

To cooperate and assist government officials in the performance of duties relating to the enhancement and conservation of environmental quality.” (The 1992 Environment Act, 1992)

1.3 The Process of Institutionalising Environmental Protection

Increased public interest on environmental issues and the environmental movement led by civil society in Thailand emerged in the late 1970s, partly following the environmental movement in the ‘industrialised’ countries and the 1972 Stockholm Conference, and partly as an interrelated political movement for democracy, calling for changes in the overall ruling system.

In consequences, the environmental movement in the 1970s and 1980s was about “the people versus the bureaucratic/military power elite”. The scandal around April 1973 involved military using publicly-owned guns and helicopters for illegal poaching in Thung Yai Naresuwan Wildlife Sanctuary, an area protected under the Wildlife Conservation Law.

This and other similar incidents - the campaign against the Union Carbide-dominated Thailand Exploration and Mining Corporation (TEMCO) from 1974-1975; and against construction of Nam Choan Dam that lasted from 1982 to 1988 - were initiated by students and non-governmental organisations fighting against authoritarian rule, by using the environment as a discourse to highlight abuses of power by government officials to build popular support.

At around the same time, there were also isolated cases of community grassroots organisations directly affected by environmental degradation, contributing to the environmental movement. Disputes are often either over the rights to utilise and manage natural resources, such as the campaigns to oppose corporate deforestation, or over the degradation of the rural environment which community groups depend on in their daily livelihood, such as large dam construction, logging, eucalyptus planting, mining, industrial and tourist developments.

However, negotiations between civil society and the government were extremely tense, and in some instances, leaders of the environmental movement were severely punished or even killed. Monk Phracak, who fought against the planting of the fast-growing eucalyptuses, had to face numerous threats. He was later arrested and deprived of his priestly rank.

Many authors such as Funatsu (1997) observed significant changes with the government’s standpoint on environmental issues in the 1990s, partly in response to increasingly organised activism around

environmental issues. The international calls for a turnabout in the attitude toward environmental problems, particularly from the United Nations 1992 Rio Summit, cannot be neglected as key external factors that catalysed this change. In fact, Thailand has seen rapid improvements in legislative and other institutional changes related to environmental protection at the government's initiative in the first half of the 1990s.

In particular, the first and second cabinets of Prime Minister Anand Panyarachun in 1991-1992 took a series of steps, such as the revision of the 1979 Environment Act and subsequent changes that empower environmental institutional and administrative structures, in line with the new environmental law, as described above. These developments can be seen to represent the government's domestic responses to environmental problems that were becoming increasingly serious as a result of unsustainable economic development.

The Thai environmental movements were helped by the global environmental movements since the 1970s. Global linkages provided both a framework to challenge mainstream development processes and some financial resources for Thailand's new environmental organisations to tackle the country's environmental deterioration.

At the national level, the Thai monarchy is a key factor in prompting Thailand's commitment to environmental protection. Royal projects have had an environmental profile for some time, particularly King Bhumibol Adulyadej's highland development projects among highland ethnic minorities. An important speech delivered by the King on the 4th of December 1989, one day prior to his birthday, was in reference to November 1988's massive floods and landslides in Southern Thailand that left more than 700 people dead or missing. King Bhumibol declared the need for the whole nation to embark on a campaign to afforest and protect nature in order to prevent natural disasters.

Beginning the following year, the government designated the 4th of December as "National Environment Day," and it became an established custom to plant large numbers of trees on national holidays or commemorative ceremonies across the nation for the purpose of preserving forests.

With the Royal Family and the government, the two highest national authorities in Thailand, playing a part in the campaigns for environmental deterioration, in collaboration with the mass media, environmental problems in the 1990s transcended the confrontational concept of "government versus people" and turned into part of the national objectives in which people are expected to help each other in achieving. At the same time, the support base for environmental movements became broader, creating room for the participation of major corporations and a wide spectrum of urban residents.

Up until the 1980s, business and environmentalists were more often assumed structurally and strategically to be on opposite sides of the major environmental debates rather than in alliance. This was true globally and was reflected in Thailand in some of the early struggles, such as the TEMCO

issue. More recently, business has been keen to, at least, be regarded as a partner in caring for the environment. Global initiatives such as the Business Council on Sustainable Development, which played an important role at the 1992 Rio Summit have been mirrored in Thailand (Hirsch, 1994). Thailand Environment Institute, a non-profit organization whose Council of Trustees is chaired by former Prime Minister Anand Panyarachun, has initiated Thailand Business Council for Sustainable Development.

Recently, at the national level, a number of prominent business groups and individuals have taken up environmentalists stands in one form or another. Among the best known and most widely respected as committed to making industrial practice compatible with sustainable environmental initiatives is Sophon Suphaphong, President of Bangchak Petroleum who was recently presented the Ramon Magsaysay Award.

Bangchak Petroleum is a key organiser of the 1994 Forum for Annual Reporting on the Environment (FARE), a collaboration of environmental NGOs nationwide. Mr. Sophon is widely known in Thailand as a public advocate for rural community development, democracy and self-sufficiency. According to an account on Mr. Sophon, “the key to building a self-sufficient economy lies in the partnership between business enterprises and communities whereby the business partner provides ‘an immunity’ for, and does not take advantage of, its community partner” (Bangkok Post, 27 July 1998).

It is based on this philosophy that Bangchak Petroleum manages its retail oil business. Community organisations and cooperatives have become Bangchak’s partners. They owned the company’s first 10 petrol stations and now run half of more than 1,000 Bangchak stations.

Other examples include Magic Eyes, an environmental organisation sponsored by the Sophonpanit conglomerate in 1984, famous for their anti-litter campaign, among others; and Think Earth, an environmental organisation founded by Pornthep Pornprapha, the President of Siam Motors.

As a result of the rapid industrialisation and urbanisation processes in Thailand, in recent years, there is a growing divide between rural and urban environmental problems. Massive in-migration from rural to urban areas and poor urban development planning have contributed to the cities’ high levels of water, air and waste pollution from both industrial and domestic sources. They are of priority concerns because of their tangible effects felt by residents of towns and cities. In the rural areas, natural resources reduction, shortage of farm land and deforestation are main areas of concern. These problems can be regarded as the origins of other complications in Thailand, but they are often considered secondary to urban difficulties (Pradubraj & Nicro, 1997).

With respect to Thailand’s attitudes towards regional and global environmental risks, the 1990s has seen an increased commitment by the Thai government, particularly in response to the 1992 Rio Summit which calls for global cooperation in protecting the environment. At the conference, Thailand

signed a commitment to the United Nations Framework Convention on Climate Change (UNFCCC). To implement the agreement, the National Sub-Committee on Climate Change was established to coordinate research and policy strategies under the umbrella of the NEB. The committee also serves as a monitoring body to ensure that institutional agencies follow the government's commitment to the Framework Convention.

2. Current State of Environmental Governance Mechanisms

This section explores the basic structure of the cultural and political system of Thailand as it pertains to environmental governance.

2.1 Governance Culture

Kindliness, sharing and peaceful togetherness are attitudes which are reflected in traditional Thai social behaviour. Until recently, the use of natural resources was seen as every person's right as long as resources were treated with respect. This attitude is changing with the infiltration of a range of ideas and materialistic lifestyles, with the result that an attitude of 'get what you can before someone else gets it' is slowly beginning to take hold in the realm of natural resources utilisation.

Thai people have been ruled by a distinguished elite group for centuries. With abundant resources and a large land base, the country easily accommodated the small population, hence, the ruling system was more lenient when it came to controlling agricultural areas, contrasting with feudal Europe. Local people had the right to manage their resources without governmental interference for a long time.

This resource autonomy led to the development of what might be termed "local wisdom." This knowledge is derived from daily experience which has been passed from generation to generation as a cultural heritage. Early Thais believed that life was part of nature, and that nature can reward or punish humans for improper behaviour. Some rural communities still respect this concept and live by it; for instance, they pay honour to the river before consuming its water and to the tree before cutting it for lumber.

In a globalising world, Western concepts such as government, economics and natural resources management have been adopted by the Thai government. In 1896, the Department of Royal Forestry was established and applied the concept that all forests in the country belonged to the government. Accordingly, in 1940, the government implemented the National Forest Act, which stated that all forests in the country belonged to the government. Anyone who wished to cut down trees must first obtain a government concession license. People were charged if they cut down a tree without a permit. The conflict in utilising natural resources is believed to have changed Thai attitudes from their practice of 'moral naturalism' to 'capitalism', leading to the abandonment of the traditional Thai lifestyle.

As a result of the concept that all natural resources belong to the government, natural resources management depends by and large on government decisions and policies. Distribution of resources in the form of concessions directly benefits private companies, while the government receives benefits in the form of taxes and concession fees. This management system has led to the rapid degradation and destruction of natural resources.

Government agencies and national budgets have become overwhelmed with the need to address a rapidly deteriorating resource base. Water is heavily polluted from organic and factory wastes. Fisheries are badly in need of access and recovery management plans. Cities are seriously polluted from vehicle emissions and traffic dust.

In the present environmental administration, the government has long been criticised over its inability to control and prevent the depletion of the environment. The structural and functional overlaps among associated agencies; poor coordination and inefficient management are the main explanations for worsening circumstances.

One encouraging move by the government has been the passing of the 1992 Environment Act, which provides for environmental quality standards and establishes national authority to designate conservation and pollution control areas.

2.2 Government Structure

As a revision of the 1975 Environment Act, the 1992 Environment Act released one of the most meaningful outputs. There were three brand-new governmental departments, launched to replace the Office of the National Environment Board, previously a central body overseeing environmental affairs. The followings are their specific responsibilities and functions:

- The Office for Environment Policy and Planning (OEPP) was established to designate policies and plans for environmental control at the local level, and to ensure the Environment Fund and the process of Environmental Impact Assessment (EIA) Report. The OEPP also has the authority to set up regional offices in order to coordinate regional activities.
- The Pollution Control Department (PCD) is in charge of recommending standards and developing measurements concerning environmental control. In addition, it is empowered to investigate complaints of pollution.
- The Department of Environment Quality Promotion (DEQP) is responsible for disseminating information, raising public awareness, forging private sector and NGOs alliances as well as conducting training courses and research.

As evident, the government depends greatly on a command-and-control approach to administer its task. Despite the delegation of environmental authority from the above three departments on the national level to the provincial level, many policies remain top-down. The objectives of controlling and monitoring polluters are clearly seen in Articles 59 and 60 of the 1992 Environment Act. Within a Pollution Control Zone, environmental quality standards and pollution control measurements are set up to maintain the state of the environment, implemented at the provincial level.

The accustomed governance structure for environmental management in Thailand is one in which powers and responsibilities are divided among a number of ministries and departments at the level of the central government, while lower levels of government have traditionally had rather limited powers. Despite the government's emphasis on an environmental legislation, the implementation of environmental law has proved to be more difficult.

Although much progress has been made since then, the departments are just newly-emerged organisations which need more experiences to succeed in their goals. Moreover, accompanying reorganisation of the national environmental management bureaucracy, the problems of multiple centers of responsibility and overlapping jurisdictions have not been adequately resolved (Phantumvanit, et. al., 1994).

2.3 Public Participation

The recent Thailand's Eight National Economic and Social Development Plan (1997-2001) (hereafter, the Eighth National Plan) is the first national plan that calls for the participation of people in the decision-making process at the sub-district, district and provincial levels in Thailand. Recently, in June 1998, experts and members of the working group of the Eighth National Plan met to discuss ways of strengthening local communities as a way to resolve Thailand's economic crisis (The Nation, 6 February 98). The participation of CSOs is increasingly being recognised as crucial to the "balance of power" and the "strengthening of democracy", especially by holding the government and business sectors accountable (The Nation, 18 January 98).

The 1992 Environment Act recognises certain legal rights and duties of Thai citizens in relation to the protection of the environment. Such rights and duties are as follows (Section 6, 1992 Environment Act):

- Right to information on the environment
- Right to claim compensation from the state for damages resulting from pollution from state projects
- Right to make a complaint against polluters

- Duty to cooperate with environmental protection authorities
- Duty to comply with environmental laws and regulations

The 1992 Environment Act also allows non-governmental organisations (NGOs), Thai or foreign, that are directly engaged in environmental protection activities to register as an “Environmental NGO” (Section 7, 1992 Environment Act).

The DEQP is the registrar of the NGOs working in natural resources and environmental conservation. At present, there are approximately 197 environment-related NGOs, but only 65 are registered with MOSTE. Registered NGOs are eligible to apply for financial support for development activities from the Environment Fund (MOSTE, 1997).

2.4 Civil Society

Civil society, through bottom-up lobbying, has been the motivator in putting environment on the development agenda. According to Prapat Pintopteng, lecturer at Kroek University, the number of protest demonstrations across the country reached 739 in 1993 and 754 in 1994, and the frequency is apparently on the rise. Nearly 40 per cent of these movements were triggered by such environment-related issues as resource management, garbage disposal or large-scale public works projects (Funatsu, 1997).

The civil society movement, in response to the persisting dissatisfaction of government’s development planning; together with government’s realisation that the current development model is unsustainable, has led to a shift in the development discourse. Development with a human face or sustainable human development has become the new international agenda around the early 1990s, acknowledging the values of people’s rights and democracy.

At the policy level, governance has evolved until the present time to also incorporate the ideas of human rights and democracy. By placing people at the centre of development efforts, ‘participation’ is increasingly recognized by the international donor community and national governments as being crucial to good governance (Badshah, 1998).

Consequently, civil society has also adapted the term “governance” as entry strategies in their lobbying and action-taking, albeit from a different perspective, focusing on community empowerment and the right to civil society participation in the decision-making processes. In turn, this process is eased, to some extent, by support from mainstream development agencies and their collaboration with civil society organisations (CSOs) in development projects and programmes.

In Asia, the capitalist quest and neo-liberal economics may have overwhelmed civic virtues during the 1970s and 1980s; but, the financial turbulence seems to provide a catalyst for a re-emergence of the importance of civic virtue and self-reliance in some countries, including Thailand.

Participation in good governance is perceived as necessary to control corruption and mismanagement.

Coordination and interaction between NGOs and the Thai government have been established through official and unofficial channels. The National Council of Social Welfare of Thailand was set up as early as the 1960s to coordinate development efforts of NGOs and the government sector. In the 1980s, a national level NGO-Coordinating Committee on Rural Development and NGO networks in different regions were formed to improve communications and coordination among NGOs and government agencies on rural matters (MOSTE, 1997).

In Thailand, NGOs have acted as a mobilising force for public and local community awareness and action at the grassroots level. Nationally, they have succeeded in influencing planning and policy implementation due to their specialised capabilities.

Public awareness of Thailand's environmental state has increased partly as a result of the media. The media has extensively cooperated with the NGOs in almost every environmental and developmental issue, to ensure that they reach the political agenda. Wide media coverage on environmental issues have created a huge impact on society, gaining official responses, the cooperation of associated sectors, as well as, public concern (Pradubraj & Nicro, 1997).

The frequency of environmental disputes has caused the government to gradually change its attitude toward local people's protest movements. In recent years, there have been some cases of protesters actually achieved changes to their favour. In 1988, the construction of Nam Choan Dam was suspended; in 1995, local communities received damage compensation after the construction of Pakmum Dam; and also in 1995, plan to build a garbage-burning electric power generation plant in Hangdong was withdrawn. These events received wide media coverage which may have encouraged greater number of disputes over environmental issues (Funatsu, 1997).

Environmental issues, written complaints and actions by individuals, organisations and the media can be institutionalised through the National Environment Board (NEB) or the Parliamentary Sub-Committee on the Environment. These actions can influence the NEB who are empowered to prescribe national environment policy and plan.

2.5 Governance Mechanisms

A 20-year Environmental Quality Promotion Policy has been approved in 1997, under which a 5-year Environmental Quality Promotion Action Plan is prepared to achieve the policy targets. At the

provincial level, areas designated as Environmental Protection Zones (EPZs) or Pollution Control Zones (PCZs) are required to formulate and implement an annual Provincial Environmental Action Plan.

The new Environmental Quality Promotion Policy forms the core basis for the government to consider natural resources management and environmental protection issues in coordination with economic and social development policy. The policy has the following key targets (MOSTE, 1997: 35):

- To prevent further deterioration and to accelerate rehabilitation of degraded natural resources, to serve as the basic resources for the sustainable development in the future;
- To coordinate use of and reduce conflicts over natural resources, to minimise the impacts of resource use, ensure overall balance of the ecosystem; and
- To support the participation of all related parties, including local organisations, NGOs and the public at large, in natural resource management and administration for their sustainable use.

To achieve the above targets, the 5-year Environmental Quality Promotion Action Plan is implemented in parallel with the 5-year National Economic and Social Development Plan.

Government sector's environmental programmes are implemented by sectoral ministries in coordination with the NEB. To ensure that the programmes and projects implemented by both governmental and non-governmental agencies comply with the environmental policies and laws, a number of mechanisms are used. The most commonly used tool is the establishment of standards and sanctions. Other mechanisms that are being experimented with include, the use of environmental impact assessment (EIA) as a part of project planning; the adoption of economic instruments based on the "polluter pays principle"; and the development of appropriate social and environmental development indicators at different levels to monitor progress towards sustainable development of the country.

However, many of these mechanisms imitate those advocated by international agencies such as the World Bank and the United Nations. They are often based on existing tools from "developed" countries with little regard of the differing cultural, economic, environmental, political and social contexts. Thailand is more often than not, faced with non-implementation of environmental policy and programmes. This is because environmental organisations in Thailand generally lack power and resources to implement environmental programmes and to audit the environmental performance of sectoral institutions.

For example, the introduction of market-based instruments such as the polluter-pays-principle (PPP) in Thailand, as reflected in the Seventh and Eighth National Plan and the 1992 Environment Act, ideally,

provides incentives which will encourage enterprises to adopt production processes and consumers to buy goods which cause less environmental damage. However, although at present, PPP has been accepted in government environment policy, there is as of yet no comprehensive system of pollution charges nor incentives for firms to reduce their pollution.

3. Policy Recommendations

After an introduction to environmental governance mechanisms in Thailand and a summary of the nature and development of environmental problems and policies in Thailand, this section endeavours to examine Thailand's environmental governance from a regional perspective in the agenda setting and implementation of environmental concerns.

The developing countries of the Asia-Pacific region suffer from a myriad of complex environmental problems which are incapable of resolution by the actions of individual nations alone. The government sector in most developing countries lacks the resources to implement even the most rudimentary of environmental management regimes. Further, as many of the environmental issues transcend national boundaries, it would be nonsensical for any state to unilaterally attempt to protect its environment. Therefore, it is through regional and international relations that environment protection can be assured.

Environmental policies and law, in general, should facilitate the sharing of regional experiences, establish regional centres and networks for research and development of environmentally-friendly technology and for monitoring the environment; encourage flexible and region-wide support to develop national environmental programmes, promote regional briefings and training; and urge the carrying out of regional studies and trends. The exchange of information, scientific research and technical assistance that assist lawmakers and policy makers, are and will continue to be a critical aspect of environmental protection in the future.

In a globalising world, many developmental and environmental policies have been adopted from international organisations such as the World Bank and the United Nations; and applied to Thai policies with little regard for the different cultural, economic, political and social contexts.

Some may argue that these policies, in fact, exploit the resources of 'developing' countries, including Thailand, for the benefit of the 'developed' countries, and is a causal factor of the Asian financial crisis.

Some academics like Pasuk Phongpaichit and Chris Baker (1998), believed that this prolonged Asian crisis is a blessing in disguise. It will enable people in the affected countries to think more deeply and question the future path to 'development'; and rediscover and strengthen the resources and culture of one's own society. This is so that the country will not be consumed by globalisation, but instead, flourish within it.

The uprising of the South East Asian financial and economic crisis together with the 'haze problems' originating in Indonesia, have demonstrated growing regional interdependence, thus, recognising the increased need for regional cooperation in accountable policy making and implementation of projects and programmes, and in the monitoring of the environment.

Thailand is a part of many regional alliances. They include:

- the Association of South East Asian Nations (ASEAN), under which is the Asean Senior Officials on the Environment (ASOEN);
- the Asia-Pacific Economic Cooperation Forum (APEC);
- the Greater Mekong Subregion (GMS);
- the Bangladesh, India, Sri Lanka, Thailand - Economic Cooperation Forum (BIST-EC);
- the Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT); and
- The Asia-Europe Meeting (ASEM).

However, economic concerns predominate in these regional alliances. ASEAN, for example, is considering the establishment of the ASEAN Free Trade Area and the ASEAN Investment Area. APEC which joins Asia with the United States, Canada, Australia and Latin America countries, aims to create one vast free trade and investment zone by 2020. GMS recent projects include Route 9 in the Thailand-Laos-Vietnam East-West Transport Corridor and the Mukdahan Bridge Project over the Mekong River.

Trade policy, however, can be a powerful measure to accommodate implementation of climate change efforts. Trade has been used to control and mitigate negative environmental impacts. One such initiative is the Montreal Protocol to protect the Ozone Layer (Jesdapipat, 1996). International standards and restrictions in trade policies have sometimes been accused of imposing trade barriers on 'developing' countries. However, at the regional level where economic, political and cultural characteristics are less diverse, trade policies that are environmentally sensitive may be an effective tool in environmental protection.

What is crucial with respect to regional environmental governance is the mainstreaming of the environment into the above regional development agendas of trade, tourism, industry and infrastructure development.

Protests of the actions carried out by these regional groups, by NGOs and community-based organisations (CBOs) have taken place but often only in parallel to and separate from the regional groupings' annual meetings and conferences (Kimura, 1997). Nevertheless, such gatherings can be seen as a way to voice objects of economic regional cooperation and receive international media attention.

In November 1996, at APEC's annual leaders' meetings in Manila, many civil society groups lobbied their country's respective APEC delegations to push them to recognise environmental and human costs to trade, in addition to raising the issue of economic sustainability. Protesters demonstrated in the streets, marched to the official meeting venue and delivered a joint letter to APEC officials noting objections to the institution.

Regional initiatives to address environmental issues are often top-down with little local government and civil society participation, especially at the decision-making level. For example, in 1996, the GMS countries (Thailand, Myanmar, Cambodia, Lao PDR, Vietnam and Southern China), in cooperation with ADB agreed to rehabilitate the Tonle Sap or Great Lake which is being threatened by deforestation in upstream countries. The project has set up objectives to stop traditional slash and burn cultivation by incorporating an estimated 60 million farmers into the market economy and providing them with basic necessities (Bangkok Post, 4 Aug 1996).

This is decided upon without the public participation of farmers and residents in the watershed area about what their needs and wants are, and what their capacity and constraints are. This may have severe implications upon the effectiveness and sustainability of the project in safeguarding the environment.

It has generally been found in Thailand and other countries that participation provides an effective mechanism for 'good environmental governance' that ensures the accountability, transparency and sustainability of a project, programme or policy. However, it is important to recognise that people's participation is not the panacea to environmental protection. As mentioned in the Thailand Environment Institute's 1995 Annual Conference:

"The majority is not always right, particularly in a case where technical expertise is involved. Nonetheless, people's participation is a mechanism by which the most accurate conditions of an environmental problem in each location can be reflected, as environmental problems are to a great degree contextual in time, space and taste of people." (Nicro et al, 1995: 12)

By involving people's participation, decisions will more accurately be based on the better use of resources and the various actors' potential to implement the decision. The participation process can also increase accountability and minimise corruption.

What is required is the establishment of a *public consultation* process during the planning phase of any regional projects. They should include environmental and social impact assessments and the involvement of all stakeholders including not only national governments and multinational corporations, but also local and provincial governments, small and independent businesses, NGOs, CBOs, academics and the media.

Critics of neo-classical economics claim that current regional cooperation forums, along with the North America Free Trade Agreement (NAFTA) and the World Trade Organisation (WTO) represents an unsustainable model of economic development based on neo-classical notions of unregulated free trade. This disregards the reality of the political economy, that governance and economics are inseparable (Kimura, 1997). Moreover, these organisations represent the supremacy of trade policy at the expense of environmental, labour and human rights issues.

To foster effective regional cooperation, good governance must first be practised at the national level. Following analysis of the case studies, common problems can be identified. In order to improve the agenda setting and implementation processes in Thailand, there needs to be institutional reform particularly in relations to the changing role of the state to enable and facilitate decentralisation, participation, capacity building and conflict management at all stages of development.

Facing an economic and financial crisis, environmental policies that present a cost to industry may be delayed. In addition, capital spending programmes for environmental programmes in Thailand and other crisis countries have been reduced as they rely heavily on imported technology and services for key components of their environmental projects, particularly in the promotion of clean technology.

The OEPP has cut the government's budget for environmental infrastructure in the wake of the crisis, by one third to 3 billion baht. Moreover, the collapse of the private-sector environmental market has led many environmental companies to refocus their business strategies towards aid-funded projects (Acid Rain Newsletter, June-July 1998).

However, the crisis can also mean that the projects to be implemented will be more selective. Furthermore, the efficiency, effectiveness and sustainability of the project becomes more crucial as resources are scarce. Priority setting is thus important in government policy and planning for environmental governance.

A cost-benefit analysis often excludes the personal value of the environment. Priorities are best set as the result of a process involving both technical and public inputs and taking into account scientific, economic and medical evidence as well as the intensity of public concern over risk (Brandon & Ramankutty, 1993).

Since the attempt to conserve the forest is believed by many to be more effective at the local level, the presence of strong and sustainable organisations formed by people in the area is a prerequisite for such effort to be successful (Puntasen, 1997).

The incorporation of local communities into sustainable management may require changing the way they are viewed by forest authorities (McQuistan, 1998). Rather than being regarded as illegal

encroachers, the farmers can be more usefully viewed as partners in forest conservation and management. This will mean direct responsibility for managing forests being transferred to individuals, communities and other interest groups. The expertise to initiate, support and guide local management of forest land is probably needed from the RFD, although this necessitate a reorientation in the role of the RFD from a 'command-and-control' approach to extension and facilitation. Any realignment of the RFD's traditional roles will entail the training and capacity-building of forestry officials to equip a greater number with social and environmental skills to work with local communities.

Members of the community should be encouraged and given as much support as possible from outside, such as from government officials and other related organisations, in order to assist them to function effectively. Their organisational strength, in turn, depends in part on some form of ownership over the property to be protected. In this case, the forest conserved by the community should be managed using the "common property" concept.

However, if the forest involved is a reserved forest, legally, it belongs to the government and the community has no right to ownership. Nevertheless, some forms of ownership should be given to the community in order to generate the incentive for the community to look after it (McQuistan, 1998; Puntasen, 1997). An acceptable form of ownership is for the community to be able to make rules and regulations for forest protection as well as to police those rules. Equally important is that the community must be able to collect and distribute benefits among its members generated through their sustainable conservation efforts. Such form of ownership is crucial to the organisational strength of the community that wishes to protect the forest for its long-term benefits.

A successful community forest management process requires strong support from government officials by, for example, formally recognising the group's efforts; legalising the groups' activities; providing financial, material and technical supports necessary for forest protecting activities; and taking decision measures against all groups of outsiders who try to make direct gain out of the forest protected (Puntasen, 1997).

At the policy level, it is important to design cost-effective policy instruments that minimise costs and economise on scarce administrative skills. Environmentally appropriate policies are not inconsistent with policies that foster growth and trade, but they do attempt to correct the bias of market and policy failures that lead to overexploitation of non-priced and under-priced environmental resources (Brandon & Ramankutty, 1993).

Pricing reform, involving the removal of subsidies and the internalisation of externalities imposed by the resource use or pollution emitted, is an example of economic instruments to prevent and control environmental degradation. Taxes or tradeable permits levied on pollution and congestion are equivalent to raising the price on air, water and land resources. Tax-based policies will lead to some increase in financial flows to the "owner" of the resource - which is often the government. These

revenues should be reinvested in the resources itself. In addition, both price increases and fiscal instruments can help stimulate technological adaptation that favours greater efficiency and reduced pollution.

Economic instruments are not entirely unfamiliar to Thailand. There are a few examples of how they are already being applied to specific problems. One is the differential excise tax on leaded versus unleaded gasoline designed to encourage drivers to choose the no-lead alternative. Another is the treatment charges levied on users of the Bangkhuntien hazardous waste treatment center.

However, application of these pollution charges has, in most cases, little incentive effect. In other words, they have not proven especially effective in inducing polluters to reduce their pollution loads, partially because the charges are usually set at a low rate and are insufficient even to recover the investments made. On the other hand, some believe that these pollution charges are served primarily as a revenue raising device. All in all, increased efforts and resources need to be focused on realistic standard setting and standard enforcement, as well as on environmental awareness raising. These processes could benefit from inviting broader stakeholder participation.

At the institutional level, it is important that Thailand has the institutional capacity to accomplish the important steps of priority setting and policy reform. Institutions can constrain the choice of policies. The policy mix must be weighed not only against an analysis of the efficiency of the approach but against a country's ability to implement (Brandon & Ramankutty, 1993).

The accustomed governance structure for environmental management in Thailand is one in which powers and responsibilities are divided among a number of ministries and departments at the level of the central government, while lower levels of government have traditionally had limited powers. Despite the enactment of the 1992 Environment Act and the accompanying reorganisation of the national environmental management bureaucracy, the problems of multiple centers of responsibility and overlapping jurisdictions have not been adequately resolved. For example, while, in theory, the PCD has overall responsibility of setting environmental standards, in practice, the Ministry of Industry sets point source standards for industry, while PCD is left to deal with all other point sources. At the regional level, the differing national environmental standards need to be addressed in regional environmental governance, particularly in the monitoring of the regional environment.

The 1992 Environment Act has altered the national-local power balance to a degree but granting greater regulatory enforcement powers and environmental planning responsibilities to provincial and local governments. This is a positive development from the perspective of ensuring greater accountability of decision-makers to their constituents. Yet, there are serious problems in giving substance to this new commitment. Most provinces and municipalities lack both the professional competence and the financial resources to assume major responsibility for environmental management. In short, a partial transfer of power has occurred without a corresponding transfer of resources to the

local level.

One way of strengthening local capabilities may be through a greater decentralisation of structure of government departments like the PCD, so that over time, PCD would come to have a presence in most provinces and municipalities so as to provide close technical support for local environmental management efforts (Phantumvanit, et. al., 1994).

A coordinated effort to gather and analyse information about the environment for effective policymaking is lacking. In fact, contributions to environmental protection in Thailand and other Asia-Pacific countries have largely been independent of one another, or are often products of specific, isolated cases. There is a lack of any coordinated effort to develop effective regional policy strategies for long-term sustainable development.

Recently, at the policy coordination level, United Nations agencies such as the Economic and Social Commission for Asia and the Pacific (ESCAP) have already been performing a catalytic role, helping countries to cooperate on regional environmental programmes. More specific technical issues are already handled effectively by specialised international agencies such as the Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO), and by other regional bodies, including the International Board for Soil Research and Management (IBSRAM), which specialises in land resources, and the International Centre for Living Aquatic Resources Management (ICLARM), for marine resources. In addition there are numerous regional projects on forest resources such as the ASEAN Institute of Forest Management and the ASEAN Timber Technology Centre.

What is lacking is a networked and integrated coordinating body with representatives from the wide ranging and inter-related environmental issues. Such a mechanism would facilitate the transfer of environmental information and policy strategy options among countries. It is not intended to be a funding organisation. Incorporated in this system, there should be a civil society network, preferably initiated, operated and maintained from the bottom-up by civil society groups. This could be an arena in which civil society can voice their concern, collect and disseminate information and provide alternative means of development and environmental protection at the regional, national and local levels, to private and government sectors.

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Comments

Keiko Imai

I am very grateful to the speakers for the exceedingly interesting and enlightening presentations on the environmental issues of the Southeast Asian countries. Owing to these presentations, we are able to have the panorama of the environmental problems and the policies in Southeast Asian countries, and through which the comparative point of views on the environmental issues among these countries will be given to us. Indonesia, Malaysia, Philippines and Thailand have the different historical backgrounds and actual political and socioeconomic conditions, and they have given the influence to the environmental issues.

The four presentations deal with the overview of the environmental problems, policies related to the Constitutions and laws, institutions, and public administrations of the central and local governments, and then environmental activities in the civil societies such as NGOs. All the presentations cover the case studies on the environmental problems such as water pollution, air pollution, deforestation, acid rain and climate change. In the Southeast Asian countries, some environmental policies had already been implemented before 1960s, however we are informed that Stockholm Conference on Human Living Environment in 1972 gave much influence to the new start of the environmental policy. After then establishment of the environmental laws and implementation of the environmental policies have been proceeded, and this process has prepared the new stage of the environmental policy and administration.

After 1972 to the present, we are informed that the environmental policy and administration have been transformed from the central government-led to the decentralization of the role of the government toward the local governments, and participation of the citizens to the environmental movements has been increased. And still more the relationship between the governments and the citizens' organizations has been in the process to be gradually transformed from the confrontation to seeking for the path to cooperation. This tendency is desirable if it will open the way-out to change the environmental policy from top-down to bottom-up or creating partnership between the governments and the citizen" organizations.

In spite of the progress in environmental policies, however, environmental problems have not been reduced, and on the contrary they have been deteriorated in the Southeast Asian countries. Some examples are shown of the excess-exploitation of the natural resources done by the foreign companies, and this tendency will be strengthened under the globalization process. As to this issue, we are informed that ASEAN countries have been trying to cope with the problems both on the country level and the regional level, implementing the environment protection measures. In my opinion, in the process of globalization, regional approach will become still more important to protect the

environment not only in the region but also in each country as well.

The four presentations are stimulating showing us the clear description and policy proposals on environmental governance. Now I would like to raise some questions and points for discussion from my field of speciality: development economics and socio-economics.

1. Discussing on environmental governance, concepts of cooperation and participation are very important, and the citizens or citizens' organizations will be given an important role in this context. Dr. Ben S. Malayang informs us in detail about the activities of the citizens' organizations and the network building in the Philippines. In order to promote and improve the activities of the citizens' organizations, human resource formation and network building among NGOs are very important. I would like to know some successful examples of training systems or courses of skills and know-hows for the environmental NGO's activities and network building.
2. As to environmental governance, business sector holds one of the very important keys. Dr. Wan Portiah Hamzab explains us the environmental activities done by some business groups such as the Business Council for Sustainable Development in Malaysia (BCSDM). I would like to ask Dr. Wan to explain us how they make the ideas of environment protection and the principle of profit seeking compatible.
3. The relationship between environment and population has been frequently discussed and it is still one of the most important debated topics. Dr. Endro Susilo explains us that environment and population issues had been dealt with in the same Ministry (Ministry of Environment and Population) until 1994, and then after environment and population have divided to be dealt with by the different ministries. I would like to ask Dr. Susilo to explain us the reason of this change of the administration, and whether there exists any basic change of policy orientation as to the relationship between environment and population issue.
4. As a final question, I would like to propose the topic of the environmental ethics from the point of environmental governance. There is no doubt that materialism and mass-consumption culture have caused the environment destruction, which was mentioned by Dr. Somrudee Nicro and Dr. Christine Apikul in their article. In order to realize the sustainable development, legal and economic measures will have certain limits, and education for environmental ethics will become inevitable. Some informations on the education for environmental ethics in Thailand will be instructive and helpful to us.

Environmental Governance in Bangladesh

Khandaker Mainuddin

1. Broad Introductory Overview

1.1 General

Although environmental issues in Bangladesh are similar to those in most other developing countries, the geophysical settings, socio-demographic features as well as economic and cultural practices of Bangladesh add extra facets to its environment. As a vast deltaic plain crisscrossed by a network of some mighty rivers and a large number of their tributaries and distributaries, Bangladesh is formed by alluvial soil washed down from the highlands especially from the Himalayas. A huge amount of water from the uplands flows through the country to the Bay of Bengal. In addition to alluvial fertile soil, Bangladesh enjoys subtropical monsoon climate characterized by high temperatures, heavy rainfall, and excessive humidity with marked seasonal variations. Land and water are two important resources providing the means of livelihoods for the country's teeming population. The fertile land has historically been suitable for growing varieties of crops under natural environment without using any chemical fertilizers, pesticides and mechanized irrigation. Rice, the main crop, has long been cultivated under rained conditions. Fish, the main source of animal protein, has come from the water bodies including rivers, lakes, ponds and flood plains through natural process. The easy availability of basic food items has been the main reason for Bangladesh to be one of the most populous regions of the world.

Because of its geophysical settings, Bangladesh is susceptible to different natural calamities including regular monsoon floods and occasional severe cyclonic storms along with tidal surges causing colossal losses to lives and properties. The agrarian society has endured and shown utmost resilience to such natural environment. Traditional outlook and values as well as religious and cultural practices have been conducive to environment and natural balance.

The natural environment, however, has been under continuous pressure due to various human activities directed to modern development. The major thrust for development involving creation of infrastructural facilities, large industrial ventures and mechanization of agriculture were initiated in the early sixties. Some large-scale dams designed for flood protection, power plants and industrial units were set up during this period. Although Bangladesh has not achieved the desired infrastructural and industrial development and falls behind many other Asian countries, a lot of damage has already been caused to the local environment from such development efforts. This is attributable largely to poor planning and failure to incorporate environment in designing of projects. Industrial wastes are now a major "point-source" of both air and water pollution in the country. Introduction of mechanized irrigation, chemical fertilizer and pesticides to boost rice production for an expanding population are increasingly being identified with contamination of both surface and ground water as well as loss of bio-resources including fish. Lifting of underground water

for irrigation on a massive scale has led to mineralization, degradation of soil properties and consequently lower yield of crops. Rapid urbanization and concentration of population in some large cities specially the capital city of Dhaka over the past two decades has emerged as a serious environmental threat. Urban air pollution in the large cities has already taken serious turn due to rise in the number of motor vehicles most of which are inefficient causing emission of pollutants. Bangladesh has experienced a high rate of deforestation over the years through conversion forest areas into cropland, human settlement, industrial estates etc. This has led to serious environmental problems and natural imbalance including erosion, siltation, degradation of soil fertility and increasing natural calamities like floods and draughts. Scarcity of land and other resources fail to cope with an expanding demand for basic facilities, for example, housing, water supply and sanitation. Human health and productive capacity of people are exposed to threatening challenges owing to poor environmental conditions. Bangladesh, therefore, attaches great importance to environmental protection while development policies and programmes are increasingly being directed at achieving the objectives of both economic advancement and environmental quality. Environment was incorporated in the development plan of the government with clearly defined objectives under Fourth Five Year Plan (1990-95). The stated objectives were to:

- (a) control pollution and degradation related to soil, water and air;
- (b) promote environment friendly activities in development process;
- (c) preserve, protect and develop natural resource base;
- (d) strengthen the capabilities of public and private sectors to manage environmental concern as a basic requisites for sustainable development; and
- (e) create people's awareness for participation in environment promotion activities.

The initiatives of the Fourth-Five-Year plan have been followed by other important steps such as :

- (1) approval in 1992 of a National Environment Policy.
- (2) initiation of National Environment Management Action Plan (NEMAP), National Conservation Strategy and Forestry Master Plan.
- (3) introduction of Environment Impact Assessment (EIA) for all major development projects.
- (4) enacting the Environmental Conservation Act. 1995.
- (5) identification of the environmental issues and formulation of goals and objectives along with policy strategies under the fifth five year plan (1997-2002) towards environmentally sustainable development.
- (6) launching of the Sustainable Environment Management Project (SEMP).

1.2 History of Environmental Protection

Environmental Legislation

Environmental protection through legislative measures was existent in the country as early as in the 19th century under the British colonial rule. Since then, more than 100 laws have been enacted with direct or indirect bearings on environmental protection. These laws provide for measures for environmental

conservation, protection against environmental offenses by prohibiting certain activities and lay down rights and duties. A great bulk of the laws remained either unendorsed or were vaguely known to the responsible public agencies. Moreover, institutional weakness on the part of the concerned enforcing agency and lack of awareness among the general public as to the existence and scope of these laws rendered them ineffective. Some laws also have become redundant since the situation for which they were enacted do not exist any more. The laws having direct bearings on the environment include:

- the smoke nuisance act, 1905 to control the smoke of furnaces or fireplaces;
- ports act, 1908 regarding marine and river pollution;
- motor vehicles rules, 1940;
- the factories act 1965 against pollution;
- embankment drainage act, 1952 for better drainage of lands and protection from floods, erosion and other damage by water;
- conservation and protection of fish act, 1950;
- agricultural pesticides ordinance, 1971 to regulate the import, manufacture, formulation, sale, distribution and use of pesticides;
- wildlife preservation order 1974;
- the explosive substances act, 1908;
- fisheries protection ordinance 1959.

Most of the laws have been subjected to amendments whenever required in response to the current needs and changed environmental situation.

A more comprehensive environmental Act known as the Environmental Conservation Act (ECA), was passed by the parliament in 1995 and came into force in June 1995 repealing the Environmental Pollution Ordinance of 1977, which was found inadequate and could not meet the current needs due to major shortcomings. In order to enforce the Act, the required regulations known as the Environmental Conservation Rules (ECR) were published by the Government in 1997. The ECR 1997 sets the Environmental Quality Standard (EQS) to control the ambient quality of air, water, noise and odor. In addition, ECR '97 establishes a series of emissions, discharge and noise standards for particular activities which may be damaging to the environment.

Environmental Policy

Bangladesh adopted an environmental policy in 1992 with the broad objectives to:

- maintain ecological balance and overall development through protection and improvement of the environment;
- protect the country against natural disasters;
- identify and regulate activities which pollute and degrade the environment;
- ensure environmentally sound development in all sectors;
- ensure sustainable, long term and environmentally sound use of all national resources; and

-actively remain associated with all international environmental initiatives to the maximum possible extent.

The stated environmental policies encompass all geographical regions and development sectors of the country towards realization of the objectives.

National Environment Management Action Plan (NEMAP)

National Environment Management Action Plan (NEMAP) carried out in different countries is described as an in-country process to provide a framework for integrating environmental consideration into economic and social development. The process is demand driven, based on local consideration and action oriented in that it produces a time-bound plan of action. The NEMAP in Bangladesh has been prepared by the Ministry of Environment and Forest with inputs from all sections of peoples including NGOs, academics, parliamentarians, lawyers, journalists and grass-roots men and women. The action plan is a synthesis of the perception of the government and the people of Bangladesh regarding environmental issues and measures that are needed to protect the environment. It is built on the general principles set out in the National Environment policy. The NEMAP process has led to the identification of the environmental problems and their solutions through concrete actions. The identified environmental problems and their solutions have covered national level, sectoral and institutional as well as regional and local issues. In a major step to translate NEMAP into the real life, the government has launched the Sustainable Environment Management project (SEMP) with assistance from UNDP since 1998. The World Bank assisted proposed Air Quality Management project and CIDA (Canadian International Development Agency) funded the Bangladesh Environment Management Project (BEMP) for institutional strengthening of the Directorate of Environment (DOE) are also the off-shoots of the NEMAP.

Sustainable Environment Management Project (SEMP)

The focuses of SEMP are policy and institutions, participatory ecosystem management, community based environmental sanitation, awareness and advocacy and training and education. SEMP is being implemented by 22 agencies or organizations of which 13 are civil society bodies and NGOs that have a good track record of successful programmes at the grass-roots level. The governmental agencies include Bangladesh Bureau of Statistics, Bangladesh Institute of Development Studies (BIDS), Environment and Geographic Information System (EGIS) of the Ministry of Water Resources which are engaged in incorporating environment into national planning through natural resource accounting, environmental statistics, improved land administration and management, coastal land use zoning etc. The issues of community-based flood plain resource management, sustainable livelihood in riverine shoals, ecosystem management in the Barind areas are being addressed by a number of NGOs with expertise in these fields.

1.3 Environmental Issues

Bangladesh is confronted with a host of environmental issues and problems owing to both natural and human factors. The issues are relevant to various sectoral programmes and activities and of variable nature

and intensities. Environmental issues which are focused through different policy and planning documents like the National Environment Management Action Plan (NEMAP), the Fifth Five Year Plan (1997-2002), Environmental Policy etc. are as follows.

Agricultural Resource Base

The vast majority of the population depend on agricultural and natural resources for a large part of their food and income. Thus, a more dynamic agricultural sector, better use of natural resources and increased concern for the environment are essential. There is also competing demand on land from non-agricultural uses of land. As a result, agricultural resources in Bangladesh are already under severe pressure. The mechanization of agriculture and emphasis on high-yielding varieties to grow more food has resulted in the loss of many traditional varieties of rice and other crops. In addition, the practice of monocrop has caused serious deterioration of land characteristics and a decline in productivity. The preservation of biodiversity is necessary to sustain and improve agriculture, forestry, livestock and fisheries production systems in order to keep future options open as buffer against harmful environmental changes and as a raw material for scientific and industrial innovations.

Biomass

In Bangladesh, especially in the rural areas, where about 80 per cent of the people live, biomass plays an important and complex role. The problem is not merely the supply of wood or of fuel or of food. At the moment, there is an acute crisis of biomass fuel, which constitutes 73 per cent of total energy consumed. The per capita supply of biomass fuel is declining. There is an increased use of crop residues and dung as fuel which is depriving soil of valuable nutrient and organic matter.

Use of Chemical Fertilizers and Pesticides

Modernization of agriculture has led to an extensive use of fertilizers and pesticides. Although production of foodgrain and other crops has increased significantly through the use of fertilizers and pesticides, quality of land has suffered due to indiscriminate use of chemicals. Farmers spraying pesticides and using fertilizers, in many cases, are suffering from heart and skin diseases. Cows, goats and other domestic animals eating fertilizer-fed and pesticides-affected grasses are also suffering from diseases. Fish population in the rivers and other water bodies have drastically decreased due to water pollution by chemicals including fertilizers and pesticides.

Industrial Pollution

The growth of industries in the country has generally been unplanned without keeping the issue of environmental protection in careful consideration. There are many industries in the residential areas causing air and water pollution through smoke emissions and dumping of untreated effluents. Industrial wastes have polluted the water of the Buriganga, the Shitalakhya, the Karnafuli and other rivers. Effluents from tanneries are extremely harmful to human beings since they contain a high concentration of chromium compounds.

About 250 tannery units clustered at Hazaribagh area within the Dhaka city are causing serious environmental pollution and health hazard making the area unsuitable for human habitation.

Deforestation

Bangladesh has a classified natural forest area of around 6-8 per cent of the total land area which is far below the desired level. Some 50 per cent of destruction of forests took place during the last 20 years affecting top soil and causing land erosion. Such deforestation could not yet be compensated by social forestry and backyard plantations.

Wetland and Fisheries

Bangladesh has a high proportion of wetland area, which has, of late, been declining. Rivers, canals, beels, lakes and haors are the open wetlands while baors, dighis, ponds and ditches constitute the closed ones. They are significant sources of sweet water fishes. The decline in fish production has been attributed to a general deterioration of the wetlands, characterized by silting up of bed levels, water logging as well as water pollution.

Mangrove Ecosystem

The Sundarbans, located in the south-western part of Bangladesh, is the largest single expanse of mangrove forest in the world. It is a dynamic, fragile and complex ecosystem in delicate balance with land and water. It is a good habitat for offshore fisheries, a natural coastal protection, a highly valuable forest resource and a recreational resort. But a gradual degradation of environment in the Sundarbans has been taking place due to rapid deforestation, top-drying of trees, saline water intrusion, killing of wild life, inadequate reforestation and lack of efficient conservation programmes.

Coastal and Marine Water

Disposal of chemical fertilizers, insecticides, industrial effluent and burnt-oil of ships into the water are leading to a severe pollution of the coastal and marine environment. Rare species living in these areas are exposed to risk of extinction.

Salinity

Diversion of the Ganges water at the upstream through construction of barrages by India has drastically reduced the down stream flow of its distributaries. Consequently, saline seawater enters into the mainland river. It has adverse effects on agriculture and sweet-water shrimp cultivation and also on availability of sweet water for domestic and other uses. The situation worsens during the dry season when salinity penetrates further deep into the main land.

Sanitation

The present state of affairs in this area is quite unsatisfactory particularly in the rural areas. Only 36.9% of the population has acceptable sanitary systems for safe disposal of excreta. Raw sewage contamination in innumerable water systems in Bangladesh is the major factor for the transmission and spread of various communicable water-borne diseases including diarrhoea, cholera, typhoid etc. Surface water, which is an important source of water for human use including drinking, is often polluted by industrial wastes, indiscriminate defecation practices and unhygienic disposal of human waste. Coliform count of most of the surface water resources is beyond the acceptable standard for any domestic use. The high infant mortality in Bangladesh is caused by the various water borne diseases due to unhygienic sanitation practices.

Urbanization

Serious problems of environmental degradation resulting from unplanned urbanization involving (i) land use alterations, (ii) inadequate shelter, water/sanitation, and other facilities in slums and other urban poor areas, (iii) degradation of community ambient environment, and (iv) little control of industrial waste emissions, which often greatly compounds the problem of environmental pollution due to inadequate management of human and domestic wastes. The large urban locations specially the capital city of Dhaka is a fast growing city in the world with an average population growth of 6% per annum. The environmental problems of Dhaka has already turned into a major concern to all strata of the society including the government, NGOs, scientists as well as the country's development partners, for example, the World Bank and the Asian Development Bank. The World Bank and the Asian Development Bank have sponsored a number of studies and public consultations on environmental issues of Dhaka city. Apart from air pollution, solid waste produced by the households poses a serious threat to the city's environment. According to an estimate, 700-800 tons of household and commercial solid waste are produced in the dry season and 900-1,100 tons during the monsoon season. The wastes are known to be dumped into the nearby low-lying areas and water bodies, which serve as source of foul odor and pollution of surface water. The hazardous medical wastes from a large number of clinics and hospital are believed to go through the same outlet for disposal.

More recently, arsenic contamination of ground water has emerged and has a serious problem threatening public health. During the past decades ground water as a source of drinking water was promoted through installing thousands of tube-wells in the rural areas throughout the country. There has been remarkable success of providing pure drinking water free from pathogenic microorganism and a concomitant improvement in public health during this period. The arsenic contamination has been detected in 44 of the country's 64 districts. Although the real causes of arsenic contamination are yet to be identified, the government has launched a 50 million US dollar project with assistance from the donors and coordinated by the World Bank for on-site mitigation of arsenic contamination and creation of a national arsenic mitigation information centre (NAMC).

Although Bangladesh is relatively backward and in an early stage of industrialization, congestion of industrial units and some commercial activities are identified as environmental "hotspots" causing severe local pollution. The tanneries at Hazaribagh in Dhaka city, the textile & dying units at Narayanganj and Gazipur

near Dhaka and the commercial shrimp culture in the coastal regions of Khulna and Chittagong are some of the identified environmental “hotspots” of the country.

1.4 Attitude Towards Global Environment

In accordance with its Environment Policy, Bangladesh recognizes the transborder (nation or state) implications of global environmental degradation. Bangladesh therefore has taken part in numerous international negotiations leading to various treaties, conventions, agreement and protocols. The major international conventions, treaties, protocols (ICTP) signed or ratified by Bangladesh include the following.

1. International Convention for the Prevention of Pollution of the Sea by Oil, London, 1954 (as amended on 11 April 1962 and 21 October 1969).
2. Plant Protection Agreement for the South East Asia and Pacific Region (as amended) Rome, 1956.
3. Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar, 1971 (Popularly Known as Ramsar Convention).
4. Convention Concerning the Protection of the World Cultural and Natural Heritage, Paris, 1972.
5. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973 (Popularly known as CITES).
6. Convention on Assistance in the Case of a Nuclear Accident of Radiological Emergency, Vienna, 1986.
7. Agreement on the Network of Aquaculture Centers in Asia and the Pacific, Bangkok, 1988.
8. United Nations Framework Convention on Climate Change, New York, 1992.
9. Convention on Biological Diversity, Rio de Janeiro, 1992.
10. International Plant Protection Convention, Rome, 1951.
11. Plant Protection Agreement for the South East Asia and Pacific Region (as amended) Rome, 1956.
12. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water, Moscow, 1963.
13. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies, London, Moscow, Washington, 1967.
14. International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, Brussels, 1969.
15. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxic Weapons, and on Their Destruction, London, Moscow, Washington, 1972.
16. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, Geneva, 1976.
17. Vienna Convention for the Protection of the Ozone Layer, Vienna, 1985.
18. Convention of Early Notification of a Nuclear Accident, Vienna, 1986.
19. Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal 1987.

20. London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, London 1990.
21. Basal Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Basal, 1989.
22. International Convention to Combat Desertification, Paris, 1994.

There is a rising awareness among the government and the NGOs about the international treaties on the environment. The national level of monitoring compliance of such treaties is now being increasingly emphasized by different sections especially the environmental NGOs.

Meanwhile, a number of studies having global environmental implications have been implemented thus far. One study on greenhouse gas (GHG) emission inventory with assistance of the USA highlighted the vulnerability of Bangladesh to global warming along with a possible mitigation plan. Another study titled Asia Least-cost GHG Abatement Strategy (ALGAS) deals with GHG abatement and reduction strategy given the socio-economic condition of Bangladesh. The recently drawn up National Environment Management Action Plan (NEMAP) under the Ministry of Environment and Forest has, at least, partially addressed the issues of Agenda 21, a key document adopted by the 1992 Rio-conference. The Department of Environment (DOE) is presently engaged in preparing a National Agenda 21.

2. Contextual Overview

Bangladesh is a low-income developing country and a member of the group of Least Developed Countries (LDCs). Like many other poor countries, the economy of Bangladesh is dependent on primary commodities produced by the agricultural sector. Since agriculture is based on weather which often behaves in a rather erratic manner, the economy suffers from a low growth syndrome. Although the share of agriculture in Gross Domestic Product (GDP) is on the decline over the years it is still the single largest economic sector contributing about 30% to GDP and employing more than 60% of the labour force. The fall in the share of agricultural sector has been largely matched by a rise in that of the service sector which is generally non-productive. The staggering industrial sector accounts for less than 20% of the GDP. The poor performance of the industrial sector is largely attributable to inefficient state-owned enterprises (SOEs) and lack of private initiative. In order to liberalize the economy allowing the private sector to play a key role in manufacturing and industrial activities, various market-oriented reforms have been adopted by the government since the late seventies. Although the reforms have been directed at privatizing the SOEs, no major headway could have been achieved in this respect thus far as a good number SOEs are still retained by the Government. The inflow of foreign direct investment (FDI) is also low compared to other South-Asian countries. More recently, significant flow of FDI in energy (gas and electricity) and telecommunications has been recorded with the opening up of these sectors to external investment. The planned development programme of infrastructure and the social sector is under increasing pressure due to falling official development assistance from the donor countries and international agencies through the Paris Consortium coordinated by the World Bank. The role of FDI could hardly be emphasized in the context of the country's future development when uncertainties of official assistance from external sources loom large. Despite a poor performance of the industrial sector, the garments manufacturing industry has experienced a

phenomenal growth for more than a decade under the private sector. Annual export of garment products now stand at 4 billion US dollars which is about 75% of the country's export earning. The growth of the garments industry is expected to boost the local textile sector through backward linkage effect.

Despite the scarcity of investible resources and poor economic growth, noticeable improvement has occurred in poverty alleviation, literacy, life expectancy, infant mortality and living standard. Bangladesh has maintained some degree of macro-economic stability in terms of balance of payment, exchange rate fluctuations and general price level. The inflation rate has been contained within tolerance limit not exceeding 6% over the past decade. The poverty incidence has reduced with the population below the poverty line (taking less than 2,122 calories per day) coming down to 48% in 1996 from 73% in 1981. The income inequality however has worsened as indicated by a rise in the value of Gini Coefficient from 0.39 to 0.45 during the same period.

The population of the country is estimated at about 128 million in 1999. The population density per square Km is 760 which is the highest in the world except a few city states and such territorial entities. The current rate of annual population growth is 1.6% compared to 2% a decade past. Per-capita income of Bangladesh was 336 dollar in 1997 according to the new estimate with a better coverage of the economic activities compared to 254 dollar estimated under the previous method. The GDP growth was estimated 5.2% 1998, compared to 4.8% in 1997.

The consumption level of different commodities in Bangladesh is low compared to many other developed and developing countries. Per capita energy consumption is about 70 koe (kilogram of oil equivalent) of which the share of traditional biomass resources is 64% while commercial energy resources including natural gas, petroleum oil hydro power and coal constitute the 36%. The shares of different categories of fuels in total commercial energy are natural gas 78%, petroleum oil 28% while coal, and hydro-electricity constitute the remaining 4%. Bangladesh has about 16 trillion cubic feet of gas reserve to satisfy about 40 years of consumption needs at the present rate. The proven reserve of gas is likely to rise further with foreign companies investing in exploration and extraction activities. About 99% of the countries petroleum oil is imported as there is no significant domestic production.

Economic growth and rapid urbanisation has been accompanied by a significant rise in different modern facilities and appliances like motor vehicles, telephones, refrigerators etc. The number of motor vehicles rose from 265,665 in 1992 to 360,217 in 1997. Autorickshaws, a highly inefficient and polluting type of vehicle, registered the highest growth rate among all categories of motor vehicles. The number of autorickshaws increased by 96% whereas all motor vehicles increased by 35% during the period from 1992 to 1997. The number of telephones increased from 245,947 in 1992 to 375,295 in 1997 or, in other words, the increase was 52% during this period. The number of telephones is likely to witness faster growth with the private companies entering into the sector. The number of motor vehicles and telephones per 1,000 people is 3 and 3.12 respectively.

3. Current State of Environmental Governance Mechanism

3.1 Public Administration

The constitution of Bangladesh provides for a unitary and parliamentary system of government. The President is the head of the state and the Prime Minister is the head of the Government. The Prime Minister is the chief executive of the country and is selected by the President, from among the members of the parliament, who commands the support of the majority of the parliament members. The Prime Minister is assisted by a council of ministers responsible to him/her in the discharge of his/her duties. The permanent officer in-charge of the Ministries is designated Secretary who belongs to the civil service.

For administrative purposes, the county is divided into six divisions, each headed by a Divisional Commissioner. There are 64 districts under six divisions. The district administration is headed by a Deputy Commissioner who is assisted by other officials. District is divided into a number of thanas headed by the Thana Nirbahi Officer. Thana comprises Unions in the rural areas and Municipalities or Pourashavas in the urban areas. The Union of Parishads and Pourashavas are local government bodies elected by the people. There are also Zila Parishads and Thana Parishads at the district and thana levels respectively.

Although a democratic system was enshrined in the constitution from the birth of the country in the early seventies, the democratic process was hindered several times by autocratic rulers. Democracy, however, has begun to gain institutional shape at the national level through the holding of parliament elections. The present parliament is almost equally represented by the government and the opposition parties.

The process of democratization of the local governments has been rather slow. A four-tier local government system at village, union, thana and district levels is now under plan to make local government bodies more effective on the democratic principle. The four major cities including the capital city of Dhaka, Chittagong, Rajshahi and Khulna have been elevated to corporation status and are headed by elected city Mayors.

3.2 Environmental Governance Mechanism

The Ministry of Environment and Forest (MOEF) is in charge of formulating appropriate plans and programmes and to coordinate the activities for protection and improvement of the environment. The Department of Environment (DOE) headed by the Director General (DG) under the Ministry of Environment and Forest is the regulatory body responsible for enforcing the environmental laws and rules. The DG is supported by a contingent of technical and non-technical staff at the headquarters at Dhaka as well as at the divisional headquarters.

With the enacting of the Environmental Act of 1995, the organizational structure of the DOE has been upgraded with the provision of additional human resources needed for the greater role to be performed by the DOE in the future. The organizational structure of the DOE is shown in Annex-A.

In order to provide guidance to the sectoral Ministries/Agencies and solve inter sectoral issues, National Environment Council (NEC) and Executive Committee of National Environment Council (ECNEC) have been constituted. The NEC is headed by the Prime Minister and the ECNEC is headed by the Environment and Forest Minister. It is felt by the various quarters that these two councils should meet regularly and play a more active role to address the key environmental issues of national importance. The conflict between the Ministry of Fisheries and the Ministry of Environment regarding the commercial shrimp culture at the cost of mangrove forest and other wetland resources in the coastal area could be resolved through the NEC.

Authority and Power of the Department of Environment (DOE)

The Director General of the DOE by virtue of power conferred upon him through the Environmental Act '95, can give order, direction or issue notifications to the owners of any industrial plant for improvement of the surrounding environment by controlling and mitigating any pollution caused by its activities.

In the event any industrial unit does not respond to the order, direction or notification issued by the DG, then the DG can serve notice for closure of the unit. However, the closure notice will only be served after giving the industry reasonable opportunity to make the industry environmentally sound. The DG or any other person authorised by him has the power to inspect any industrial complex for sample of effluent waste or any other purposes.

Other areas of activities of the DOE are:

- to carry out research and development for conservation and improvement of the environment;
- to monitor and examine sources of all possible effluents and ensure mitigation of any environmental pollution and determine from time to time the standard limit;
- to evaluate and review application submitted by existing and proposed industrial units and grant Environmental Clearance Certificate (ECC) provided all conditions are complied with by the concerned unit;
- to declare Ecologically Critical Area where the Eco-system has degraded and has reached a critical state and ensure control which operations or processes can be initiated in that area; and
- to ensure regular dissemination of information regarding environmental pollution.

3.3 Environmental Quality Standard (EQS)

The Environmental Conservation Rule '97 (ECR'97) has set Environmental Quality Standard (EQS) to ambient quality of air, water, noise and odor. All specified limits for a range of parameters that, except for odor, are dependent on the anticipated use of the local environment. In addition, the ECR'97 establishes a series of emissions, discharge and noise standards for particular activities.

The discharge standards fixed in ECR'97 are less stringent compared to other developed and developing countries in view of the needs for industrial promotion given the low income level, high unemployment and poverty situation in Bangladesh.

3.4 Environmental Clearance Certificate (ECC)

As per the relevant clauses of the ECA'95 and ECR'97, all existing and proposed industrial units are required to obtain 'Environmental Clearance Certificate (ECC)' from the DOE. In order to facilitate the process of issuing the ECC, all industries are classified into four categories viz:

- a) Green
- b) Orange -A
- c) Orange-B
- d) Red

The issuance of ECC requires environmental screening or environmental impact assessment (EIA) depending on the type of industries following the guidelines of the DOE.

3.5 Environmental Impact Assessment (EIA)

The EIA is expected to cover the following aspects:

- Initial Environment Examination (IEE)

All industries and projects in Orange B and Red categories have to conduct IEE which helps in understanding the potential extent of environment changes and in finding ways to mitigate by considering the available information, or past experience or standard operating practices. The steps for conducting IEE are:

- collection of baseline information in respect of the project and the environmental setting of the project and its site;
- setting of boundaries of an IEE by identifying the significant issues;
- impact assessment, suggesting mitigation measures, Environmental Management Plan (EMP) or alternative sites or other project modifications;
- in the event IEE of the project or industry reveals that further investigation is to be carried out then the sponsors will have to carry out a detailed EIA.

- Detailed Environmental Impact Assessment (EIA)

The detailed EIA study should be focused on addressing issues which remained unresolved in the IEE. The steps involved in conducting an EIA are as follows:

i) Impact identifications: Taking into consideration the unresolved issues of IEE the following factors is to be considered for detailed EIA:

- compilation of a list of key sources of impacts of the project on environment;

- study in details the sources of impacts of the project such as emissions, water consumption, waste water generated, noise generated etc.

ii) Evaluation: This will determine whether mitigation of pollution of the proposed project will be required. It will be based on one or more of the following considerations:

- conformity with laws, regulations or accepted standards;
- site selection with respect to protected sites;
- acceptability to the local community;
- severity of impact;
- duration and frequency of the activity causing adverse impact; and
- mitigation (are solutions available to prevent or reduce the severity of advanced impact to an acceptable level?).

iii) Mitigating measures: The possible mitigation measures may be as follows:

- changing project site;
- changing processes or raw materials;
- changing operating methods;
- changing disposal routes or locations;
- changing engineering design and methods of construction; and
- inclusion of effluent treatment plants (ETP).

3.6 Interaction between Local and Central Government

The local government institutions in Bangladesh are generally administered and managed by the employees appointed by the central government except at the lowest tier i.e. the Union Parishads which is governed by the elected representatives belonging to the locality. The municipalities and city corporations are elected bodies but are supported by employees from the central government to run the day-to-day affairs. There is virtually no representative local government system at thana and district levels although attempts have been made in the past to introduce elected bodies but failed due to lack of firm decisions by the government. Beginning with the early nineties, there has been more emphasis on the participatory planning and community-based implementation of the government sponsored development activities. In line with the participatory approach of planning and implementation, NEMAP has ensured the involvement of the local representatives and other social groups in environmental programmes undertaken by the government and NGOs. The Dhaka City Corporation has undertaken a project for improvement of the city environment with assistance from the World Bank. The local bodies now demand more autonomy from the central government relating to their participation in planning and implementation of various development projects.

Civil Society and NGOs

Although the parliament is the sole authority for enacting laws and the Ministry of Environment along with the Department of Environment (DOE) play a major role in enforcing the laws, the civil society and NGOs show an increasing interest in the environment. The views and opinions of civil society and NGOs are now given more importance by the government. The Association of Development Agencies in Bangladesh (ADAB), a federation of NGOs and voluntary associations, is committing itself to various environmental activities. Because of its grass roots network across the country, ADAB has the advantage of mobilizing the community towards environmental activities. The formulation of NEMAP and its follow-up actions through SEMP are, to a great extent, driven by the NGOs and civil society unlike other development programmes. Some large NGOs have set up environment cells within their organization structure. A number of big Bangladeshi NGOs have earned worldwide reputation for their success in community-based programmes directed at poverty alleviation and human resource development. More recently, NGOs working in the field of the environment have united themselves under the banner of Coalition of Environmental NGOs (CEN) for better coordination and concerted actions on key environmental issues. The CEN publishes newsletters to highlight environmental issues to raise awareness of the citizens. Other civil organizations and NGOs working for environment include Bangladesh Environmental Lawyers Association (BELA) and Forum of Environmental Journalist Association of Bangladesh (FEJB). BELA filed a number of public litigations against the government on environmental ground that resulted in a positive impact on environmental protection. Many national and local newspapers and periodicals have introduced “environmental page” on a regular basis. Televisions and radios are also engaged in broadcasting environmental issues of national and global implications. The civil societies and NGOs have established effective linkages with the regional and international agencies including the UN Bodies like ESCAP, UNEP, and UNDP for implementing environmental programmes including training, workshops, seminar etc. on a collaborative basis. The research and educational institutions provide important information and policy guidelines to the government, civil society, NGOs on environmental issues. The recently launched Bangladesh Environment Network (BEN) is a grand forum of individuals and institutions representing the academicians, scientists, engineers, researchers, NGOs, civil society from the country and expatriate Bangladeshis engaged in academic research in the developed world.

Response from the Industry

The industry in the past had no interest in environmental protection or pollution control due to lack of awareness and the absence of an adequate regulatory framework. The cost of pollution control was also considered by the owners of the industrial units as an additional burden on them. The situation, however, has begun to improve with the awareness building efforts by the civil society, NGOs, media and the government. It appears that the DOE is also willing to strengthen its role in enforcing the relevant laws and rules although it has not yet been able to prove itself effective to that end.

Meanwhile, a number of export oriented industrial units are taking steps to improve their environmental condition due to pressure from the importing countries. The export oriented garment and textile industries, shrimp processing industry and tannery industry are under increasing pressure from the importing countries

of the developed world for improvement of the factory environment, as well as health and safety measures. A good a number of shrimp processing plants for example, have introduced Hazard Analysis Critical Control Point (HACCP) method to ensure the health and safety standard of the product in apprehension of losing the export market.

While the large scale export oriented industrial units are in inadvantageous position to install environmental protection devices through utilizing their export earnings, the small scale units find themselves in difficulties due to lack of adequate funds and assistance.

Public Consultations

As part of the EIA process the implementation of development and industrial projects requires consultations with the stakeholders and incorporation of the findings of such consultations in project design and implementation. In Bangladesh, public consultations are now being practised in the case of large scale development and industrial projects. The billion dollar multi-purpose bridge project on the river Jamuna funded jointly by the World Bank, Asian Development Bank and Japan attached due importance on public consultations involving the different categories of stakeholders. The foreign companies engaged in exploration of gas and mineral resources now seek public opinion in designing and implementation of the project.

Strengths and Weaknesses

The organizational and institutional reforms especially the creation of the Ministry of Environment and Forest (MOEF) and the up gradation of the Department of Environment (DOE) are an important step to strengthen the environment related organizational framework of the country. The enacting of the relevant laws and rules for conservation and protection of the environment provides legal strength to the concerned organizations. Moreover, growing importance is now attached to environmental issues which are increasingly being incorporated to development plans by the Planning Commission, the central planning authority of the Bangladesh Government. The emergence of civil society groups and NGOs and their active participation in the environmental area is a positive step to further streamlining of the environmental activities in the country.

Despite the positive changes in institutional and legal aspects of the environment, major weakness could be traced in both government and non-governmental organizations engaged in environmental activities. The DOE is especially handicapped due to lack of qualified and trained personnel. The agency is also seriously understaffed specially at the regional levels.

All executive or decision making power is concentrated at the top authority. This causes decision-making as well as enforcing of the environmental laws a difficult task. The NGOs are also, to some extent, handicapped due to lack of funds and their heavy dependence on external assistance.

4. Case Studies

4.1 Pollution of Water Resources

Bangladesh has experienced an increasing rate of degradation and pollution of its water resources for more than a decade. All types of water sources including marine, river and underground have been subjected to degradation and pollution due to both human activities and natural factors.

Marine Pollution

Bangladesh has a 710 km long coastline and the coastal region is endowed with rich bio-diversity. About one-fourth of the country's population depends on marine resources. The rising trend of pollution in the Bay of Bengal not only threatens the bio-resources but also affects the means of livelihood of the people. Marine pollution is mainly caused by oil-slick from the ships and dumping of hazardous waste in the sea. It has been evidenced that several foreign ships were engaged in dumping of hazardous wastes in the Bay of Bengal in the past. According to the experts, the single largest environmental problem in the coastal belt is oil-slick that is not only killing fishes including their fry but also destroying other aquatic plants and living beings.

About 3,000 registered power-driven river crafts including oil tankers and many unregistered small mechanised boats ply in the coastal areas. The operators of those vessels dump wastes including burnt-oil on the water due to ignorance about the adverse effects of such dumping on the environment. The Chittagong port operates more than 1,200 ships and Mongla port over 600 ships a year. These ships throw their wastes in the territorial water of Bangladesh since there is no check against such practices. The ship-breaking industry operating in the coastal belt serves as a major source of marine pollution.

Marine pollution in Bangladesh is also caused by the erroneous discharge of industrial and municipal wastes carried through the rivers to the Bay of Bengal.

River Pollution

The lifeline of Bangladesh is its river systems. Apart from supplying fish, the rivers still serve as an important means for transportation of goods and passengers. The river waters are extensively used for irrigation, as well as for washing and bathing by a large number of people having little or no access to other sources of water.

With the rise of economic activity and other human interventions, an increasing pressure has been created on the river systems accompanied by a deterioration of water quality. Pollution level in some severely affected rivers has already reached a level endangering the life of fish and other aquatic resources. The worst affected rivers are the Buriganga near the capital city of Dhaka, the Sitalakhaya near the industrial town of Narayanganj, the Karnafuli near the port city of Chittagong.

There are about 2,000 industrial units within a stretch of about 20 Km along the bank of the river Buriganga around Dhaka city. About 200 tannery units discharge 6,000 cubic metres of deadly wastes into the river every day. According to an estimate, 450,000 cubic meters of wastewater is drained into the river through three points only. The present level of dissolved oxygen in the river is much lower than the minimum level required for the survival of many species of fish and other aquatic life.

It is reported that about 80 percent of the human waste of Dhaka city is dumped into the river Buriganga owing to the lack of proper sewerage systems. Besides, there has been illegal encroachment through construction of different structures by the riverside. Aside from Buriganga, other rivers like the Sitalakhaya, Karnafuli, and Rupsa are also being polluted due to release of industrial and urban wastes into the rivers. Large power plants, paper mills are the major sources of pollution of these rivers.

More recently, there has been growing interest on the environmental condition of the river Buriganga from different quarters including the government, non-government and civil society organizations. Two committees represented by the government and non-government organizations, academicians, professionals and media have been formed to evolve measures for protecting the river from environmental degradation. The committees have identified more than 200 industrial units which are causing the worst form of pollution to the river. Otherwise, no significant progress could be achieved thus far.

Agenda Setting

Agenda setting process concerning river and marine pollution involves different actors and groups having a varied degree of interest on the issue. River pollution especially the case of Buriganga River has received greater attention in the recent years. The main actors include the media, citizen groups, NGOs, scientists, academics, teachers, students etc. The media has played a key role in bringing the issue to the focus and raising public awareness. All the leading newspapers continue to highlight the case with a passionate call to protect the river from environmental degradation. A number meetings, workshops and seminars participated by different cross sectional groups have also dwelt on the environmental condition of the river Buriganga which is set as a priority agenda of the DOE and the local government. The suggestions and recommendations put forth by the various quarters include the setting up of a central effluent treatment plant along with chromium recycling plant for the clustered tanneries at Hazaribag, stopping of indiscriminate disposal of solid waste in the river, eviction of illegal settlements from the river bank, dredging of the river and establishment of an autonomous body "Buriganga Authority" for executing the recommendations. Although there has been an increasing interest in water pollution, Bangladesh lacks the institutional capacity to monitor the extent of pollution and its causes especially in the case of marine pollution.

With regard to the implementation of the environmental agenda, the responsibility lies with the DOE. So far, DOE has not been able to achieve any significant breakthrough in implementation of the needed actions due to institutional weaknesses. DOE, however, has identified the industrial units causing major pollution to the river Buriganga and initiated discussion with the owners of the polluting units to motivate them to set up effluent treatment plants at their premises. DOE now enforces the EIA as a requirement for

the new industrial units especially in the seriously polluted zones and urban centres. DOE is also planning to restrict the growth of shrimp farms which causes salinity and destabilise the coastal ecosystem.

4.2 Air Pollution

Air is a life sustaining precious natural resource and fresh air is one of the most indispensable gifts of nature without which human beings cannot survive. As a predominantly agricultural country the industrial base in Bangladesh is not very developed. Industries are mainly concentrated in major urban areas, particularly the capital city of Dhaka, the port city of Chittagong and some other large cities and towns including Khulna and Narayangonj. Air pollution from industrial sources is therefore a phenomenon identified with big cities and towns.

Causes and Consequences of Air Pollution

Rapid urbanisation and increase in the emission of black smoke by automobiles, industrial boilers, brick-burning are largely responsible for air pollution. The rural areas in general are free from industrial pollution. But brick-burning units which are widespread in the countryside especially along the highway keep polluting the air in the rural area.

In the capital city of Dhaka, the situation is alarming mainly due to vehicular emission. In Chittagong city, vehicular and industrial emission almost equally contributes to the air pollution. Emission from all types of automobiles like cars, jeeps, buses, trucks, minibuses, microbuses, two stroke engine driven vehicles (autorickshaws, tempos, minitrucks) and motor cycles continue to pollute the air of Dhaka city. Air crafts, railway engines, industrial plants, power-plants brickfields, open burning incineration, solid-waste disposal sites and dust particulates are also contributing to the air pollution. Dust pollution due to construction of houses and roads further compounds the air pollution situation. Air pollution from motor vehicles is a complex mixture of hydrocarbons, carbon monoxide (CO), nitrogen oxides (NO_x), sulphur dioxide (SO₂), particulate of lead compound and unburnt carbon compounds. Among the polluting vehicles, 2-stroke autorickshaws (also called baby-taxies) are the worst polluters.

At present there are 350,00 baby-taxies out of over 200,000 motor vehicles that ply in Dhaka city according to Bangladesh Road Transport Authority (BRTA) sources. The emission of a baby taxi is 13 times more than that of a four-stroke engine of the same size. This is because the fuel consumption is not efficient in a two-stroke engine as lubricant is mixed with fuel.

The concentration of SPM, SO₂ in air of Dhaka widely exceeds the standard prescribed by the World Health Organization (WHO). It also exceeds the Bangladesh standard which is less stringent than the WHO standard. The following table provides some estimates of the concentration of major pollutants SMP, SO₂ and NO₂ in different commercial or industrial spots of Dhaka, Chittagong, Khulna and Bogra cities.

Average Levels of Three Major Air Pollutants in Four Industrial and/or Busy Commercial Cities in Bangladesh, 1992.

Sites/Cities	SPM (PM10)	SO ₂	NO ₂
Dhaka (3 sample points)	570.00	312.00	54.70
Chittagong (4 sample points, 20 samples)	3,194.00	12.98	16.18
Khulna (2 sample points, 3 samples)	371.63	12.65	283.01
Bogra (1 sample point, 5 samples)	547.00	Not measured	Not measured
WHO Standard	75.00	50.00	100.00
Bangladesh (DOE) Standard	400.00	100.00	100.00

Notes: For Dhaka, figures refer to January, 1990 samples.

Bangladesh Standards are for industrial and/or busy commercial areas, DOE (1992).

SPM(PM10) = Suspended particulate matters of size under 10 microns which are more relevant for respiratory problems.

Effects of Air Pollution

Air pollution affects the respiratory tract, causes irritation, headaches, fatigue, asthma, high blood pressure, heart disease and even cancer. Experts are of the opinion that if the present trend of air pollution continues, residents of big cities specially of Dhaka would be increasingly exposed to the risk of these ailments and other health hazards and complications. The development of mental faculty of children would be impaired by lead pollution that could also affect the central nervous system, cause renal damage and hypertension. Scientific studies reveal that children are three times more at risk than adults by exposure to lead poison. The pollution is blamed for 15,000 premature deaths and several million cases of sickness every year. According to an estimate the total cost of increased mortality and morbidity due to air pollution varies from 168 to 459 million dollars per annum.

In order to combat and reduce air pollution, the government has decided to ban the import of two-stroke motor vehicles and convert two-stroke engines into four-stroke engines. The government has also decided to offer financial incentives for converting four-stroke automobiles using petrol and diesel to compressed natural gas (CNG) which has low sulphur content. A project has also been launched with the assistance of the World Bank to monitor air quality on a regular basis. Dialogues have been initiated by the DOE and different civil society groups to raise awareness among the owners of seriously polluting industrial units to control their emission level.

Agenda Setting

Scientists play a key role in the setting of agendas on air pollution. Both local and expatriate scientists have conducted a number of surveys of air quality in Dhaka city. Apart from the scientists, other actors contributing to the setting of agendas include the media, citizen groups, environmental NGOs, the government (DOE) and other agencies including the Bangladesh Road Transport Authority (BRTA), manufacturers and suppliers of vehicles including autorickshaws.

As a signatory to the major international environment related treaties including UNFCCC and UNCED, the government is committed to monitor and control the emission of greenhouse gases. The World Bank and the Asian Development Bank provide financial assistance to Bangladesh to that end. More recently, the World Bank has approved a US \$ 177 million credit to help solve Dhaka's urban air pollution and traffic problems under the Dhaka Urban Transport Project. In view of the pollution from automobiles, an initiative has been taken with the World Bank support to introduce big buses and discourage the plying of small automobiles including baby taxis. The government has recently decided to prohibit baby taxis and auto tempos in phases and raised the duty on their import into Bangladesh.

4.3 Deforestation

The total land area of Bangladesh is approximately 14.40 million hectares and the total land area under forest is about 2.56 million hectares (17%). However, widespread destruction, unplanned extraction, clearing of forest land for agriculture etc. have reduced the forest coverage to about 8% as against the minimum requirement of 20 percent. In Bangladesh natural forest areas constitute almost 31% and forest plantation 13% of forest areas. Only 5% of the existing forestland is designated as protected areas. In terms of per capita forestland, Bangladesh ranks amongst the lowest in the world which is about 0.02 hectares. The land area classification in Bangladesh is as follows:

Land use category	Percent of total land
Agriculture	64.2
State forest	15.4
Private forest	2.4
Other (urban, water bodies etc)	18.0
Total	100.0

The main types of forests as classified by the Forestry Master Plan are as follows:

- Natural hill forest is the most important category of forest accounting for more than half of the state forests of the country.
- Natural Inland Sal Forest is Tropical Moist Deciduous Forest in nature. The growth rate of Sal trees is lower than the growth of trees belonging to hill forest. More than 50% of the Sal forest is now blank or under the possession of encroachers.
- A vast mangrove forest is Sundarbans lying in the south-west coastal area bordering the Bay of Bengal. The growth rate of the mangrove trees is lower than that of the hill forest species.

Plantation Forest

Before 1980, most Hill Forest Plantation were teak and associated species, mainly jarul and gamar. Occasionally these were garjan, dakijan and mehogany. The plantation of the sal forests in 1950's, 1960's and 1970's was not very successful as most of these trees did not survive. Coastal plantation was initiated by the forest department following the severe cyclone and tidal bores to protect human lives and properties. About 113,000 hectares is now under coastal plantation.

Rate of Deforestation

Forest areas in Bangladesh have been disappearing at an accelerating rate. The forest in the Chittagong region had shrunk from some 30,000 ha in 1985 to 20,000 ha in 1992. In Sylhet, the North-east region, only 15% of the actual forest areas remained in their original state in 1987. As of 1989, only 17% of the total legal forest areas remained across central and north-west Bangladesh. The rate of deforestation over the period 1980-1990 was 37,000 ha per year i.e. a reduction of 3.3% annually, according to an estimate by the Food and Agricultural Organization (FAO). This estimate, however, is considered as upwardly biased by the Bangladesh Forest Department. Another study puts the mean annual deforestation (ALGAS, 1995) at 22,273 hectare for the period 1984 to 1991.

Causes and Consequences of Deforestation

In Bangladesh which is an over crowded country, “population explosion” is having the most adverse effect on the forest resources. The increasing demand for agricultural land, shelter and fuel took a heavy toll on the country’s forest resources for the past 50 years. The population jumped from 40 million to over 120 million during that period.

Indiscriminate felling of trees in the central and northern regions resulted in a serious depletion of forest resources during the past decade.

A new form of encroachment of forestland is the clearing of trees for shrimp culture in the coastal areas especially in the southern districts of Satkhira and Cox’s Bazar. According to the DOE, a large coastal forest has been completely devoured by shrimp farms in Cox’s Bazar during the past decade.

An important cause of deforestation is unauthorized grabbing of woodland. According to the official source of the Forest Department about one million hectares of the country’s forestland have been under unauthorised possession. Several thousand cases of violation of the Forest Act ranging from encroachment to theft and pilferage of forest resources are pending before the court.

The massive deforestation has led to a wide range of negative impacts on the ecological balance and loss of biodiversity. The depletion of forest cover is identified to the process of desertification in the central Barind area in the North-west part of the country. The disappearance of the Sal forest has caused the extinction of many wild animals that lived in the forest. Leopards, bears, deer and other animals were once in abundance in the Sal forest areas but can hardly be found now due to denudation of the forest. Other adverse impacts of deforestation include the loss medicinal plants, fruits and timber and increased soil erosion and other natural calamities. The estimated annual loss including timber and nontimber products owing to deforestation varies from 50.2 million to 158.8 million US dollars representing 0.15 to 0.47 percent of the GDP.

In order to check the unabated deforestation and expand forest resources, the current Fifth Five Year Plan (FFYP) (1997-2002) has adopted the following strategies and programmes.

- Expansion of the on-gong social forestry programme which has already become a social movement in Bangladesh. The FFYP plan envisages the establishment of 335 thana level and 2,000 union level nurseries. The programme is specifically directed at achieving the more active and meaningful participation of the NGOs and Local Government in social afforestation.
- The FFYP emphasizes the afforestation of farmland and farmland ridges. About 8,000 hectare of farmland would be brought under plantation during the plan period specially in the North-east region affected by the draught condition.

The proposed programmes under the FFYP also include rubber plantation, wood energy development, and non-wood forestry products. In addition, other areas of activities under the plan encompass institutional development of the Forest Department (FD), training of the FD personnel and involvement of NGOs, research and extension work. The public sector forest development under the FFYP would require about 130 million US dollar, the lion share of which would be funded by the World Bank, Asian Development Bank and other donor agencies.

Agenda Setting

Against the backdrop of rapid deforestation and the resulting loss of ecological balance over the past few decades, greater emphasis is now being laid by the various quarters for conservation and expansion of forest resources. In addition to conservation of the conventional forest areas, coastal afforestation and social afforestation programmes are given importance for environmental balance and supply of wood and fuel. The social afforestation programme with community participation under benefit sharing scheme has achieved significant success. The landless and marginal farmers organized through the NGOs are increasingly taking part in social afforestation programme. The Forest Department (FD) under the Ministry of Environment and Forest (MOEF) plays a key role in planning and implementation of the forestry programme in Bangladesh. More recently, NGOs are increasingly getting involved especially in the social and coastal afforestation programme. The massive participation of the NGOs and other community organizations has turned the afforestation programme in a social movement. Farmland forestry, plantation at the domestic yard under the national tree plantation programme is being popularized through publicity and campaigns by the government, NGOs, environmentalist, scientists, media as well as other groups. NGOs, however, are mainly involved in implementation and do not play any significant role in the planning of the forestry programme. The World Bank and the Asian Development Bank as the major funder of the forestry programme play a key role in agenda setting, policy formulation, planning, monitoring and evaluation of the programme. The local government at the thana and union levels are increasingly becoming involved in the planning and implementation of the forestry programme.

4.4 Policy Recommendations

In order to improve the agenda setting and implementation processes of environmental plans and programmes on water and air pollution as well as deforestation, various policy recommendations could be made which are stated as hereunder:

The key environmental organisation, the Department of Environment (DOE), under the Ministry of Environment of Forest (MOEF) should be strengthened and upgraded with adequate number of qualified technical personnel to carry out the tasks assigned upon it. The organisational structure of the DOE needs further decentralisation to address the local environmental issues at the district and thana levels. In addition to institutional up gradation, the DOE should be provided with adequate resources to procure the various equipment and tools for regular monitoring of water and air quality at selected locations. A statistical database of key environmental variables along with measurable and meaningful indicators should be created and made available to the public. The capacity building within the DOE should be addressed to enforce the Environmental Conservation Act (ECA) '95 and Environmental Conservation Rule (ECR) '97.

The social, economic, ecological and health impacts of water and air pollution should be studied along with identifying the affected groups and assessing the extent of problems suffered by them.

The loss of biodiversity and destruction of habitats of the wild animals due to deforestation should be assessed and sanctuaries may be set up for their protection.

The DOE and environmental organisations may undertake joint programmes to raise awareness among industrialists in order to build effluent treatment plants for the sake of clean air and water and public health.

In order to raise mass awareness concerted efforts should be made through undertaking cooperative programmes by the DOE and other governmental and non-governmental bodies including universities and research institutions. Environmental studies should be included in the curricula at all levels of the conventional educational system.

In order to assess the environmental costs of industrial and economic activities, studies should be initiated at least for the most polluting units especially the environmental “hotspots” attributable to leather & textile industries on a priority basis. This would help to introduce the “polluters pay principle” incorporating the issues of environmental degradation into production as well as distribution of benefits.

Regular interactions among the environmental organisations and institutions at both government and non-government levels are essential for a proper understanding of the regional environmental issues of the Asian countries. This may be achieved through close cooperation among the countries along with the international agencies like UNDP, UNEP and ESCAP. Exchange of knowledge and experience in the relevant field among the countries would help towards formulating viable strategies to combat the common environmental problems.

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Environmental Governance in India: Land and Forest Regeneration

Vijay Laxmi Pandey and Jyoti Parikh

1. Introduction

Productive lands are essential to meet the country's growing needs for food, fuel and fodder. They also help conserve water resources and shelter bio-diversity. Today, however over 25 per cent of the country's lands are degraded to varying degrees. Demands for land by a growing population, the conversion of public forest and revenue lands to agriculture and for industrial and urban development, deforestation for timber and paper pulp, unwise use of chemical fertilisers and pesticides, and encroachments have led to the rapid deterioration of land resources.

Alarmed by increasing ecological degradation and consequent poverty, the government is placing greater emphasis on environment-oriented programmes in rural areas. Different ministries in association with several agencies -- non-government organisations, tree growers' co-operatives and foreign funding agencies -- have initiated numerous land regeneration programmes. These programmes have attempted to rehabilitate lands on an integrated watershed basis, while providing employment in rural areas. The programmes focus on ensuring the livelihoods of communities involved with or living nearby these projects.

The National Afforestation and Eco-Development Board normally take up the regeneration of degraded forestlands. The regeneration of private lands, revenue lands and village common lands is the responsibility of the National Wasteland Development Board in the Ministry of Rural Areas and Employment. Programmes on revenue lands include among others the Drought Prone Area Programme, Integrated Wastelands Development Programme, and Jawahar Rojgar Yojana.

Despite a multiplicity of land regeneration programmes, the results have not been as encouraging as expected. Under the various programmes, maximum restoration is about 2 million hectares per year. At this rate it will take another 50-55 years to develop all the degraded wasteland in the country. There are several constraints of these programmes, some of them are listed below.

1.1 Institutional Constraints

Most regeneration programmes are designed and implemented by various government departments on their land and on village commons, but have little participation of local communities. The local communities are given no guarantees of land tenure or of access to products raised on these lands. This has led to a growing alienation. People have stopped seeing the forest and common property revenue lands as their assets and, therefore, have stopped caring for them. Conflicts between various

stakeholders, which may include local men and women, government departments, timber contractors, and industry, are common. Efforts to resolve these conflicts are cursory, creating further alienation.

There are no institutional arrangements to assure the market and prices for produce raised on wastelands and community forests. In the absence of these mechanisms village communities and farmers are hesitant to dedicate their private and common property land to regeneration or farm forestry programmes.

1.2 Financial Constraints

Land regeneration programmes on private and village common lands are constrained by lack of capital available. The average cost of regenerating grassland is about Rs 10,000 per hectare. Timber and softwood plantations cost between Rs 10,000 to Rs 15,000 per hectare (Kadakodi, 1999). Few financial incentives are offered to local communities to promote regeneration in degraded forestland or on village commons. Though programmes like the Integrated Rural Development Programme and the Drought Prone Area Programme cover the seed and initial land development costs, other costs like those for water harvesting have to be raised locally, making it difficult for communities to make the necessary commitment. Returns from land regeneration projects usually take a long time and stakeholders are reluctant to tie up their own resources over long periods.

1.3 Technical Limitations

Apart from institutional and financial constraints to land regeneration, the state of knowledge and the availability of appropriate information on how to develop different types of wastelands is limited. Information on the comparative performance of local tree and other species is not available for different soil and climate types for instance.

The community has vital information on the ecosystem and on the useful species that can survive within it, local traditional knowledge held by the community could be used to their advantage. The government encourages monoculture tree crops, and these do not provide the required mix of useful local species to meet the community's needs of fuel and fodder. This not only alienates the community from the project itself, but has also been known to affect soil and water quality.

1.4 Legal Tangles

Numerous laws govern the ownership and use of lands. The underlying principle of most of these laws is that the state is the superior authority in regulating all activities -- ownership, use and alienation -- related to the land. This has had serious implications for wastelands, and has also discouraged peoples' efforts for regeneration. The laws are also inadequate to prevent encroachment of common lands, and some laws are misused to validate these encroachments.

The customary rights of fuel, fodder, water and passage that communities had on various lands, especially forestlands are subordinate to the rights of the state. These rights have been difficult to enforce even after public interest litigation has been filed in the courts. Women are usually more directly dependent on the land. But their rights are not clearly recognised.

Land use planning has not been a primary concern of land laws. Under the Forest (Conservation) Act, the Central government has the right to permit the conversion of forestlands to non-forest uses and this has led to the regularisation of forest encroachment and degradation. The Land Acquisition Act also allows the state to acquire land for “public purposes”. These public purposes are not clearly defined and land is misappropriated with official sanction.

2. Role of Civil Society in Management of Land and Forest

Despite these constraints there are some notable land regeneration efforts in the country. These experiments reveal that at the base of their success lies the involvement of members of the community who are dependent on the resource. The efforts of the the Tree Growers Co-operatives, the government Joint Forest Management programme, and Chakriya Vikas Pranali initiated by the Society for Hill Resource Management School, all reveal the important role of the local people, in the management of private lands, common property wastelands and forests respectively.

2.1 Tree Growers' Co-operatives: on Common Property Land

The Tree Growers Co-operative Society's (TGCS) pilot project started as early as 1986, and by the year 1997 tree growers co-operatives have been formed in 389 villages in Andhra Pradesh, Karnataka, Orissa, Gujarat, Rajasthan and Uttar Pradesh. These societies have planted trees on about 5,797 hectares of revenue wasteland by March 1996.

The aim of these co-operatives has been to meet the fuel and fodder requirements of the rural community, and make them self-sustainable. The TGCS promote tree growing through the acquisition and development of common property wastelands within approachable distance from the village concerned. Villagers are motivated to grow trees on degraded forests and village wastelands, to meet the fuel, fodder, and timber requirements of its members. The land is usually acquired on lease from the government and any resident of the village can become a member by paying Rs 10. Typically the products are sold -- even to members at market prices less the implicit cost of labour involved in the collecting. The profits are shared equitably. This gives each member a stake in the common property and prevents over exploitation.

A detailed study undertaken by the IGIDR reveals that the economic and social benefits of plantations maintained by the local Tree Growers Co-operative Society were substantial. The employment generated by TGCS is significant, and the poorer sections of society perceive the programme as

beneficial to them. The experience has also shown that co-operatively run plantations on leased land are not only justifiable in social and environmental terms, but also in hard economic terms. These schemes have been successful because of its participatory democratic and commercial institutional set up and because initial preparation, which includes assessing land capability, motivating the local people, and drawing on traditional knowledge, has been thorough.

2.2 Joint Forest Management (JFM)

Traditionally the forest department's policies were focussed on generating revenue through timber production. However, there has been a realisation that this revenue based forest policy followed before and after Independence, has led to the degradation of the country's forests and also to growing conflicts with forest dependent communities. To address the question of community access to forests and to rehabilitate degraded forest areas the Joint Forest Management Programme (JFM) was initiated in 1990. This programme promotes sharing of products, responsibility, control and decision-making authority over forestlands between the forest department and local users.

So far twenty-two states have implemented the JFM programme and an estimated 40,000 forest and village protection committees (VPC) have been formed. These committees are charged with protecting about four million hectares of state forestland. Although the JFM resolution stipulates the formation of VPCs, for degraded forests, in West Bengal and Madhya Pradesh committees have been formed to even share produce of good forests.

The JFM programme is still in the experimental phase, but encouraging results are seen in some states. Conflicts arising due to the fact that the local community and the forest department who are the main stakeholders have different perspectives and interests have to be resolved at various negotiating fora. Many foresters see JFM primarily as a means to ensure forest regeneration, whereas communities tend to see JFM as a solution to the growing shortage of fuel, fodder, food and other non-timber forest products. They also see the programmes as a way to increase their family incomes.

Since neither the community nor the forest department is a homogenous group, a number of conflicts are also emerging within them. Latent conflicts related to caste, class and gender issues are threatening JFM institutions at the village level. The conflicts within community institutions often arise due to inadequate representation of certain subgroups like women and landless labourers, and their interests and the inequitable sharing of the costs and benefits of forest protection.

The Forest Department also faces a number of internal conflicts as it tries to adjust to its new role under joint forest management. Within the forest department these programmes, which involve sharing management decisions with the community, are viewed as diluting the power of the forest department over their resources. The department is still largely orientated to commercial timber production and there is resistance to reorienting to include the needs of the community.

Several policy questions related to the joint forest management model, have also arisen and these need to be addressed to ensure the long-term feasibility of the programme. The powers of the forest protection committees are restricted and more favourable sharing produce arrangements need to be worked out. As yet JFM is restricted to degraded forest areas and there is a need to extend it to better forest areas, including reserved areas, where larger returns can be expected. Thoughtful and creative attempts need to be made to resolve the conflicts over resources and address the shortcomings of the joint forest management model.

2.3 Chakriya Vikas Pranali: A Model for Management of Degraded Private Land

This experiment in sustainable land, forest and water resource management has been initiated in 50 villages in perennially drought prone district of Palamau in Bihar. It is based on the Sukhomajri experiment in Haryana where profits from one investment cycle are ploughed back as the capital in the next cycle. Based on the concept of sharing of profits, landless workers and landed farmers are equitably compensated.

In each village, landowners pooled their marginal degraded and wastelands and converted them into common pooled resources. Panchayat and forestlands when available, were also pooled. Village societies were formed and investments as grants were sought to revive the productivity of the land. Well-planned agro-forestry programmes, based on the capability of the land were initiated. All decisions regarding the development of these lands were made collectively with the participation of the members of the society.

Some 40,000 acres of private land has been pooled together for crop cultivation and tree plantation. In a period of 5 to 9 years, 39 villages have created village welfare funds exceeding Rs 1 lakh and the once barren countryside is green. The one time investment received from the government has also been repaid.

3. Role of Corporate Sector and Private Parties

As the cost of regeneration is high, there is a need to mobilise resources either through corporate sector or some other sources. The Government is looking at suggestions regarding Corporate Sector participation in the land and forest sector with caution. Demand for timber and paper is rising with income and education. And they are very often imported. Clandestine operations have become the order-of-the-day leading to excessive felling which puts pressure on fragile ecosystems of North-East and Andamans. Some experiments have to be done where the corporate sector is permitted to plant and harvest in a manner that is ecologically sound and which does not displace people. When the displacement is absolutely necessary, full compensation must be given and they should be resettled in their own lifestyle, if they desire so.

3.1 Involve Private Parties: Transparency and Accountability

One can lease land or forest to certain private firms with a stipulation that a forest of quality (as defined by some objective metrics about biomass, bio-diversity, etc.) will be returned in 15- 20 years. The failure to do so would evoke substantial penalties. To ensure compliance, leases may be only given to joint-stock companies with shares which are meaningfully traded on the stock market.

The stock market would know that a large penalty awaits the company if certain minimal standards are not adhered. Security analysts today visit the plants of companies that they cover; it is not unreasonable to think that they would visit the forests which are also comparable productive assets. The stock market would do this monitoring in a more efficient and corruption-free fashion as compared with any bureaucratic organization.

Similarly, it is feasible for voluntary environmental groups to visit a given forest once in 15 years and verify the correct calculation of penalties. In contrast, it is infeasible for them to ensure the honest day to day micro-management by the forest department, which is required to produce good behaviour on the part of forest contractors. Of course, markets are not perfect or infallible monitoring instruments. Yet, they offer a much better chance of success than the current system of control by bureaucrats.

4. Linkage between National Land and Forest Governance and Sub-regional Institutions

There is no direct linkage between national land and forest governance with other sub regional institutions. But at global level they are closely linked. Recently, concern is raised regarding accumulation of green house gases (GHG) that can alter the climate in the long run. Therefore, new justification and opportunities have arisen for funding resources for afforestation and regeneration.

The developed countries have emitted a large portion of the GHGs accumulated in the atmosphere and are looking for alternatives to invest in the forest sector, especially in the developing countries. IGIDR study showed that such programmes could be undertaken in India with the cost of carbon sequestration in the range of \$16 to \$ 18 per tonne of carbon. Such programmes could work successfully provided a framework is prepared to ensure that the benefits are shared fairly between developing and developed countries.

Thus, with better land management, appropriate financial commitments and legal and institutional reforms, India's wastelands can be rehabilitated and restored which can reduce economic and ecological poverty.

Comments

Kazushi Uemura

Let me start my discussion by offering my congratulations to the authors for their comprehensive and articulate papers on the environmental governances in India and Bangladesh.

In their papers, I have found a few patters in the development of environmental governances in the two countries despite the fact the two countries have many different economic and environmental situations. These patterns can be summarized as follows:

(1) In the two countries, many positive trends have been found in environmental governance. Environmental laws have been strengthened, particularly in the 1990.s. In India, “so far, more than 75 acts relating to environment and pollution control have been promulgated under state and central enactment.” “The policies enunciated in the National Conservation Strategy and Policy Statement and Development, MOEF, GOI, 1992, and Policy Statement on Control of Pollution, 1992, are being pursued in the Ninth Five-Year Plan (1997-2002). In Bangladesh, too, “environment was incorporated in the development plan of the government with clearly defined objectives under Fourth Five-Year Plan (1990-1995). In actuality, “a more comprehensive environmental Act known as the Environmental Convention Act (ECA)” came into force in 1995, followed by the Environmental Conservation Rules (ECR) which “sets the Environmental Quality Standard (EQS) to control the ambient quality of air, water, noise and odor.” In the two countries, many environmental actors have emerged, and environmental awareness has grown at the local and national levels.

(2) In these countries, environmental policy formulation and policy implementation still tends to be top-down. However, the role of local governments and civil society has been gradually expanding, and we can observe the pluralization of environmental policy process. Bangladesh’s Coalition of Environmental NGO’s (CEN), which is a large federation of NGO’s working in the field of environment in Bangladesh, is a good example. It is also increasingly recognized that informal, community-based, NGO-driven solutions are needed for environmental protection, and that public participation in environmental policy processes should be enhanced in order to take local conditions adequately into account.

(3) The two societies have been placing emphasis on the need for basic environmental information and its disclosure. In each country, the Environmental Impact Assessment (EIA) system has been adopted in the belief that improvement of the EIA will contribute to environmental information disclosure. In India, the Environmental Impact Assessment Notification of 1994 has empowered the “central government to impose restrictions and prohibitions on the setting, expansion, and/or modernization of any activity or new project (covering 29 disciplines) unless environmental clearance is granted.” In

Bangladesh, Environment Impact Assessment was introduced in 1995 and renewed in 1997 covering all major development projects.

(4) Yet, in the two countries, a few problems about the environmental governance have been addressed. Among those, the most serious issue seems to be that environmental policy still tends to be separated from the overall economic planning process.

For the next of my plan, I would like to make a discussion on the last point. This reflects the unfortunate fact that the inclusion of environmental considerations in nation's overall economic and policy planning is an extremely complex phenomenon.

As all of us are aware, any policy making and their implementation involve, given various constraints, the choices of goals, strategies, policy instruments, methods of coordination, feed-back mechanisms, participatory organizations, and methods of evaluation. The most serious problem in incorporating the environmental and ecological considerations in overall economic planning process is that, most of all, environmental protection has not yet received a high priority among various goals in developing countries.

Most of developing countries aim to achieve several but often conflicting objectives which are difficult to reconcile. Some of the main objectives include:

- growth (increase in per capita income)
- development (growth with social development consisting of nutrition, health, education and shelter)
- equality (of opportunities, income, wealth and political power)
- full employment
- price stability
- environmental protection
- democratic freedoms
- sense of participation.

Many more can be added. Of course, I should stress that these objectives (or goals) are means, rather than ends. It is the betterment of mankind which ought to be the ultimate objective. The point I am making here is that the environmental considerations are one of the many objectives which aim at improving human welfare. Promoting one at the cost of the other has serious implications in terms of human welfare.

All societies (except those of ascetics), aiming to increase human welfare, like to have a progression in the means to achieve the ultimate objective. The difficulty is that, not all the objectives move in the same direction. For example, a rapid economic growth often does not bring about equality nor does it

guarantee the basic minimum needs of the poor. A rapid economic growth may lead to resource depletion. If Bangladesh tries to achieve a higher GNP per capita, the country might accelerate industrialization. But, without systematic infrastructures, the country will suffer from more water and air pollution. Further, the introduction of a capital intensive modern technology may not create employment in labor surplus economies. Therefore, such countries may be advised to use an older technology on grounds that such technologies may provide more employment. Yet, such technologies may be more resource-using or prone to create more environmental pollution, while the latest technology may be less polluting. If India tries to provide clean drinking water to all of the citizens, India might want to construct a dam. But that leads to a change in the ecological system. These conflicting objectives require a society to assign priorities to various objectives and rank them in order of priorities. Yet, this is not an easy task.

Different social groups may have conflicting interests and therefore, different priorities. Therefore, the different social groups may assign different weights to various objectives. For instance, richer and the more privileged sections of the community often prefer a rapid economic growth over an environmental protection because the former provides them with more wealth. But the poor may suffer from air and water pollution that results from the rapid growth. This is precisely the “externalities.” Even if the gap between the rich and the poor is not significant, the government’s weights attached to various objectives do not always reflect different interests of different groups and are often messy compromises in practice.

It is possible, however, to minimize the resource depletion and environment degradation by prudent policies. This requires the support of not only governments but businesses and the population at large. One can not go on craving for more material goods and services and also hoping for better environment unless, of course, new innovations and inventions develop more efficient uses of non-renewable resources and ways to protect environment and the businesses are prepared to use them; but much of the cost of the introduction of environmental friendly policies have to be ultimately borne by the consumers

The developing countries might aim at learning from the past mistakes of the developed countries in utterly neglecting environmental considerations in their earlier stages of development. The developing countries will also need to take meaningful actions to reduce their rapidly expanding population but this cannot come until a certain level of economic development and education are attained. For this, the developed countries must provide such countries with financial and human support.

All are living in the same planet. Unless collective action is taken, the future may be bleak for all. Human degradation resulting from poverty and destitution is no less serious than the environmental degradation. The emphasis on one at the expense of the other may be fatal for mankind.

Environmental Governance in Korea

Hoi-Seong Jeong and Hoe-Seog Cheong

1. Introductory Remarks

Although Korea has successfully achieved economic growth during the last decades, it is now paying the price for sacrificing the environment. Abundant evidence shows that serious environmental problems are not only lowering people's quality of life but also jeopardizing the future economic growth itself.

Korea's environmental challenges have changed in accordance with the stage of the country's economic development. Prior to starting its development strategies in 1962, Korea had been a traditional agricultural society and conventional pollution, such as air and water pollution, had not attracted serious social concerns. Deforestation and the resulting soil erosion caused by the Japanese rule (1910-1945) and the Korean War (1950-1953) were regarded as the key environmental problem exceptionally. Reforestation, accordingly, was the high policy priority from the mid-1950s and it was unprecedentedly successful.

The success of economic development, however, changed Korea's stance on environment. During the stage of rapid economic growth starting in the early 1960s, concerns about economic growth overrode those about environmental quality. Naturally, the general quality of the environment deteriorated as the GNP increased. Increasing pollution emissions - as well as enhanced environmental awareness - brought public demand for a cleaner environment. In particular, environmental conservation has become one of the major social concerns in Korea since 1990s.

Along with the increase of people's concern on environmental quality, Korean society has been developing a somewhat sophisticated environmental governance structure since the early 1960s. In particular since the introduction of the Environment Conservation Act in 1977, its environmental governance system has been gradually evolved responding to the economic growth and socio-political development. Unfortunately, Korea was hit hardly economic crisis, which started at the end of 1997. Although Korea seems to be successfully overcoming the economic crisis, its economy is not so robust to cope with tough global economic conditions.

Now, Korea, one of the most dynamic societies in the world, is faced with the hard transitional challenge of enhancing the efficiency of its economy while at the same time improving the quality of the environment. The former entails securing continuous economic development and achieving an advanced economy in the midst of keener international competition. The latter necessitates not only coping with the adverse environmental

legacy of the past economic development but also shifting the current development onto a sustainable path.

The purpose of this paper is to review the development and the structure of environmental governance in Korea. To fulfill the purpose, this paper will first overview the economic and environmental contexts of Korea, and then will briefly review the development stage of environmental governance in Korea. It will be followed by thorough discussion on the current structures of environmental governance in Korea. Finally, there will be case studies focusing on three specific policy issues including nature conservation, water pollution protection policy, and green house gas (GHG) reduction.

2. An Overview on Physical and Socio-economic Contexts

2.1 The Physical Context

Geographical Conditions

Korea is a peninsula that protrudes into the ocean on the northeastern coast of Asia. It is located opposite Japan with the East Sea and the Korea Strait in the east and the south respectively, while it borders China across the Yalu and Tuman Rivers and the Yellow Sea in the north and west. The territory measures 99,392 square kilometers. It is placed in the East Asian monsoon belt and has hot, humid summers and dry, cold winters. Annual rainfall averages 1,276 mm, which varies greatly from year to year and, to a lesser extent, from place to place; June, July and August are generally the wettest months. In early spring, gusty winds bring in yellow dust from northwestern China.

Korea's land is mountainous, with many rivers and streams. About 70 % of its territory is mountainous. The T'ae Baek mountain range reaches a height of 1,708 meters and runs down the full length of the east coast, descending steeply on its eastern flank and forming a relatively straight coastline with sheer cliffs and rocky islets. On the mountain range's western and southern sides the land descends gently towards broad coastal plains. The four major rivers, the Han River, the Nakdong River, the Keum River and the Youngsan River, run from the center of the country to the sea. Korea's four main river basins contain a large number of rivers and streams, which for the most part flow to the west and the south towards the Yellow and South Seas. The Nakdong and Han Rivers are the main sources of irrigation water for rice paddies and water for industrial use.

Natural Resources

Korea is heavily dependent on the imported natural resources. More than 96 % of the primary energy supply is imported: mainly oil and coals but also nuclear fuel and liquefied natural gas. More than 85 % of the wood

used in Korea is imported. Only a small part of the iron ore for the country's large steel industry is mined locally, and even this resource is diminishing. The exploitation of some indigenous mineral resources has decreased sharply in the last decade. For instance, local anthracite production was reduced by more than half in the first half of the decade, accounting for only 13 % of the national coal supply.

2.2 Human Context

2.2.1 Population

Korea, one of the most densely populated countries in the world (452 inhabitants per square kilometer), had 46.4 million inhabitants in 1998. Population growth, a serious social problem in Korea in the 1960s and 1970s, is now down to an annual rate of 1.0 %. The number of people in reproductive age (15 and above) has risen from 17.5 million to 35.2 million in the past 30 years.

The growth rate of the economically active population has risen twice as much as that of the whole population. The unemployment rate, which used to be fairly close to perfect in the early 1990s, rose to 6.8 % in 1998, owing to the economic crisis from late 1997. Life expectancy has risen dramatically in recent decades and now stands at 76.3 years for women and 72.6 years for men.

[Table 2-1] The Population Trend

(Thousand people, %)

	1970	1975	1980	1985	1990	1995	1998
Total Population (increasing rate)	32,241 (2.4)	35,281 (1.8)	38,125 (1.6)	40,806 (1.4)	42,869 (1.0)	45,093 (1.0)	46,430 (1.0)
Population (15 Year old & Over)	17,468	20,918	24,463	27,553	30,887	33,558	35,243
Economically Active Population	10,062	12,193	14,431	15,592	18,539	20,797	21,390
Unemployment rate	4.4	4.1	5.2	4.0	2.4	2.0	6.8

Source: Korea Statistical Yearbook, National Statistical Office

2.2.2 Urbanization

Given that two-thirds of Korea's territory is composed of uninhabited mountains and hills, the actual population density in developed areas is much higher. The country is administratively partitioned into nine provinces, six metropolitan cities, and Seoul Special City. Seoul has more than 10 million inhabitants. The metropolitan cities have more than 1 million inhabitants respectively: Pusan (3.8 million), Taegu (2.2 million), Inch'on (1.8 million), etc.

Especially congested are the 42.7 % of the total population that is concentrated in and around Seoul, an area that only occupies 11.8 % of the territory. With rapid urbanization continuing, the population in urban areas is projected to reach 86.2 % by 2000.

[Table 2-2] Urbanization Trend

	'60	'75	'80	'85	'90	'95	2000
Urban Population Rate(%)	27.7	40.7	56.9	64.9	73.8	81.3	86.2

Source: Korea Statistical Yearbook, National Statistical Office

2.3 Economy and Industry

2.3.1 Economic Growth

Korea's economic development during the past 35 years has been with a great speed. With the success of a series of five-year economic plans, the Korean economy has recorded continuous growth. Annual economic growth rates reached about 9 % in the 1970s and 1980s. The mean growth rate between 1990-1995 was 7.2 %. The per capita Gross National Product (GNP), which was 82 US dollars in 1962 when the First Five-Year Economic Development Plan was launched, rose to 10,307 US dollars in 1997.

[Table 2-3] The Economic Growth Trend

	1962	1970	1980	1985	1990	1994	1997	1998
GDP (bil. \$)	2.3	8.1	62.8	94.3	252.5	402.4	476.6	321.3
Growth Rate (%)		8.8	-2.7	6.5	9.5	9.0	5.0	-5.8
Per Capita GNP	82	253	1,597	2,242	5,886	8,998	10,307	6,823

Source: Bank of Korea

2.3.2 Industrial Structure

Over the 1970s and the early 1980s, Korean development policies were focused on rapid industrialization, especially the introduction of the heavy and chemical industries, entailing a significant change in industrial structure occurring. In 1960, the agriculture and fisheries industry accounted for 36.8 % of the GDP, the mining and manufacturing industry 15.9 %, and the service industry 47.3 %. However, in 1998, the ratio of the agriculture and fisheries industry to GDP was reduced to 4.9 %, and the mining and manufacturing industry increased to 31.1 %.

Big changes also occurred within the manufacturing sector. Light industry, which had accounted for 60.8 % of the manufacturing sector, decreased to 26.9 % by 1994. In other words, heavy industry grew from 39.2 % in 1970 to 73.1 % in 1994. Fabricated metal products, machinery and equipment constituted the largest contributor to manufacturing output (more than 25 %), while the chemical industry did the second largest (about 20 %).

[Table 2-4] Changes in Industrial Structure

(%)

	1960	1970	1980	1990	1995	1997	1998
Agriculture & Fishing	36.8	26.6	14.7	8.7	6.2	5.4	4.9
Mining & Manufacturing	15.9	22.5	29.7	29.7	29.9	29.3	31.1
Services	47.3	50.9	55.6	61.6	63.9	65.3	64.0

Source: Korea Statistical Yearbook, National Statistical Office

2.3.3 Trade

In order to overcome the natural handicap of scarce natural resources and a relatively small domestic market, the GOK has driven export-oriented development strategies. The percentage of export and import in the GDP grew from 36.8 % in 1971 to 70.2 % in 1998. The high dependency on foreign markets urged Korean industries to be sensitive to trends in foreign markets.

[Table 2-5] The Trend of Dependency on Foreign Economy

	1971	1980	1985	1990	1995	1997	1998
Export (bil. \$, A)	1.1	17.5	30.2	65.0	125.1	136.2	132.3
Import (bil. \$, B)	2.4	22.2	31.1	69.8	135.1	144.6	93.3
GDP (bil. \$, C)	9.5	62.8	94.3	252.5	489.4	2476.6	321.3
(A+B)/C (%)	36.8	63.2	65.0	53.4	53.2	58.9	70.2

3. The Development of Environmental Governance in Korea

3.1 Stage 1: Initial Period (1962-1977)

3.1.1 Environmental and Economic Situation

The Government of Korea (GOK) stimulated industrialization through the Five-Year Economic Development Plan that was launched in 1962. The industrialization strategy adopted in Korea in the early 1960s was based on an export-oriented strategy. At the beginning stages of economic development, concerns

about economic growth overrode those of environmental quality. Accordingly, the general quality of the environment deteriorated as the GNP increased.

Until the end of the 1970s, the people of Korea seemed to recognize that industrial smoke was a symbol of economic development. Two examples depict the contemporaneous public awareness on the environment in Korea at that time. The first example comes from a statement inscribed on the Ulsan Industrial Tower in 1962:

“On the day when the thundering sound of the construction and manufacturing industry vibrates the East Sea, and black-smoke from industrial production spreads throughout the atmosphere, we can see that the hope of development of the nation has become a reality.”

The second example is the speech made by a Korean delegate at the 1972 United Nations Conference on Human Environment (UNCHE), which was held in Stockholm, Sweden. The delegate said,

“With the success of the first and second economic development plans, Korea has achieved rapid industrialization. However, although not as significant, urban problems and environmental pollution have regrettably emerged.”

During the 1970s, the GOK stimulated the establishment of the heavy and chemical industries. In order to expedite economic development, industrialization policy gave weight to economies of scale and concentration. A policy tool to stimulate a rapid economic growth was to develop industrial complexes. These policies caused an excessive burden on the environment. Pollution damage, such as red tides in Chinhae Bay in 1972, had been spreading throughout the nation, especially the surrounding industrial areas established by the government.

3.1.2 Policy and Legislation

A governmental branch with the task of protecting the environment was created from the Pollution Control Section within the Ministry of Public Health and Social Affairs in 1967. Subsequently, the administrative organization for pollution control was upgraded to the Pollution Control Division in 1970 and to the Environmental Affairs Bureau in 1977. The Pollution Control Act (the Public Nuisance Act), the first environmental statute, was passed in 1963, but the associated ordinances and regulations were not adopted until November 1969. Consequently, it did not work properly to effectively alleviate the environmental problems caused by the economic development of those days.

The law was revised to introduce emission standards, a permit system for the construction of polluting facilities, and orders for the mandatory movement of polluting facilities in 1971. The authoritarian GOK, which prioritized economic development, however, did not execute the law properly. Accordingly, the law was never used effectively to deal with the emerging air and water pollution problems until the early 1970s. The major reasons for the weak environmental governance included the lack of suitable legal provision and

administrative bodies and a social atmosphere that thought most of economic development.

3.1.3 Capacity Building

Both the policy of import-substitution in the 1960s and that of fostering heavy and chemical industries in the 1970s resulted in the rapid industrialization and urbanization in Korea. However, awareness of environmental issues remained far from being enough, and pollution began to spread throughout the country on an unprecedented scale.

Beginning in 1967, air pollution in the compound of the Ulsan industrial complex, which was the first planned industrial area established by the GOK, became worse and led to health problems for residents and damage to agricultural products (e.g. rice, pear, etc.). Nonetheless, the government did not launch anti-pollution measures in an earnest way.

Furthermore, under the authoritarian political regime, environmental movements during the 1960s were regarded as anti-government activities. With the growing complaints of the victims of the air pollution, the GOK proposed that the polluting industries in this area compensate pollution victims and that the people living there be relocated in other areas.

Although this incident was a sign of expanding pollution, the GOK tackled it with mere makeshift measures. Not until the passage of the Environmental Conservation Act in 1977 was a major effort made to tackle pollution systematically.

3.1.4 Civil Society and Business

The first green movement in Korea happened in 1966. It was an anti-air pollution drive against a thermoelectric plant in Pusan. By the end of the 1970s, the environmental movement was by just scattered groups of local residents suffering from industrial pollution. Typical environmental movement at this time was protest by farmers and fishermen living near industrial complex.

In 1971, greenfield farmers in Samsan plain near Ulsan industrial complex demanded official countermeasures against the pollution that caused agricultural damages. They also requested financial compensation for the damages and the solution, which led to an agreement on financial compensation. In 1974, a group of fishermen from Euichang County in Kyoungnam Province filed a lawsuit demanding financial compensation from Jinhae Chemical Corporation. The court decision took almost 10 years.

There were no well-organized environmental movements in this era. Most of the business did not have appropriate pollution control facilities or equipment in this period.

3.2 Stage 2: Consolidation Period (1978-1989)

3.2.1 Environmental and Economic Situation

After suffering an economic slump and political turmoil at the end of 1970s, Korean economy had boomed again due to the low oil and raw material prices and low inflation (so called 3 lows) during the early 1980s. As economic development brought a significant increase in income levels, the demand for a cleaner environment grew. The rapid growth of the heavy and chemical industries without proper measures for pollution control had given rise to significant environmental issues.

Many urban and rural areas with heavy and chemical industries began to report pollution damages. Damages to fishery products caused by coastal area's pollution, health problems caused by water and air pollution, damages to agricultural products due to air pollutants had invited many pollution conflicts.

In Seoul, SO₂ pollution, which reached a peak of 0.094 ppm in 1980, was then regarded as an urgent policy agenda, since the Government was designated to host the 1988 Olympic Games in Seoul in 1981. As the number of automobiles had reached 1 million in 1985 (It increased to 10 million by 1997.), the volume of vehicle exhaustion had increased significantly.

Collective citizen protests against industrial pollution began to arise at that time. The most salient episode was Ulsan and Onsan pollution problems in which residents got an unknown disease and agricultural products were damaged. In particular numerous residents near Onsan Bay got the unknown disease in the early 1980s, which some environmentalists called "Onsan disease." A similar episode has been reported in Kwangyang Bay since 1987.

A water quality analysis in 1989 showed water contamination including heavy metal in four large rivers. The year 1990 saw several incidents of drinking water contamination. All these occurrences have fostered people's environmental awareness to a great extent.

3.2.2 Policy and Legislation

In response to the growing demand for a cleaner environment, the GOK began to introduce environmental regulatory policies. In 1977, the Environmental Conservation Act was enacted to provide an administrative

framework for pollution control and environmental preservation. Based on the Environmental Conservation Act, the GOK set water quality standards in 1978 and sulfur dioxide (SO₂) standards for air quality in 1979.

In 1980, the GOK launched the Environment Administration (hereafter EA) as a sub-cabinet agency in the Ministry of Public Health and Social Affairs by reorganizing the Environmental Affairs Bureau, to meet the environmental control requirements. The EA began the annual publication of the environmental White Paper since 1982.

Moreover, the 1980 amendment of the Constitution recognized people's right to live in a clean, healthy environment as a fundamental human right. The then-amended Environment Conservation Act introduced several new features for environmental policy responses, such as the environmental impact assessment system in 1982 and the emission charge system in 1983.

3.2.3 Capacity Building

In the late 1980s, the public began to voice demands for a clean and healthy environment through protests and NGO participation. To reduce urban air pollution, the GOK began to supply lower sulfur content oil in 1981 and strengthened vehicle emission standards in 1987. She also required the supply and use of clean fuels like liquefied natural gas (LNG) in major cities in 1988.

The GOK also responded by establishing more stringent environmental standards, conducting EIAs, designating special protection zones, and transferring the costs of pollution control to the firms responsible. Despite all these efforts, increasing public demand for a cleaner environment could not be met.

3.2.4 Civil Society and Industry

As urban residents were becoming more aware of physical damages of pollution and the value of clean environment, the environmental movement inspired citizens' participation. The environmental movement, however, still could not go beyond the immediate locality and each group's simple concern for its own interests. The Korean Institute for Pollution Studies, the first full-scale professional NGO, was established in 1982.

Environmental movement was a partial success at the period. Environmental activism at the early 1980s in Ulsan and Onsan areas resulted in the relocation of pollution-exposed residents. The 'Protect the Youngsan River' campaign in 1983 led to the abandonment of a construction plan for the Jin Ro Wine Company in Najoo City. The 1990 riot at Anmyeon Island against a proposed nuclear waste disposal site gained nation-wide attention and prevented from implementing the plan.

Several NGOs consolidated into the Korean Federation for Environmental Movement in 1988. The Environment and Pollution Research Group was founded to perform more scientific environmental movement in 1989. Several more NGOs were born at this period and many religious; consumer and women organizations began to pay attention to the environmental issues.

Most industries began to construct their own pollution control facilities and equipment. Some of them, however, hesitated at full compliance of pollution emission standards and voluntary environmental management was still very rare at this period.

3.3 Stage 3: Focus-Shift Period (1990-present)

3.3.1 Environmental and Economic Situation

Soon after the Declaration for Democratization of 1987 and the Seoul Olympic Games of 1988, the GOK began to consider how economic development policies needed to be changed to promote economic and ecological prosperity at the same time. Korea, which guaranteed people the right to live in a comfortable environment in the 1980 Constitutional Amendment, manifested its intention to address new environmental issues in order to improve the quality of life and work for a cleaner environment.

In the first half of the 1990s, rapid economic growth, democratization, opening to international competition, and the pressing environmental demands of the public all led to sweeping changes in the orientation of environmental policy through the rewriting of virtually all environment-related laws and the strengthening of environmental administration.

Traditionally Korea was ruled by a strong central government. But the replacement of authoritarian government with democratic one in the early 1990s and the introduction of local autonomy in January 1995 have given greater autonomy to provinces and municipalities. Metropolitan Cities (cities under the direct control of the central government), Provinces (do), Cities (shi), and Counties (kun) have their own assemblies, and the assemblies can enact ordinances in accordance with national laws (Ordinances used to be approved by the upper level government). Provinces, cities, and counties, in addition to their responsibilities, carry out many duties on their own decision that the central government delegated to them.

Even though Korea has had a complete portfolio of sophisticated environmental policies since the early 1990s, there have been several pollution-related incidents such as the Phenol discharge incident in the Nakdong River in 1991 and citizens' protest against reclaimed land for waste disposal at Kimpo in 1993.

3.3.2 Policy and Legislation

In 1990, the Environment Administration was upgraded to the cabinet-level of the Ministry of Environment. The executive functions of the Ministry of Environment were further strengthened in a structural government overhaul in 1995. Through another government structural reform in 1998, the management of national parks, the protection of wild birds and beasts, and hunting regulations have become tasks of the MOE.

The Environmental Conservation Act of 1977 was replaced by six new laws: the Basic Environmental Policy Act, the Environmental Dispute Settlement Act, the Air Quality Preservation Act, the Water Quality Preservation Act, the Noise and Vibration Control Act, and the Toxic Chemicals Control Act.

The Basic Environmental Policy Act provides fundamental environmental policy orientations and the Environmental Dispute Settlement Act provides a legal framework for a fair settlement of disputes due to pollution. Several new laws were additionally legislated to meet increasing public environmental demands and to host international conventions: the Act Relating to Promotion of Resource Saving and Reutilization, the Groundwater Act, the Act Relating to Water Resource Water Quality Improvement and Local Resident Support in the Han River Watershed, the Wetland Conservation Act, etc.

Prior to the 1990s, environmental policies in Korea solely depended on direct regulation. These stringent environmental regulations have placed greater cost burdens on both industry and the government. Although government spending on the environment has risen more drastically than on other areas, it has been unable to meet the increasing demand for environmental quality. The government, thus, has introduced environmental pricing measures (economic incentives) as a supplement to traditional direct control methods.

3.3.3 Capacity Building

With democratization since the late 1980s, campaigns in the mass media for environmental preservation have become prominent. This has enhanced the public's awareness of environmental problems and increased the public's demand for a better quality of life. The GOK has tried to utilize public cooperation in implementing environmental policy and to maintain a better relationship with the private environmental sector.

Anticipating the new century and declaring it the "Century of the Environment", *Korea's Green Vision 21* was approved by the Government in 1995 to make the transition "from a model country of economic development to a model country of environmental conservation". Green Vision 21 presents a set of policy orientations and some quantitative targets (to be achieved by 2005) for "environmentally sound and sustainable

development”. In March 1996, the President reinforced Green Vision 21 by issuing the *Presidential Vision for Environmental Welfare*, containing five principles and seven major policy directions.

Total public and private pollution abatement and control expenditures (both investment and O/M expenditures) for 1992~97 were estimated on a trial basis by the Bank of Korea. According to the Bank’s figures the total had reached W 8,504 billion by 1997, increasing substantially, both in real terms and as a proportion of GDP, over the period. It had increased from W 4,294 billion, which was 1.5 % of the GDP in 1992, to W 8,504 billion, which was 2.0 % of GDP in 1997.

[Table 3-1] Estimated Pollution Abatement and Control Expenditure (1992-97)

(billion Won)

	92	93	94	95	96	97
Total (% of GDP)	4,607 (1.64)	4,811 (1.62)	5,331 (1.65)	6,306 (1.79)	7,239 (1.86)	8,504 (2.02)
By sector						
Government	2,232	2,417	2,592	2,928	3,367	4,337
Industry	2,062	2,042	2,345	2,891	3,260	3,463
Household	313	372	394	487	612	704
By medium						
Air	840	834	967	1,035	1,071	1,398
Water	2,279	2,359	2,552	3,075	3,608	4,346
Waste	1,266	1,425	1,592	1,910	2,274	2,498
Other	221	213	220	286	286	261

Source: Bank of Korea

3.3.4 Civil Society and Industry

With the partial implementation of local autonomy in the early 1990s and the 1992 UNCED in Rio, environmental movement in Korea has greatly expanded, united and reached out internationally. Their focus also changed to include not only domestic water pollution and nuclear waste disposal but also global warming and acid rain issues. Moreover, environmental NGOs emphasized more fundamental issues such as sustainable consumption, sustainable development, etc.

The number of environmental activists who were involved in policy formulation process has soared. Many religious groups increasingly extended their missions to include environmental issues. Environmental activism expanded rapidly into a nationwide network organization at the early 1990s. At the late 1990s, the number of environmental activist groups focusing on specific regional issues (e.g., tap water source conservation, ecosystem preservation) apparently rose. An increasing number of the general public has also been voluntarily participating in the environmental policy formulation and implementation.

Moreover, Korea’s export-oriented industries are prepared to follow ISO 14000 environmental management

systems, and some have their own internal environmental audit systems with formulated guideline and criteria for environmental actions. Sometimes their own environmental goals are higher than government-regulated ones. A few large companies are beginning to provide environmental training for the smaller subcontractors, who may not have the same level of environmental awareness and know-how.

4. Current Mechanisms of Environmental Governance

4.1 Legal Structure

4.1.1 The Constitution

The 1980 amendment of the Korean Constitution first introduced environment rights as a basic human right. Article 35 of the 1987 Constitutional Amendment declares:

- *All people have the right to lead a life in a healthy and pleasant environment, and the government and people should make efforts to conserve the environment.*
- *The contents and exercise of the environmental rights should be detailed by law, thereby mandating the rights to environmental laws.*

4.1.2 Environmental Laws

The first environmental laws in Korea were the Pollution Control Act (PCA) and the Garbage Clean-up Act (GCA) which were introduced in 1963 and 1961 respectively. The former was to regulate air, water, and noise pollution control; the latter was to guide for garbage collection in cities. There was, however, little concern for environmental quality and these acts were not enforced properly. In 1977, the PCA was replaced with the Environment Conservation Act (ECA). It extended the legal dimensions of environmental policy to cover most environmental issues. Despite some development in environmental laws, their low priority and weak administrative capacity prevented them from being properly implemented.

At the beginning of 1990, the Environment Administration was upgraded to the Ministry of Environment (MOE) and the Environment Conservation Act was replaced by several individual sectoral laws which were more detailed and had more specified and strengthened regulations. The Basic Environmental Policy Act (BEPA) stipulates the core principle of environmental policy. The law declares that both harmony and balance between humans and the environment are essential to the health of the nation, cultural life, the conservation of national territory, and permanent national development. The act also clarifies the Polluter-Pays Principle as the guiding principle of pollution control policy.

[Table 4-1] The Current Structure of Environmental Laws

Field	Environmental Acts	Date Legislated
Environment Management	1. Basic Environmental Policy Act	1963(1990)
	2. Environmental Impact Assessment Act	1993(1999)
	3. Environmental Dispute Settlement Act	1990(1997)
	4. Special Account for Environmental Improvement Act	1994(1996)
	5. Act on Environmental Improvement Charges	1991(1999)
	6. Act on the Support and Development of Environmental Technologies	1994(1999)
	7. Act on Punishment for Environmental Crimes	1991(1996)
	8. Environmental Management Corporation Act	1985(1993)
Natural Environment Management	1. Natural Environment Preservation Act	1991(1999)
	2. Natural Park Act	1980(1999)
	3. Wetland Preservation Act	1999
	4. Special Act on the Conservation of the Ecosystems of Island Regions such as Tokdo, etc.	1997
	5. Soil Preservation Act	1995(1999)
	6. Act on the Protection of Birds and Beasts and Hunting	1967(1999)
Air and Noise Management	1. Air Quality Preservation Act	1990(1999)
	2. Noise and Vibration Control Act	1990(1999)
	3. Air Quality Management Act for Underground Living Spaces	1996
Water Management	1. Water Quality Preservation Act	1990(1999)
	2. Inland Water Body Water Quality Management Act	1990(1999)
	3. Act on the Treating of Sewage, Night-Soil, and Livestock Wastewater	1991(1999)
	4. Act on Water Resource Water Quality Improvement and Local Resident Support in the Han River Watershed	1999
Drinking Water Supply	1. Water Supply Act	1961(1999)
	2. Sewer System Act	1966(1999)
	3. Drinking Water Management Act	1995(1999)
Waste Management	1. Waste Management Act	1986(1999)
	2. Act on Promotion of Resource Saving and Reutilization	1993(1999)
	3. Act on Promotion of Construction of Waste Treatment Facilities and Support of Inhabitants Near the Facilities	1995(1999)
	4. Act on Transboundary Movement of Wastes and Their Disposal	1992(1999)
	5. Toxic Chemicals Control Act	1990(1999)
	6. Korea Resources Recovery and Reutilization Corporation Act	1979(1993)

* Years in parentheses denote year of most recent amendment

As of 1998, the thirty environmental laws listed below came under the jurisdiction of the MOE. (Other environment-related laws fall under the jurisdiction of other ministries.) The major laws include the Natural Environment Conservation Act, the Air Quality Preservation Act, the Environmental Impact Assessment Act, the Noise and Vibration Control Act, the Water Quality Preservation Act, the Marine Pollution Prevention Act, the Waste Management Act, the Toxic Chemical Control Act, the Act Relating to Environmental Improvement Charges, and the Environmental Dispute Settlement Act. (See Table 4-1).

4.2 Environmental Budgets and Expenditures

4.2.1 Amounts and Structures

The central government budget allocation for environmental projects has grown steadily since 1985, both in real terms and as a share of the budget. Government expenditure on environmental purposes has increased from W 486 billion in 1991 to W 2,801 billion in 1998. The central government budget allocation for environmental purposes has grown steadily since 1985 both in real terms and as a share of the budget. According to the MOE, the total environmental budget had reached W 2,753 billion by 1997, increasing substantially from W 130 billion in 1985, about 40 % of which was spent by the MOE and the rest of which was spent by other ministries, such as the MoCT, the MoGAHA, and MoA. The expenditure of the MOE covers most environmental sectors. However, the MoCT is in charge of construction and maintenance of large-scale drinking water reservoirs, and the MoGAHA is in charge of budget allocation for local governments.

[Table 4-2] Environmental Expenditures of the Government

	92	93	94	95	96	97	98	99
Environment Total	6,138	7,271	11,612	17,801	22,406	27,530	28,005	27,534
(% of Gov't Budget)	(1.37)	(1.39)	(1.66)	(2.05)	(2.24)	(2.47)	(2.32)	(2.15)
(% of GNP)	(0.26)	(0.27)	(0.38)	(0.51)	(0.58)	(0.66)	(0.68)	(0.64)
By Sector								
MOE	1,396	1,887	4,716	6,729	8,851	10,802	11,131	11,536
MoCT	2,148	2,382	1,916	3,016	3,753	3,753	5,782	4,772
MoGAHA	2,444	2,852	4,070	5,128	6,005	6,005	8,269	8,301
MoA	0	0	0	400	400	400	340	361
MoMF	0	0	0	0	116	116	83	52
MoFE	150	150	910	2,528	3,281	3,233	2,400	2,512

Source: Ministry of Environment

MoCT: Ministry of Construction and Transportation,

MoGAHA: Ministry of Home Affairs and Government Affairs,

MoA: Ministry of Agriculture,

MoMF: Ministry of Maritime and Fishery

MoFE: Ministry of Finance and Economy

More than half of MOE expenditure is allocated to water supply and water quality preservation projects and one fourth is to waste management projects. Air pollution management cost is mainly financed by the industrial sector.

4.2.2 Special Account for Environmental Improvement

In 1995, the Government introduced the Special Account for Environmental Improvement to make the allocation of environmental resources more stable and efficient. The Special Account, administered by MOE, receives revenue from 18 sources under 14 laws, including various environment-related economic instruments, loans, and transfers from the General Account.

The revenue from economic incentive systems, such as emissions charges and environmental quality improvement charges, constituted about 62.1 % of the MOE budget in 1999. It has increased from 13 % in 1994 to its current level by strengthening the polluter pays principle, expanding liability for polluting activities and increasing the rate of the charges.

[Table 4-3] Composition of Revenue of the Special Account for Environment Improvement

(billion Won)

	1998	1999
Total	877.6	907.2
Self Revenue	544.1	563.4
Environment Improvement Charge	290.9	310.4
Emission Charge	60.5	59.8
Revenue from DRS	51.2	37.7
Waste Charge	47.2	47.7
Water Quality Improvement Charge	26.9	25.7
Others	67.3	82.2
Dependent Revenue (Subsidy from General Account)	333.6	343.7

4.2.3 Use of Economic Instruments

The MOE has put the following economic instruments into effect to implement the Polluter-Pays Principle:

Firstly, the Emission Charge System was put into effect in 1983, in order to prevent damage to the environment due to pollutants discharged in excess of the specified emission standards and to ensure that firms would actually observe the permissible limits. If permit holders are caught violating the conditions of their permits, the system imposes charges on the emissions or discharges of certain pollutants that are in excess of emission limits.¹ The emission charge system was modified in 1997 to include volume or discharge based charge (the Basic Emission Charge²).

¹ Ten air pollutants, including SO_x and TSP, and seventeen water pollutants, including BOD, COD, and suspended solids, are subject to the charge.

² The change occurs in parallel with modifications to the permit system; emission and discharge permits stipulate an upper limit for the amount of pollutants that can be emitted. The emission charge will then become payable on all discharges and emissions in excess of 30 % of this maximum amount, thus creating an incentive to permit holders to reduce emissions to below 30 % of the maximum allowed.

[Table 4-4] Current Status of the Main Economic Instruments in Korea

	Emission Charges	Environmental Improvement Charges	Water Quality Improvement Charges	Deposit-Refund for Waste Disposal	Waste Treatment Charges	Volume-based Waste Collection Fee
Legislation on which is based	Water & Air Quality Conservation Act	Environmental Improvement Charges Act	Drinking Water Management Act	Resources Savings and Recycling Promotion Act	Resources Savings and Recycling Promotion Act	Waste Management Act
Basic elements	-Emission charges imposed on air and water (10air criteria and 17water criteria) -Basic charges -Overuse charges (classification charges & treatment charges)	-Facilities: standards on regional coefficient -Motor vehicle :consideration of engine size displacement- the age of vehicle , etc	20% tax of the selling price	Various rate	Various rate	Relevant envelope's price according to standards on capacity of emission waste
Regulated items	-Air: 10 Substances such as SOx, NH ₃ , TSP, etc -Water: 17 Substances such as organic material, suspended material, Cd, etc	160m ² without classification of types of business, diesel-powered motor	Drinking water	Cartons, metal cans, bottles of detergent, mercury batteries, lubricating oils, appliances, etc	Containers of pesticides and hazardous material, cosmetic containers, general batteries gum, disposable diapers, etc	Household waste and construction waste

Secondly, the Deposit-Refund System for Waste Disposal went into effect in 1992. To promote recycling, the MOE has the authority to collect deposits from producers and importers of easily retrievable and recyclable products. When pollution is avoided or reduced by returning the products or their residuals, a refund follows. In 1999, twelve items among six products, including beverage containers, tires, the lubricating oil, became liable to the deposit-refund system.

Thirdly, the Waste Treatment Charge System was introduced in 1993 to promote waste reduction and resource conservation. This system charges producers or importers of 29 items of 10 products which use materials and containers that contain harmful substances or that are difficult to collect or recycle.

Fourthly, the Environmental Improvement Charge was levied on the owners of commercial buildings and on diesel-powered vehicles in order to curb increasing pollution from commercial and consumption sectors and in order to raise funds for environmental investment. The major objectives of the charge are to foster pollution reduction and to secure funds for environmental investment. The rate of charge for commercial buildings is on the amount of fuel and water used, and that for diesel-powered vehicles is on the age of the vehicle and the estimated volume of exhaust.

Fifthly, the Volume-Based Collection Fee System for Domestic Wastes went into effect in 1995. Its objectives include reducing the volume of domestic wastes generated by households and promoting recycling by imposing collection fees according to the volume of wastes generated.

4.3 Administrative Structure

4.3.1 Ministry of Environment

The MOE, a cabinet-level ministry, was established in 1990 with the primary responsibility of developing legislation, policies, and measures for environmental management. The MOE is the center of the Korean environmental management system with responsibilities for maintaining air quality, water quality and tap water supply, waste management, and nature conservation policy. As of 1998, there were 1,320 staff members, 396 of which serve at the MOE headquarters. The headquarters are comprised of the Planning and Management Office and six bureaus, including the Environmental Policy Bureau. Also part of the MOE are the Central Environmental Disputes Coordination Commission and the National Environment Research Institute.

To achieve effective environmental management that accounts for local condition, there are four Environmental Management Offices. The Environmental Management Offices consist of four regional Environmental Management Offices and eight branch Offices. The boundaries of the four regions correspond to the basins of the four main rivers. The Environmental Management Offices are responsible for regulating, permitting, monitoring, and enforcing air, water quality, waste management, and nature conservation. They also carry out environmental impact assessments (EIA), including public consultation.

Three public corporations, the Environment Management Corporation (EMC), the Korea Resources Reutilization and Recycling Corporation (KRRRC), and the National Park Management Corporation, are also part of the MOE. They are semi-private, commercial organizations.

4.3.2 Other Ministries with Environmental Responsibilities

In carrying out its functions, the MOE coordinates with other ministries and administrative bodies that have substantial responsibilities for environmental management. The distribution of these functions is inherited from earlier institutional structures. The ministries and administrations that are responsible for environment-related policy are as follows:

- The Ministry of Science and Technology, which is responsible for control of the transport, handling, and disposal of radioactive industrial wastes

- The Ministry of Government and Home Affairs, which is responsible for natural hazard management
- The Ministry of Agriculture, including the Forestry Agency, which is responsible for sustainable agriculture and protecting forestry resources
- The Ministry of Trade, Industry and Energy, which is responsible for the management of industrial complexes, supply of environmentally friendly energy, and research and development of renewable energy sources
- The Ministry of Construction and Transportation, which is responsible for designating development-restricted areas and managing rivers and lakes
- The Ministry of Maritime and Fisheries, which is responsible for supervising and enforcing marine regulations and for preventing marine pollution
- The Ministry of Foreign Affairs, which is responsible for diplomatic issues related to international environmental cooperation

4.3.3 Sharing Responsibilities between Central and Local Governments

Under the ordinance of the Environmental Conservation Act, local governments were given the responsibilities. When the Environmental Administration established 6 regional environmental offices in 1986, however, the major tasks of enforcing environmental regulation were given to the new national governmental branches.

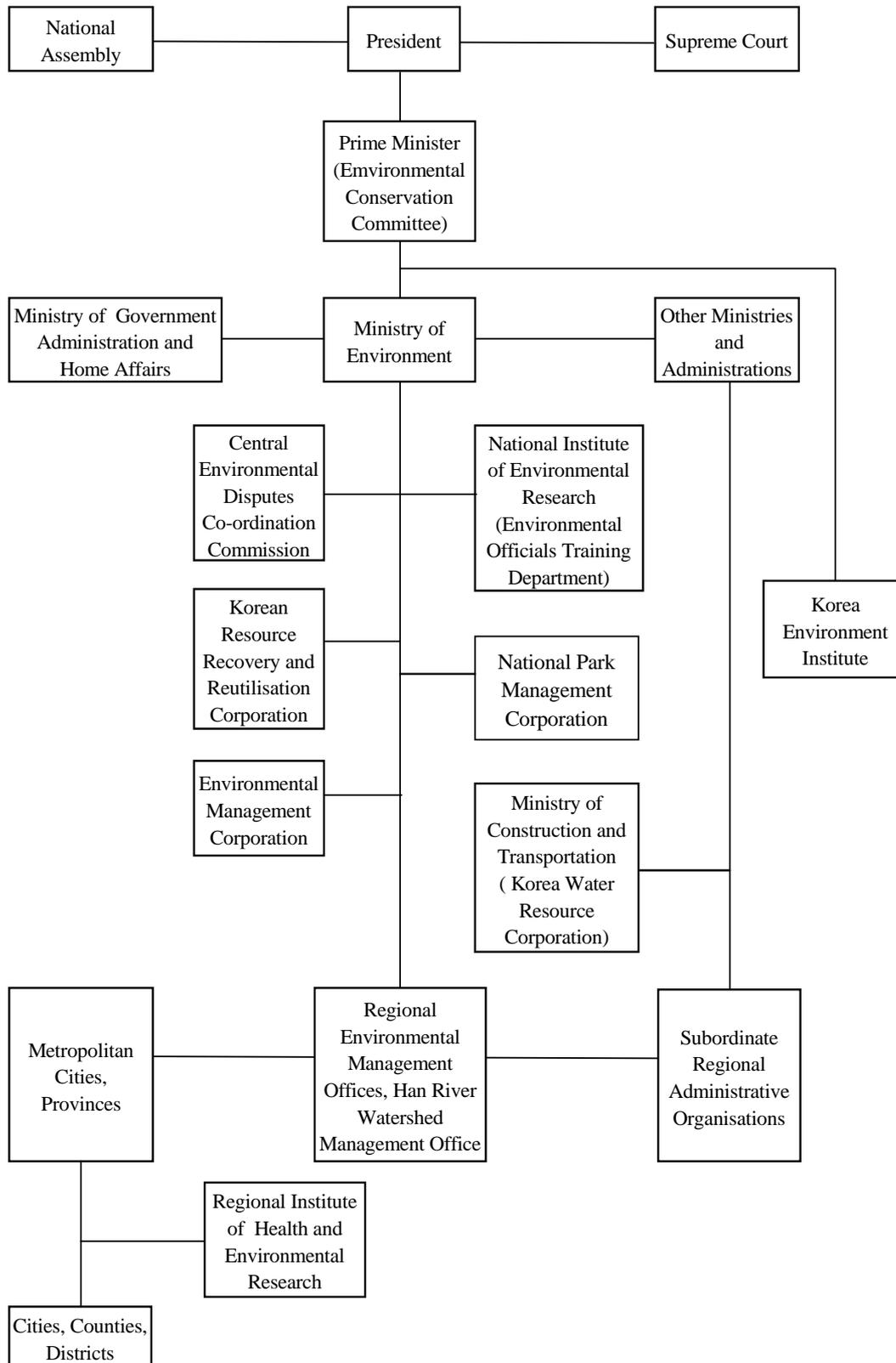
Administrative Responsibility for the Protection of Nature

There are a number of ministries involved in nature conservation in Korea. The MOE is in the core responsibilities for the protection of nature, including overall planning for national natural environment conservation, designation and management of the Natural Ecosystem Conservation Areas, conservation of biodiversity and wild life protection, etc.

The Ministry of Marine and Fishery is responsible for the conservation of coastal wetland and protection of fisheries. The Ministry of Construction and Transportation and its corresponding local units are responsible for the designation and management of urban parks and zoning, especially designation of the Natural Environment Conservation Areas.

The Forestry Agency is in charge of the designation of protected wild forests. With the 1998 government structural reform, the management of national parks, the protection of wild birds and beasts, and hunting regulation have become tasks of the MOE.

[Figure4-1] Environmental Administrative Structure of Korea



After the phenol pollution accident in 1991, along with the mood of localization, all of the responsibilities of monitoring and enforcing environmental regulation devolved to provincial governments in 1992. From water

pollution accidents at Nakdong and Youngsan Rivers in early 1994, the responsibilities implementing environmental policies began to be shared by both the Environmental Management Offices and provincial governments which emission sources belonged to.

Emission sources located in industrial complexes are given permits and are regulated/controlled by the Environmental Management Offices and others by provincial governments. Most implementation tasks, which were transferred provincial governments, now have been transferred further to local governments.

4.3.4 Local Governments

Local governments (i.e. provinces, counties, and municipalities) are in charge of implementing the central government's environmental policies and regulations. Metropolitan and provincial authorities operate regional institutes for environmental research that monitor pollution levels. The major roles of local authorities include:

- establishing and implementing regional environmental protection efforts within the limit of their authority;
- executing environmental impact assessments (development of their own EIA procedures);
- providing water supply services and installing and operating sewerage and waste water treatment facilities;
- monitoring violations of environmental standards and illegal emissions and discharges;
- establishing and operating sewage and waste treatment facilities;
- designating and managing regional parks (provincial, city/county) and conducting activities associated with nature conservation.

Each province and the Seoul metropolitan area operate regional Institutes of Health and Environmental Research to support local governments in performing surveys and monitoring pollution levels.

4.4 Civil Society and Industry

4.4.1 Environmental NGOs

Although suppressed by the authoritarian government, environmental NGOs and civilian environmental movements have continuously increased their number and sphere of activities since the late 1970s. Not only the Democracy Movement of 1987 and the Rio Summit of 1992 but also several pollution accidents concerning drinking water sources increased and enhanced public awareness of the environment.

The focus of the environmental movement also changed from local anti-pollution movements to a national

environmental conservation movement. During this period, religious and social NGOs, such as the YMCA, the YWCA, and consumer groups participated in the environmental movement. The result was a dramatic increase in the number of environmental NGOs. In 1980, only 33 NGOs were active, and most of them were not legal foundations. In 1996, the number increased up to 339, most of which had legally registered with the relevant governmental sectors: 82 have registered with the MOE, 190 with the local governments, and 67 with environmental issues.

[Table 4-5] The Trends in the Number of Environmental NGOs

	Before 1980	1985	1990	1992	1994	1996	1999
Total	33	47	83	117	194	339	442
Registered with MOE	4	7	18	30	61	82	129
Registered with Local gov't	-	4	13	25	66	190	-
Religious & social NGOs	2	2	11	18	22	22	50
Others	27	34	41	44	45	45	263

With the increase in the number of environmental NGOs, the government has realized that cooperation in the environmental sector with NGOs is extremely helpful in achieving more efficient and effective policy implementation. The GOK launched several programs to improve the relationship between the public and private sectors. Environmental NGOs, which used to focus on anti-government movements, realized that other alternatives would be more effective in conserving the environment. Hence, the relationship between environmental NGOs and the government has changed a lot since the mid-1990s.

Environmental NGOs play an important role in educating and informing the public. About 340 NGOs have been carrying out a variety of campaigns on a local and national scale. Recently, the Government has begun to provide a limited financial support for such activities of environmental NGOs.

4.4.2 Public Information and Participation

An October 1995 survey on Korean citizens' awareness of environmental issues showed that 63 % of the respondents were "highly concerned" about environmental issues. Government environmental policies were considered favorably by 63 % of the respondents. About half of the people surveyed indicated that they were strongly opposed to installing polluting facilities in their neighborhoods, even if appropriate pollution control facilities were installed at the same time.

In the 1990s, the Government seemed to recognize the contribution a well-informed citizenry can make in protecting the environment. Thus, the MOE is engaged in activities aimed at raising citizens' environmental

awareness, for instance, through the development of environmental courses in schools and the publication of environmental statistics, including statistics on administrative actions like enforcement measures.

The MOE also invites community representatives and NGOs to participate in the policy formulation process. The 1993 Environmental Impact Assessment Act stipulates that a public consultation must be held to obtain the opinions of local residents. A regional environmental commission is held once or twice a year in order to hear from specialists in their areas of expertise.

To direct consumer attention towards products that are less polluting or more energy efficient and to encourage manufacturers to adopt environmentally friendly production and distribution processes, the MOE initiated a voluntary eco-labeling programme in 1992. Those products that use environmentally benign materials and technologies can be certified for the Eco-label after the consultation of a tripartite committee of government, industry, and consumers.

4.4.3 Role of Industry

Korean economic development has been dominated by export-oriented policies. Export-oriented industries are well aware of how important it is to manage their operations according to environmental standards that are comparable with those of their international competitors.

Some industries are prepared to follow ISO 14000 environmental management systems, and have their own internal environmental audit systems, formulating guidelines and criteria for environmental actions. Sometimes their own environmental targets are more stringent than government regulated ones.

A few large companies are beginning to provide environmental training to the smaller subcontractors, who may not have the same level of environmental awareness and know-how. The example of some conglomerates and larger firms may induce a more general movement involving companies of all sizes. With the rise of environmental awareness, some industries have set up their own environmental research institutes to push forward with R&D on environmental technologies.

Since the mid 1990s, the MOE has tried to change the direction of environmental policy from the end-of-pipe approach to more integrated pollution and prevention method by introducing policies on clean technology development and a voluntary environment management systems. The Environmentally Friendly Plant Certification Programme was initiated in early 1995 to induce enterprises to respond to environmental needs voluntarily by conducting environmental impact assessments and achieving their own environmental goals. It was also expected to change the relationship between governments and enterprises from “command and

control” to “partnership” based on mutual trust. ³

5. Case Studies on Selected Sectoral Issues

5.1 Case I: Nature Conservation

5.1.1 Current State and Conditions

The development-oriented land exploitation of the past decades did not give due consideration to the value of the natural environment. Rapid industrialization and urbanization and the resulting upsurging demand for land have resulted in a decrease of forests, agricultural lands, and wetlands, including mudflats. As of 1998, the area of forests had decreased by 2.6 % compared with that of 1970, agricultural lands by 14.2 % compared with 1975, and wetlands by 25.3 % compared with 1987.

Furthermore, such environmentally malign development behaviors as the indiscriminate use of natural resources, the destruction of habitats, the exploitation of living species, the careless import of alien species, etc. contributed to the reduction and extinction of living species. As of 1998, 43 kinds of endangered wild fauna and flora and 151 kinds of protected wild fauna and flora had been designated and protected by law.

[Table 5-1] State of Flora and Fauna, Early 1990s

Total number of species known		Threatened species				
		Rare	Decreasing	Endangered	Extinct	Total
Total	28,500	109	20	45	5	179
Vertebrates of which:	1,300	-	-	-	-	-
Mammals	95	8	4	8	1	21
Birds	394	29	29	25		54
Freshwater fish	130	18	18	3	1	29
Reptiles	24	-	-	-	-	-
Amphibians	14	6	5	1		12
Invertebrates	2,400	-	-	-	-	-
Insects and spiders	13,000	23	-	1	-	24
Higher plants (incl., ferns)	4,700	25	4	7	3	39
Fungi	1,600	-	-	-	-	-
Lower plants	3,600	-	-	-	-	-
Protozoa	700	-	-	-	-	-
Micro-organisms	1,200	-	-	-	-	-

Source :MOE: Korean for the Conservation of Nature, 1989; 1989; Forestry Administration, 1996

With improved living standards, however, people’s demand for an ecologically sound natural environment as well as for pleasant living conditions, including cleaner air and water, has increased. The demand for land

³ As of 1997, 122 workplaces had been certified as “Environmentally Friendly Plants.”

development is expected to continuously increase and to put pressure on Korea's ecosystems in the coming century. Urban areas are projected to expand from 4,849 km² in 1995 to 8,954 km² by 2020, which means a 84% of increase. On the contrary, forests and agricultural lands are expected to be reduced from 87,477 km² in 1995 to 83,607 km² by 2020, a 4.6% of decrease.

Thus, the basic policy of nature conservation has been designed to properly manage the natural environment and allow future generations to enjoy a sound and rich natural environment.

5.1.2 Agenda Setting and Major Policy Measures

With the policy goal of realizing an environmentally sound Korean peninsula where humankind and nature coexist in harmony, the Government is implementing natural environmental conservation policies under the following principles: 1) to conserve, manage and sustainably use nature to protect the public interest, 2) to maintain harmony and balance between conservation and land use, 3) to protect biodiversity, ecosystems, and beautiful natural scenery, 4) to promote the participation of all citizens in conserving the natural environment as well as opportunities for sound use, and 5) to promote international cooperation for conserving the natural environment.

i) Survey of the Natural Environment: In order to understand the current state of the country's natural environment and to design efficient land management policy, the MOE conducts nationwide surveys on the natural environment every ten years, as stipulated in the Natural Environment Conservation Act. The first Survey of the Natural Environment was conducted from 1986 to 1990. The second one began in 1997 and will be completed by 2002.

ii) Designation and Management of Natural Ecosystem Conservation Areas: To properly protect natural ecosystems that are being rapidly destroyed as a consequence of numerous development projects, the MOE has designated and conserved "Natural Ecosystem Conservation Areas." Target areas include: 1) the grade regions according to the ecosystem map, 2) areas of great scientific research value due to their untouched ecosystems or abundant biodiversity, 3) regions that require conservation for scientific research or to maintain scenery because of their geological or topographical characteristics, 4) regions that serve as habitats or visiting grounds for endangered species or protected wildlife and where the need for conservation is recognized, and 5) regions that represent a great variety of ecosystems or are good examples of particular ecosystems.

Natural Ecosystem Conservation Areas are classified into three categories according to their characteristics: 1) Special Wildlife Protection Areas, 2) Special Natural Ecosystem Protection Areas, and 3) Marine Ecosystem Protection Areas. The table below lists the standards for designation.

[Table 5-2] Criteria for the Designation of the Natural Ecosystem Conservation Area

Name	Designation Standards
Special Wildlife Protection Area	Areas that must be conserved in order to protect endangered or protected wildlife
Special Natural Ecosystem Protection Area	Areas with exceptional ecosystems or abundant biodiversity, or regions with fragile ecosystems that would be difficult to restore if they were damaged
Special Marine Ecosystem Protection Area	Areas with exceptional marine ecosystems or abundant bio-diversity

iii) Natural Parks: Natural parks were designated to protect ecosystems, beautiful natural scenery, cultural artifacts, recreational resources, etc. They are classified into national parks, provincial parks, and county parks. As of the end of 1998, there were a total of 71 natural parks in Korea covering an area of 7,528.830 km² or 7.5% of the total land area. This consists of 4,814.956 km² of land (4.8% of the total land area) and 2,713.874km² of marine environment. There are 20 national parks, 22 provincial parks, and 29 county parks.

iv) Measures for Wetland Conservation: Wetlands are treasure houses of biological diversity, providing habitats for diverse species of fauna and flora. They are extremely valuable natural assets that perform many environmental and socio-economic functions, including the purification of pollutants and flood mitigation. In March 1997, Korea acceded to the international convention on protecting wetlands, the Ramsar Convention (Convention on Wetlands of International Importance, especially as Waterfowl Habitats).

Korea is participating in international efforts to preserve wetlands, e.g., designating wetlands in Yong Swamp on Mt. Taeam and Woopo Swamp as Ecosystem Conservation Areas. They are registered as Ramsar sites when the MOE enacted the Wetlands Conservation Act in December 1998.

5.1.3 National Strategy for the Conservation of Biological Diversity

Korea signed the Convention on Biological Diversity in 1992 Rio Summit and formally acceded to it in October 1994. Since then Korea has been actively participating in international efforts to achieve the goals of the Convention. The MOE, in consultation with relevant ministries, specialized institutions, and NGOs, established the National Strategy for the Conservation of Biological Diversity, incorporating the opinions expressed in a Cabinet Meeting in December 1997.

The main contents of the National Strategy for the Conservation of Biological Diversity include; 1) measures for regular inspections and surveys of biodiversity, 2) designation and management of protected areas, 3)

strengthening protection for endangered species, *ex situ* preservation, 4) strengthening regulations on discharging toxic pollutants into the environment or damaging ecosystems, 5) strengthening management of LMOs and alien species, and 6) conserving and restoring damaged lands.

Preservation of Woopo Swamp

In July 1997, the Ministry of Environment designated 854ha of Woopo Swamp (swamp: 231 ha, surrounding land: 623ha) as an Ecosystem Conservation Area. For more systematic conservation, the Ministry has been purchasing privately owned lands within the area since 1998.

The swamp is a treasure house of biodiversity, containing many insects, birds, and aquatic plants. Woopo Swamp serves as a habitat for a variety of species, including 34 kinds of water plants, 30 kinds of insects, and 20 kinds of fish. Of particular note, Kachang ducks, a rare bird species, winter in Woopo Swamp.

The Victoria lily, an annual water plant designated as a special wild plant by the Ministry of Environment, grows in pools. But it is now in danger of extinction due to the reduction of wetlands resulting from expanding farmland and a plethora of development projects.

5.2 Case II: Supply of Clean Water

5.2.1 Current State of Water Pollution

The water quality of Korea's four main river basins, which began to improve in 1988, has shown almost no improvement since 1994. For example, the water quality of the capital's main water resource, the Paldang Reservoir dropped from 1.0ppm (BOD) in 1990 to 1.5ppm (BOD) in 1997, mainly because of continuing development in regions upstream of this water resource.

Comprehensive Measures for Water Management were developed by the Government on August 1996 in order to provide fundamental solutions to water problems by securing long-term water resources and preventing water contamination over the coming 15 years.

[Table 5-3] Shift of Water Quality

(unit: ppm)

	1985	1988	1990	1995	1996	1997	1998

Youngsan(Najoo)	5.2	7.0	6.7	7.0	5.6	7.2	5.9
Nakdong(Moolgeum)	3.7	3.9	3.0	5.1	4.8	4.2	3.0
Geum(Booyeo)	2.5	3.2	3.1	4.3	3.7	3.4	2.4
Han(Paldang)	1.4	1.1	1.0	1.3	1.4	1.5	1.5

Source: MOE, Environment White book (1999)

Detailed plans are being developed and implemented in order to overcome water shortages by continuously developing water resources and to raise the quality of water supply sources to above grade II (Grade II is defined as water that can be used after undergoing general purification, such as precipitation filtering.) by expanding environmental facilities.

5.2.2 Agenda Setting and Policy Measures

The Government will invest over 90.9 trillion won in the Comprehensive Measures for Water Management by 2011. Out of the 28.88 trillion won that will be allocated for water quality improvement through 2005, 26.93 trillion won will go to expanding environmental facilities. Through this investment, 547 more environmental facilities will be established, including 224 sewage treatment plants. By raising the sewage treatment ratio to 80% and installing 43,786km of sewerage, the sewerage supply rate will be raised to 80%.

i) Pollution Source Management: The Government implements discharge controls on factories and work places (Water Quality Preservation Act) and regulations on wastewater discharges from the livestock industry and households (Act relating to the Treatment of Sewage, Night Soil, and Livestock Wastewater). Ambient water standards and emission standards for certain pollutants are set by the laws.

Direct regulation has been supplemented by emission charges system since 1983. The Government created the volume-based effluent control system in 1997 by introducing the basic charge system to the effluent charge system. It also tightened effluent standards and launched discharge controls for nitrogen and phosphorous to prevent eutrophication. Automatic water quality monitoring stations were increased to thoroughly monitor water quality, and environmental watchdog organizations were initiated for the four main river basins.

ii) Extending Investments for Water Quality Improvement: Following a severe pollution incident in the Nakdong River in early 1994, a total of 5.55 trillion won was invested by 1997 to establish 216 environmental facilities, including 52 sewage treatment plants. The Government set up the Comprehensive Measures for Water Management in 1996 and plans to add 547 environmental facilities by 2005, including 224 sewage treatment plants by investing 26.9 trillion won.

iii) Designation of Special Measures Zones: The protection of water resources that supply citizens with drinking water is the top priority of Korea's water quality preservation policy. In July 1990, the Government

designated “Special Measures Zones for Water Quality Preservation of Water Supply Sources” to Paldang and Daechung Reservoirs. The designated areas for Paldang Reservoirs include three cities, four counties, and 43 villages in Kyungi Province and those for Daechung Reservoirs include Dong-gu in Taejon, and three counties and eleven villages in North Choongchung Province.

5.2.3 Special Measures for the Seoul Metropolitan Region’s Drinking Water Sources

Seoul metropolitan area (Seoul and the surrounding region) is home for 20 million people who make up half of the Korean population and the Han River are their source of drinking water. To improve and preserve the water quality of the Han River, the Government of Korea introduced comprehensive water quality management plans and enacted “Act relating to Water Resource / Water Quality Improvement and Local Resident Support in the Han River Watershed” in 1998. These measures include several important policy changes in water quality management.

Firstly, based on a WIN-WIN strategy, special measures bring mutual benefits to the upper and lower reaches of the river. The lower reaches benefit from pollution prevention measures, while the citizens and local governments of the upper reaches benefit from funds collected as a water-use charge from the downstream regions.

Secondly, in order to prevent pollution in the Paldang Reservoir, land within 1 km of the main rivers and their tributaries (500 m in the case of land outside the Special Measures Zone for Water Quality Conservation) for about 80 km upstream will be designated as a Riparian Buffer Zone.⁴

Thirdly, a Water-use Charge System will be introduced to compensate for losses from the land-use regulations in upstream regions, to construct wastewater treatment facilities, and to induce water savings. The charge will be collected as much as about 200 billion won a year. The residents of the capital region who receive water from these water supply sources will pay a special water-use charge in addition to regular charges for tap water. These funds will be invested in resident support projects and land purchases within the Riparian Buffer Zone and in support for the establishment and operation expenses of environmental facilities, such as sewage treatment plants, in the regions upstream of the reservoir.

5.3 Case III: Green House Gas Reduction

⁴ The location of pollution sources is strictly restricted in the Zone. And a special measure will be adopted that forbids damaging publicly owned forests within 5 km of either bank of tributaries and main rivers upstream of the Paldang Reservoir. Particularly, the Government plans to purchase land within 300 m of the Riparian Buffer Zone, creating a Riparian Forest that can control pollution inflow from non-point sources.

5.3.1 Current State and Problems

While most advanced countries' economic growth rates and CO₂ emissions growth rates have stabilized at 2-3%, Korea recorded a high CO₂ emission growth rate of 8-9% prior to the economic crisis of 1998. Moreover, the growth rate of CO₂ emission is expected to be more than 5% for the next decade. Korean economic structure, which heavily depends on heavy and chemical industries, is vulnerable to meet the CO₂ reduction requirements without severe costs

[Table 5-4] Prospect of CO₂ Emission

(million TC, per capita TC, as of 1990)

Classification	1985	1990	1995	2000	2005	2010	Average Increasing rate	
							86-95	96-2010
CO ₂ Emission	44.0	65.2	101.1	148.5	187.4	217.0	8.7	5.2
Per capita CO ₂ Emission	1.1	1.5	2.3	3.2	3.9	4.4	7.7	4.5
CO ₂ /GDP	0.39	0.36	0.39	0.42	0.40	0.36	-0.1	-0.7

Source: National Report based on UN Framework Convention on Climate Change (Rep)

5.3.2 Agenda Setting and policy measures

Given its present economic and social situation, it is difficult for Korea to fulfill the same obligations for reducing greenhouse gas emissions as developed countries. However, the Government is doing its utmost to actively participate in international efforts to reduce greenhouse gas emissions within its economic and social circumstances. In order to take part in the international efforts to mitigate global warming while maintaining economic development, Korea has established and implemented measures for reducing greenhouse gas emissions.

In December 1993, Korea became the forty-seventh country to join the UN Framework Convention on Climate Change and is supposed to fulfill general obligations stipulated by the Convention as a non-Annex I country, including publishing national reports. Korea's first national report was submitted in March 1998.

5.3.3 Comprehensive Measures for Reducing Greenhouse Gas Emissions

In April 1998, the Governmental Body on Measures for the UN Framework Convention on Climate Change and a subsidiary working group were established under the leadership of the Prime Minister and developed and implemented countermeasures. The working group formulated the Comprehensive Measures Responding to the UN Framework Convention on Climate Change in December 1998, including voluntary measures to reduce greenhouse gas emissions. Its main points are as follows.

- to provide support for reducing energy consumption; to spread high-efficiency energy facilities; to promote the use of public transportation, highly fuel-efficient cars, and smaller vehicles; and expand central heating and co-generation.
- to promote technology development and provide support for new, alternative energy sources, such as solar heating, solar power, and fuel cells, and for vehicles that use alternative fuels, like natural gas and electricity.
- to minimize the amount of landfill waste by recycling and re-utilizing waste in order to reduce methane emissions.
- to disseminate new agricultural technologies with low levels of greenhouse gas emissions and implement of forestation projects to expand greenhouse gas sinks.
- to implement a variety of systems to promote voluntary environmental resource management and to secure an environmentally friendly price structure for energy and resources in order to secure an economic structure that saves resources and conserves the environment.
- to expand financial support for the development of technologies like renewable energies and high-efficiency technologies and strengthen financing and tax credits for introducing these technologies.
- to educate people about and promote environmentally friendly lifestyles that save resources and conserve the environment in a variety of ways, including regular education programs, mass media, the Internet, etc.

6. Conclusions and Recommendations

The complexity of environmental issues in Korea is attributable to various factors: serious industrial pollution in major industrial complexes, high ozone concentration in metropolitan areas, exploding urban and industrial solid wastes, endangered biodiversity and ecologically sensitive spots, etc. The complexity of environmental issues has become much more salient under the emerging deterioration of global ecosystem due to climate changes, ozone depletion, desertification, and deforestation. Moreover, with the introduction of local autonomy system and the increase of people's environmental awareness, environmental conflicts and disputes have been increasing at an unprecedented speed even preventing appropriate environmental projects (e.g., construction of waste incinerators, sewage treatment facilities, etc.)

All challenges have necessitated a smarter system of environmental management to conserve global ecosystem and to adapt to emerging new orders of the global economy. They have also emphasized the responsibilities of local governments and the importance of civil society (including NGOs), asking for more flexible industrial regulatory systems than ever. Reflecting on these challenges, Korea has been developing its unique environmental governance structure with more complex partnerships among central governments, local

communities (governments, civil society and NGOs), industries, and academia, etc.

Unfortunately, Korea, like other Asian countries, has suffered from economic crisis from late 1997. Seemingly, the crisis was prompted by the failure to meet the balance of payment. However, the real causes of the crisis were structural, as in policy mistakes, reckless short-term borrowing by the financial sector, heavily indebted firms, and falling investor confidence. The GOK thus drove structural reform policies, not only to cope with the economic crisis but also to secure international competitiveness. It streamlined the government bureaucracy and abolished or mitigated over half of its rules and regulations. The proportion of reformed regulations of environmental area was smaller than that of the economic sector.⁵

All these challenges make environmental governance structure in Korea much more sophisticated. However the environmental government system in Korea still have a lot to be desired to meet the sustainable development requirements. Several tasks and strategies may help to improve efficacy of the environmental governance system. Following are some of them.

Firstly, the administrative paradigm developed during the Progressive Era should be replaced by “governance” based on the principle of new public management. The construction of the new environmental administrative system should reflect the new trends which are more result (output and outcome)-oriented rather than input-oriented. Based on the new paradigm, key themes of administrative reform will be to reduce hierarchy, to empower communities, to promote task-centered management, to apply multi-media approach, etc.

Secondly, local governments need to build up expertise in implementing and enforcing environmental protection measures to tackle compliance problems involving small local factories and enterprises. Here are some policy measures currently discussed to improve the capacity of local governments: the privatization of environmental service provisions, promotion of citizens’ participation (of course NGOs) in environmental management, and development of Local Agenda 21, comprehensive regional environmental plans, and community partnership with industries, etc.

Thirdly, important is restoration and fortification of environmental capacity. It is a prerequisite to have a margin within the limits of environmental capacity to continue economic growth without compromising environmental quality. Furthermore, investments should be enlarged to contain the fortification of sewage treatment plants, the installation of solid waste treatment and the development of environmental industries and technology for environmental improvement. Land use planning and industrial policies should be

⁵ A 58.8 % of current environmental regulations were reformed: 30 % (193 regulations) were abolished and 28.8 % (185 regulations) were mitigated. However, such core regulations as waste management and air and water pollution prevention measure strengthened.

harmonization with the environmental policy.

Fourthly, it is urgent to develop new methods and techniques to solve and reduce regional conflicts. Some suggest that the Polluter Pays Principle be emphasized more. Others believe the Beneficiary Pays Principle should be adopted as a way of settling regional disputes. Still others recommend the use of a community fee system regarding NIMBY facilities. However, the most important thing, we think would be to design a “principled negotiation” mechanism to solve the increasing environmental conflicts and disputes

Fifthly, the promotion of public participation is necessary. Environmental policies cannot be successfully implemented without the cooperation of the public. Actually, the role of non-governmental organizations (NGOs) is becoming more important in Korea and an increasing number of NGO leaders are actually participating environmental policy formulation and implementation. There are still great needs to promote public participation, which could be met by more education and suitable environmental information provided for the general public.

Sixthly, the government should provide more flexible environmental regulatory systems to help promote voluntary environmental management and clean technology development. Industries, which had paid little voluntary attention to environmental management, are beginning to realize the importance of environmental management to survive in the harsh competition of the globalized economy. Therefore, it is necessary to develop much more voluntary programs to support such positive business attitudes. It will also be of great help to improve industrial environmental practices by introducing such measures as the environmental accounting system for individual industry and bank loan system on the basis of industries’ environmental performance

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Environmental Governance in China

Pei Xiaofei

1. The Role of Civil Society in the Environmental Governance

1.1 The Legislation for the Public Participation

The social organizations and public wield great impact on China's environmental management. It is stressed in the Decision on Certain Problems of Environmental Protection by the State Council that the public participation mechanism should be set up so as to bring the role of the social groups into play. Also, the public should be encouraged to participate in environmental protection, report and expose various behaviors breaching the environmental laws and regulations. It is also stipulated in the Law of Environmental Protection that all the units and individuals are responsible for the environmental protection and also entitled to report and accuse the unit and individual polluting or damaging environment. In revising the Law of Water Pollution Prevention and Control, it has integrated the stipulation that the environmental impact report should incorporate the comments by the units and residents in the location of the construction project.

1.2 The Ways for the Public Participation

For the behaviors polluting or damaging the environment, the social groups and citizens can generally use the ways such as prompt stopping the behavior, reporting to the mass media, administrative complaint and justice litigation, and no matter which way taken, the control of illegal behavior against the environment is effective. The public can also convey their opinions and suggestion on environment through the people's congress and the political consultative conference as well as the local authorities (e.g. resident commission and village resident commission) at all levels.

Among the above-mentioned ways, the most common ones are the letters, visits and complaint report from the public. In the environmental protection institutions at various levels, there generally establishes an office of letter complaint and visit which exclusively handles the public opinions and suggestions. Through the office, some emergent environmental incidents and environmental disputes can be solved with the guidance and intervention by the upper-level environmental institutions; on the other hand, the decision-makers of the environmental departments also take the letters from the public as an important information source to learn the actual situation. Also, this information is complementary to the information from the normal sources (e.g. environmental statistics and environmental report) so as to help bringing about the policy based on the

accurate information. Presently, there are averagely 90,000-100,000 letters, 60,000 visits and 8,000 proposals on environmental matters per annum, amongst which, letters from the developed region account for a large proportion while the under developed region accounts for less. For example, the number of letters and visits happened in Beijing is 4.7 per 10,000 persons while Shanxi and Yunan Provinces, the numbers are respectively 0.7 and 0.4 per 10,000 persons. If the role played by the social groups and individuals in the implementation of the environmental policies could be called as civil mechanism, this civil mechanism will be much more influential.

1.3 The Role of Media Supervision

The supervision by the media is another important way for the public participation in the implementation of the environmental policies. With the reports by the news media, some environmental problems attracted the attention of the governments which is also a way of pushing the governments. The Chinese government consecutively organized the pollution control initiatives in Huaihe River and Taihu Lake in 1997 and 1998, in which, the news media played an important role. Today, exposure in the news media of the environmental problems is not less authoritative than the administrative instruments in terms of environmental management and control and its impact is still on the rise. At the same time, it is also conducive to raising the environmental awareness of the whole society.

For the purpose of bringing the role of the supervision by the mass media into full play and also raising the public environmental awareness, State Environmental Protection Administration jointly launched the initiative of Chinese Environmental Protection Century Tour with other units since 1993. These units include the Committee of Environment and Natural Resources Protection of the National People's Congress, Department of Publicity of Central Committee of the Communist Party of China. With the participation of more than 750 news units from the central government and more than 40 provinces and municipalities, Century Tour identifies the major subject each year in line with the national environmental situation such as Protecting the Water for Life and Combating the Air Pollution etc. The news units conducted activities focusing on the subject as well as the local key environmental work. In the last 7 years, there have been more than 6,000 reporters taking part in this initiative and over 48,000 reports brought about. This initiative has facilitated the solving of an array of hard environmental problems, such as the ecological damage by the coal exploitation in the triangle area of Shanxi, Shannxi and Inner Mongolia Region and the environmental pollution by the gold exploitation in Xiaoqinling. The report of Invisible City from the Satellite—a survey of environmental pollution in Benxi City by a reporter from Xinhua News Agency helped the launching of pollution treatment in Benxi City that is now under the blue sky after 7 years of efforts. Also, after the exposure of the pollution problem in Baiyangdian, the local authorities and people have now brought back the clean water after 6 years of struggle. All these are the successful examples of promoting the environmental

protection through the supervision of mass media, with its publicity and education.

According to a survey conducted jointly by SEPA and the Ministry of Education in 1998 on the public environmental awareness nationwide, 79% of the public access to the environmental information through the news media such as TV and radio. Also the news media are making further efforts in making reports on environment. According to the survey of 76 newspapers conducted by the Friend of Nature consecutively from 1995 to 1997 across the nation, the environmental awareness and participation awareness of the leading news media raised dramatically. In 1995 there were 1,358 reports on environment for each news paper and in 1996, it rose to 2,508, and 2,903 in 1997.

1.4 Volunteer Participation in Environmental Protection Activities

Volunteers taking part in the environmental protection activities is a fashion over the last decades. Together with the Ministry of Railway, SEPA launched the activity of clearing the white pollution along the railways. In which over 200,000 youth volunteers were involved and 23 million tons of wastes were cleared. Organized by SEPA and the All-China Women Federation, the activity of Woman, Home and Environment called for 1 million women to take part in the environmental protection and more than 200 top women nationwide for environment have been selected. With their unique social role, women have facilitated the all walks of life to concern about the environment. Together with the Chinese Society of Science and Technology, SEPA organized 100 Biological Activities for the Chinese Youths. Which involved 20 million middle and primary school students to attend the science publicity and hand-making with science and technology. These activities cultivated a large number of young environmental activists. Together with the State Tourism Administration, SEPA organized the Eco-tourism activity to train the tourism managers by elaborating the correlation between tourism development and environmental protection. Thus, the environmental behavior of the tourism managers were regulated and through them to convey the environmental conception to each of the tourists. SEPA also together with the central committee of the Youth League launched the initiative of Hand in Hand, to Pick Up a Hope and Protect the Big Earth With Small Actions. In which the children nationwide were called for to donate the money from the sale of recyclable material to help setting up the Environmental Protection Primary School, and the first one has been set up in Jiangxi Province in 1998.

1.5 The Development of NGOs

In recent years, there has come out a large number of NGO environmental protection organizations and environmental volunteers. As a survey conducted by the Beijing Municipal Environmental Protection Bureau, for the, there are over 50 associations affiliated to the Society of Science and Technology which conducted environmental sciences research all throughout the year. Also, among 36 colleges and universities in Beijing, 13

colleges and universities has set up 15 environmental groups which have been very active on the campus and in the society to conduct various environmental activities. The NGOs such as Friend of Nature, Global Village and Green Home have been in wide contact of people from all walks of life. They clean the white pollution, promote the waste classifications, propose saving the trees by refraining the use of postcards, call for green consumption as well as organize the afforestation, and all these efforts have received positive response.

2. The Role of Enterprise in the Environmental Management

In China, environmental governance falls into the responsibility of the government by a large margin and the enterprise is taken as the major environmental polluter. Of course, to secure effectiveness in the environmental pollution prevention and control, it relies on the enterprise for its own efforts in the industrial pollution control and treatment and enterprise is an important component in the environmental pollution management system.

2.1 The Enterprise's Environmental Management System

China exercises the environmental management system responsible by the individual department, shift, and group under the leadership of the head of the enterprise (see Figure 1).

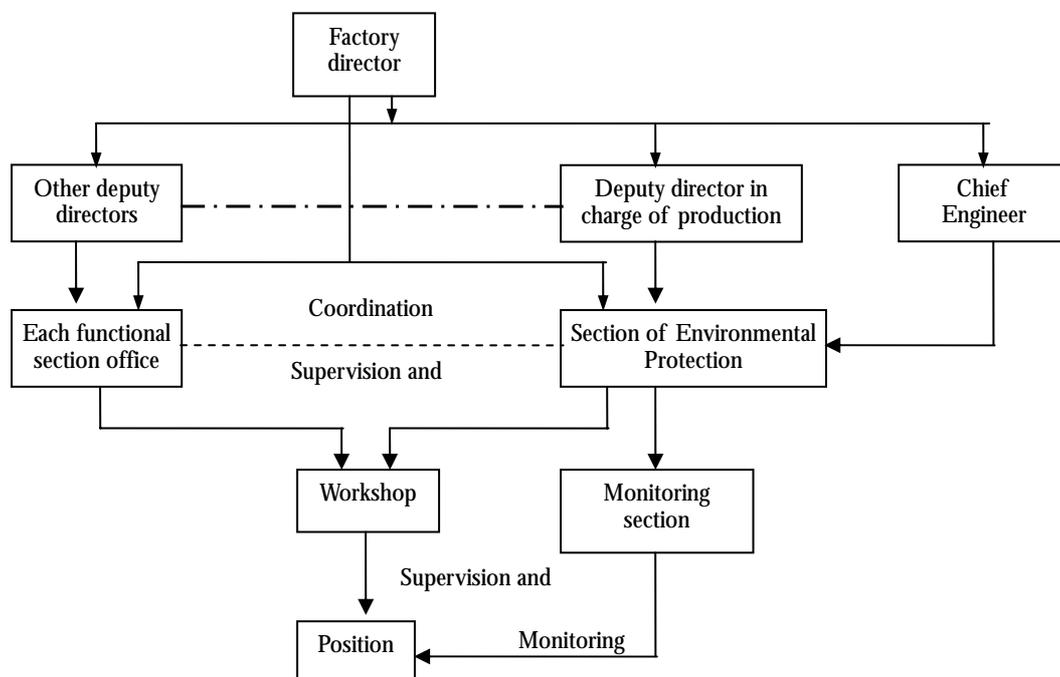


Figure 1. Diagram for the Environmental Management System in China's Enterprise

The head of the enterprise is also the leader of the enterprise's environmental protection work and responsible for the environmental protection. Under the head's leadership, the vice head in charge of production is also in charge of the environmental protection work and the other vice heads are responsible for the environmental protection within their mandates. The chief engineer is responsible for the leadership in environmental pollution prevention technologies in the enterprise. Each functional section of the enterprise has identified their own responsibility for environmental protection with the responsibility degraded down to the grassroots, i.e. the shift and group and thus there established the system of environmental protection responsibility for each position. It is characterized with the combination of leadership and public supervision, management by expertise and public and also with stringent examination.

The features of environmental management by the Chinese enterprise are as follows:

- The leader for production is also responsible for environmental protection. In the environmental protection regulations promulgated by the industrial sectors of the State Council, it has been identified that the head of the enterprise assumes the legal responsibility for environmental protection.
- The enterprise's environmental management is closely integrated with its production and management. Environmental management is comprehensive and is interspersed within all the management of the enterprise and closely associated with them.
- The enterprise's environmental management is based in the grassroots. Environmental management is falling to the workshops, groups and shifts and builds up an environmental management network. In general, the chairman of the workshops is the one responsible for environmental protection, and the technical staff is in charge of specific work and there is also environmental manager in the shifts. By the graded management, the responsibility is falling to the grassroots level and it thus forms the effective environmental management from the above down to the grassroots.

2.2 Environmental Management Organs and Functions in the Chinese Enterprise

According to the scale of the enterprise, the volume and toxicity of the discharge and the nature of the enterprise, the environmental management organs in the Chinese enterprise are generally composed of three parts, i.e. general management, environmental monitoring and environmental research.

The general management organ is the important functional section managing the environment and in charge of planning the targets, implementing the plan, supervision and examination and coordination.

The environmental monitoring organ is in charge of environmental pollution monitoring and fulfilling the monitoring task, the watchdog and assistant for understanding the environmental situation in its management.

The research organ is in charge of environmental research, engaged in research in how to prevent its enterprise's pollution and what technology adopted to do so. And there are some independent research organs while some integrate the scientific research body and environmental monitoring body into one.

The major functions of the enterprise's environmental management institutions are as follows:

- Urge and examine its enterprise as well to carry out the state environmental protection guidelines, policies and regulations and also its own environmental protection system;
- Formulate the enterprise's environmental management regulations and work out the enterprise's pollutants discharge indicators, the economic and technical principle for the comprehensive pollution prevention and treatment in line with the state and regional stipulations;
- Organize the survey of the pollution source and the enterprise's environmental quality assessment as well as formulate the environmental quality report;
- Organize and facilitate its enterprise to enforce the regulation of 3- synchronization in the enterprise's basic construction and technical innovation and also take part in the review of relevant program and appraisal and approval of the finalization of project;
- Join in the competent department in making the environmental forecast and formulating the long-term program and annual plan for environmental protection and urge to carry out them;
- Organize the work on environmental monitoring, examine the enterprise's environmental state and its development trend;
- Urge the operation of the enterprise's environmental protection facilities and look to the pollutants discharge;
- Join the competent departments in organizing and conducting enterprise's environmental scientific research;
- Organize the training of the environmental protection staff and the information exchange, spread the advanced technologies and experience for environmental pollution prevention home and abroad;
- In charge of the investigation and handling of the environmental accident in the enterprise;
- Engage in the enterprise's environmental statistics and take care of the archive for the environmental protection;
- Join the competent department in conducting cleaner production drive in the workshops and organizing the environmental protection publicity and education activity as well spreading the scientific and technological knowledge.

In the vertical direction, local EPBs are supervised and directed by SEPA. In the horizontal direction, other authorities of the State Council are parallel to SEPA with the same objectives, only differentiating in that the former one is responsible for environmental protection work within its sector while the later one is in charge of nationwide environmental and ecological protection.

SEPA and provincial EPBs have the responsibilities for decision-making, macro-guidance, coordination among sectors and supervision over lower levels. Town and county-level EPBs are responsible for the implementation of state policies, laws, regulations and standards, monitoring pollution sources, supervision on report and registration of pollution discharge, issuing pollution discharge permits, investigation on pollution control and collecting pollution charge. This is the micro-level. They have the liabilities to report to their upper level and enjoy the right to submit proposal to the upper levels. Municipal environmental administrations, which are between the two levels, have both macro and micro functions.

The strength of this multi-level administrative mechanism is to facilitate the implementation of policies, laws and regulations. However, the top-down decision-making process has its weaknesses. First of all, because the Central Government and SEPA are decision makers and local EPBs are actors for exercising policies, there lacks the feedback mechanism from lower-level to upper-level in the process of decision-making, which has the possibilities that some policies and systems can not reflect the actual situation and fail to address priority problems. Secondly, during the decision-making process, there are no adequate channels for the communication among decision-makers, enterprises, the public and the media, therefore, enterprises may not take initiatives in response to the policies and the public may not play a positive role in participation, which may influence the effectiveness of implementation.

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Comments

James E. Nickum

1. General Characteristics

China has been in continuous transition the past two decades from an autarkic command economy anchored in large-scale heavy industry to a trade-oriented market system fuelled by scattered, small-scale township and village enterprises (TVEs). The TVEs have grown in large part because they lie outside the regulatory net. Together with rapid urbanization and administration decentralization, the new system hardly seems fertile ground for effective environmental governance, as the paper by Xin Zhou last year, elaborated on this year, so well points out.

The *Republic of Korea* that we see in the paper by Jeong and Cheong has relied on a state-guided smokestack industry strategy to propel its growth. Unlike China, this earlier growth was based on private (*chaebol*) ownership and targeted at the export market, and its reform does not appear to have led to an upsurge in anything like the TVEs. Korea's level of urbanization has also been well ahead of China, and its political system would appear to have been more centralized until recently. One reason for this greater concentration of power is of course that Korea is much smaller than its huge neighbor, with a population roughly that of an average Chinese province – but, it must be noted, a total foreign trade turnover that in 1996 was slightly greater than that of the entire PRC. Because of its position in international trade and its admission into the OECD, Korea has no doubt been subject to much greater pressure to be a “good environmental world citizen” than China.

2. A Few Specific Governance Issues, Briefly

Please bear with me as I raise far too many issues to cover adequately in the allotted span, but which I hope may provoke some thought and response. In particular, I would like to touch upon: (1) the Kuznets trek and the role of forcing factors and focal events; (2) governance structures, political and environmental; (3) economic instruments as governance tools; and (4) water, water, but not everywhere. In other words, what is it possible to “govern”? What forces drive actionable action? What are the key governance dimensions, administratively? What, if anything, can economics contribute to environmental governance? and What are the governance needs for a critical resource?

3. The Kuznets Trek

I think we all are familiar with the inverted U-shaped “Kuznets” curve. When applied to the environment, this heuristic appears to validate the “get dirty first, then clean up” idea that economic development necessitates environmental degradation in the early stages, but that after a certain income level is reached (say, US\$5,000 per capita), the environment starts improving.¹ Other guises this idea takes in the literature is that a clean or healthy environment is a “post-materialist” “luxury good,” or to paraphrase Prime Minister Indira Gandhi at Stockholm in 1972, poverty is the worst pollutant.

It seems that both China and Korea climbed a steep Kuznets curve, choosing very dirty paths to industrialization. In retrospect, was the trek really necessary? There is considerable evidence that clean production in heavy industry can be profitable, especially when one accounts for even relatively modest compensation to pollution victims. Did these two countries take a too literal reading of the Kuznets curve and ignore the negative experiences of those who went before, or as the Chinese saying goes, the *qianche zhijian* (前車之鑒)?² Or are there some aspects of a forced heavy industrialization strategy, such as a concentration of limited administrative and governance resources on growth, that make it all but impossible to deviate from the well-rutted smoke-filled path of early industrializers?

Clearly, as both papers show, it is necessary to do all one can to integrate the environment into economic (and governmental) decision-making as early as possible. To me, this is the central problematic of environmental governance. To put the problem more generally, a largely unanswered question of comparative environmental governance is the degree to which outcomes are driven by factors such as the level of the economy, driving outcomes more or less in the same direction. Even where there is variation in outcome, how much is due to other “state variables” out of the grasp of policy, such as geography or some sort of core cultural values? How important in the end are forcing factors, including external pressure, technical change, and the state of the economy? How about focal events, such as environmental accidents or international sporting meets? What difference, if any, does the nature of the political and other institutions make? Allow me to turn to the latter.

¹ There are many reasons not to accept the Kuznets curve as an immutable rule, however. For one thing, it only applies to certain kinds of environmental degradation, such as air emissions of sulfur dioxide, the discharge of heavy metals and BOD into waters, and removal of tree cover, and even then not universally – rich Australia is still being deforested. Some kinds of environmental insult stabilize (e.g., nitrogen dioxide, possibly suspended fine particulates) or even continue to increase with economic growth (e.g., carbon dioxide emissions, consumer and construction waste, allergens). Many “traditional” forms of environmental risk such as poor sanitation and indoor air pollution from the burning of biomass and coal even tend to decline in the early stages of economic growth.

² In Japanese, 前車の覆るは後車の戒め. I suspect there is a Korean version as well.

4. The Institutions of Governance

I will leave aside the problem of the co-evolution of governance institutions in general and those specifically pertaining to the environment, except to note that this is a critical problem in both countries, where the pre-1980 systems seemed singularly incapable of generating effective environmental improvement, with few if any exceptions. For both, the period around 1980 appears to have been critical in setting the legal and administrative base for subsequent developments. It is interesting to note a difference in where the environmental agency was initially housed within the central government -- in China it was bonded with the ministry in charge of urban construction, while in Korea (as earlier in Japan), it was placed in the health ministry. Does this reflect a difference in the way environmental governance was seen in the government, or a variation in focus?

China appears to have been the first of the two to articulate a set of environmental laws and a network of local bureaus, often all the way down to the village. As in Korea, the central environmental unit (now the State Environmental Protection Administration in China and the Ministry of Environment in Korea) is extremely small, with only 200 staff members in China and 400 in Korea. At least in the case of China, this high "leverage" may have been one of the reasons it has been so difficult to enforce rules at the lower levels – another factor being the control of local governments over staffing and benefits.

Although the situation is changing in Korea, there has been little active participation in policy formation and implementation by NGOs (non-governmental organizations) in both countries. It may be worth noting that this and other forms of citizen review are more the rule than the exception, even in OECD countries. NGOs are particularly active in the United States because of some highly specific features of that country's political and legal system (e.g., "hard look" doctrine of judicial review of administrative procedures, the tax-exempt status and legal standing of NGOs, and the balance of powerlessness between executive and legislative branches). These features are not present even in other federal systems such as Canada or Germany (see, e.g., Rose-Ackerman, 1995: 14-17), much less in centralized polities such as China or Korea.

5. Economic Instruments

Both China and, since 1990, Korea have considerable experience with the use of economic instruments³, especially in the form of various charges (for an earlier study of Korea, see also Shin, 1994). As elsewhere, such instruments are regarded as supplements to direct regulation (command-and-control) measures, not

³ Economic (or market-based) instruments commonly consist of the following categories: pollution fees, marketable permits, deposit-refund systems, market barrier reductions, and elimination of government

alternatives to them. And as elsewhere, the studies here indicate that the results have been less than overwhelming as an incentive measure. Indeed, they may have some perverse effects, such as providing enterprises a sort of “pollution entitlement” that regulatory agencies dependent on the revenue from such fees have little incentive to contest. Other economic instruments that do not appear to be considered would be more effective in overcoming these drawbacks, although they do not necessarily solve the problem of how to fund the environmental agency. It would probably be unrealistic to consider widespread adoption of emissions trading, with its often insuperable transaction costs, but the more possible removal of government subsidies in areas such as the price of water, agricultural chemicals, and electricity would do away with one of the main “disincentive instruments” inhibiting sustainable development – and often improve the budget balance.

6. Water

After the city-state of Singapore, the Republic of Korea has the dubious distinction of being the most water-short country per-capita in Asia east of Iran. Many of China’s key river basins, especially the Huang (Yellow), Hai, and Huai are in at least as perilous a situation, and have given occasion to much international concern about the sustainability of agriculture, the environment, and possibly even the “capacity” of the state to govern in these areas over the course of the coming decades. It seems to me that these concerns are a bit overdone (Nickum, 1998a and 1998b), and indeed the in-depth study of the China case by Economy (1997: 6) concluded that while water scarcity may be a “challenge” and a “long-term threat to continued economic growth and state capacity,” it “probably does not pose a substantial or direct challenge to state capacity.”

Certainly the current panic about looming water quantity crises appears to be often misplaced in focus, implying that what is needed is greater protection of agricultural water use and more supply projects. As the present case studies make clear, the problem of water *quality*, including degradation by modern agriculture, is of much greater importance than that of quantity. In many cases, the least-cost way to increase (and protect) the supply of usable water is to address the problem of quality – certainly if health costs are factored into the equation. This is not to say such measures are inexpensive, especially where it is necessary to displace existing uses, such as closing down offending small industries (as the pulp and paper mills in the Huai River basin) or purchasing privately owned land (as in the Paldang watershed). The problems of watershed control and the protection of water quality in general exemplify many 21st century environmental problems facing us all, where the solutions, even when feasible, are likely to be quite costly and will require increasingly complex and well-articulated governance.

subsidies (see Fiorino, 1995: 177-188 for a discussion of the US experience).

The environments of China and Korea are critical to Asia and the world at large, and are only going to become more significant. We can hope that their governance systems will continue to evolve more rapidly than the problems they will need to address. Our two excellent case studies indicate there are a lot of bumps in the road, not just Kuznets curves, but in showing the rapid evolution and increasing responsiveness of environmental governance they also give us a basis of hope for our common future.

More intelligence

I must also note that many on the IGES staff have written much more extensively than I on environmental governance in these two economies, and I would refer you to them and their works (e.g., Imura 1997, Harashima and Morita 1998, and OECD 1997) for a more thoughtful and less scattered analysis.

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Trade and Environment: Legal Perspectives

Shinya Murase

1. Introduction: Conflict between MEAs and the WTO Rules

What is most important for our debate on “trade and environment” is to strike a proper balance between the two with the goal of attaining “sustainable development”. This is easy to say, but difficult to implement, because both the trade regime and the environmental regime have their own norms, principles and mechanisms that come often in conflict with each other, and because the notion of sustainable development is helplessly vague. The core of our exercise is the search for proper standards to establish the desired balance. We should always remember that any discussion made *out of balance* is doomed to fail and is never sustainable.

In this paper, I will address the issue of “trade and environment” *from legal perspectives*. I would like to stress that we must always strive to distinguish our arguments *lex lata* (law as it exists, or existing law) from those based on *lex ferenda* (law as it ought to be, or policy proposals for law-making). In the field of international environmental law, we often witness policy proposals and preferences smuggled into the process of “interpretation” of the existing law, which should be avoided. The fascinating arguments of environmentalists are often full of novel, attractive and imaginative ideas, but they should be analyzed separately from *legal* considerations. Under the WTO system, for example, the task of the dispute settlement panels and the Appellate Body is to “interpret and apply” the existing rules of WTO agreements, which should be clearly distinguished from the law-making activities to be conducted by the CTE (Committee on Trade and Environment) and the Ministerial Conference.

There seems to be a consensus now, at least in principle, that any unilateral measure and extra-jurisdictional application of domestic environmental laws are to be rejected in the context of WTO/GATT law. This is basically what has been confirmed by the relevant decisions of the *Tuna/Dolphin* cases and the recent *Shrimp/Turtle* case. Thus, the focus of the problem on “trade and environment” today appears to be the question of compatibility of certain trade measures taken pursuant to multilateral environmental agreements (MEAs) with the relevant rules of WTO/GATT that are based on the principles of free trade¹.

Trade measures in MEAs could be categorized roughly into the following four types: One is part of a

¹ Shinya Murase, “Perspectives from International Economic Law on Transnational Environmental Issues”, *Recueil des cours*, vol.253, The Hague Academy of International Law, 1995, pp.283-431.; Ditto, “Unilateral Measures and the WTO Dispute Settlement”, Simon S.C.Tay & Daniel C. Esty, eds., *Asian Dragons and Green Trade: Environment, Economics and International Law*, Times Academic Press, 1996, pp.137-144.

mechanism whose aim is to effect by way of trade ban the attaining of the goal of the instrument in question². Another type is intended to impose trade restrictions as disincentives on non-parties to a particular treaty regime³. The third is a mechanism to apply trade sanctions on non-compliant parties within a particular treaty system⁴. Finally, the fourth category is to provide trade incentives in order to induce compliance with the treaty instrument in question⁵.

Bearing in mind these modalities of possible conflict between MEAs and WTO, I would like to take up in this paper two international instruments: One is the Kyoto Protocol on Climate Change of 1997 and the other the Cartagena Protocol on Biosafety adopted in January this year. Both of these instruments pose intricate problems in relation to WTO. Finally, I would like to propose an amendment of the relevant GATT provision with a view to ensuring necessary coordination between the two regimes of trade and environment.

2. The Kyoto Protocol on Climate Change

The fundamental conflict between the Kyoto Protocol and WTO lies in the fact that the former imposes on Annex I parties (industrialized, developed countries) numerical targets for the emission reduction/restriction of greenhouse gases (GHGs) (Article 3, and Annex B), no such obligation has been prescribed for developing countries, while all the WTO members are placed, in principle, under the same obligation. As a result, goods produced in developing countries enjoy comparative advantages in the developed countries' markets. Under the situation, the Annex I countries may impose, under the WTO rules, countervailing measures or apply labeling requirements on these goods in order to reduce such advantages enjoyed by the developing countries under the Protocol⁶.

The Kyoto Protocol provided for the so-called Kyoto Mechanisms, namely, the Joint Implementation (JI), the Clean Development Mechanism (CDM) and the Emissions Trading. While it is still premature

² Its most notable example is the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). See also Article 3 of the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer which provides for restriction of the import and export of the ozone depleting substances.

³ See Article 4 of the Montreal Protocol.

⁴ However, such an example is not yet found in the existing MEAs. Under the non-compliance procedure of the Montreal Protocol, giving assistance is preferred to sanctions, which nonetheless does not seem to be precluded. Article 18 of the Kyoto Protocol envisages the similar non-compliance procedure. Some countries, however, assert that penalty should be applied to non-compliant parties under the article.

⁵ Incentive measures, being special treatments for certain group of States and their nationals, may give rise to claims by others to equal treatment under the MFN principle of the GATT, as in the case of subsidies and preferential tariffs.

⁶ "Meaningful participation" by developing countries in the joint efforts for the reduction of GHG emissions seems to be indispensable, in view of the fact that, by 2010, the total amount of emissions from developing countries exceeds the amount from developed countries. It is also feared that the tendency of "dirty" factories in the developed countries being shifted to developing countries may simply be accelerated.

to speculate on how these economic instruments are going to be elaborated, they may, at least in part, be deemed incompatible with the relevant WTO rules.

It is particularly significant that the Kyoto Protocol decided to adopt the institution of emissions trading under which one Annex I country will be allowed to purchase the rights to emit GHGs from other Annex I countries that have been able to cut GHG emissions below their assigned amounts (i.e. their targets). Structured effectively, the market-based emissions trading approach, pioneered in the US Sulphur Allowance Trading Program, can provide an economic incentive to cut GHG emissions while allowing flexibility for taking cost-effective actions. However, the crucial aspect of the emissions trading system is the allocation of permits, which could raise the issue of compatibility with the WTO/GATT rules. No matter how national trading systems are modeled (the so-called “upstream”, “downstream” or hybrid” systems, etc.), importers and domestic producers of fossil fuels should be treated equally in obtaining emission allowances under the like-product provisions in the WTO. It is feared, for example, that governments might allocate the permits in such a manner as to favor domestic firms against foreign rivals, violating the GATT principle of non-discrimination⁷.

While the Kyoto Protocol provides for the obligation of the Annex I parties to reduce/limit emission of the GHGs to specified levels, it does not specify the methods by which to attain the objectives, which are left largely to the discretion of individual States. It is conceivable that the validity of certain measures and policies by a State come to be challenged by other States for not being mandated under the Protocol and for being tantamount to unilateral measures by individual State.

There are some specific cases of domestic environmental policies that need to be addressed here. First, some Annex I countries have already established domestic legislation, either in mandatory or voluntary forms, regarding energy efficiency requirements and standards for the products and/or processes and production methods (PPMs)⁸. Japan, for example, revised the Law concerning

⁷ Zhong Xiang Zhang, “Greenhouse Gas Emissions Trading and the World Trading System”, *Journal of World Trade*, vol. 32, no.5, 1998, pp.219-239.

⁸ PPM requirements may take various forms in the context of climate change. A country may impose restriction on imports of agricultural products grown under methane intensive cultivation, wood harvested under non-sustainable forestry practice and steel produced by non-efficient furnace and coal, etc. Some of these measures could be quite effective.

However, permissibility of PPM requirements under the WTO/GATT is a difficult question. The present writer believes that there should be “a clear and direct (or, at least, immediate) link between the proposed PPM and the physical characteristics of the product, and that the unwarranted extension PPMs would lead to unjustified impediments to trade. See, Murase, *op. cit.*, *supra* note 1 (Perspectives), pp. 336-344.

The GATT panels on *Tuna/Dolphin* cases (1991, 1994) stressed that extra-jurisdictional extension of PPMs was not consistent with GATT. By contrast, the Appellate Body decision on *Shrimp/Turtle* case (1998) indicated in part that an extraterritorial extension of a PPM regulation (the use of turtle excluder devices which was at issue in this case) might be considered GATT-consistent under Article XX (g). This writer feels, however, that the Appellate Body went a bit too far, beyond the realm of “interpretation and application” of the existing WTO law, by going into the domain of “judicial legislation” which should have been avoided.

Rationalization of the Use of Energy (Energy Conservation Law) in 1998, which imposes strictest emission controls on factories, construction, machinery, automobiles and electric appliances. Thus, for instance, importation of such automobiles and air-conditioners that are not sufficiently energy efficient may be restricted under the Law. These requirements and standards may however be deemed inconsistent with WTO agreement on technical barriers to trade (TBT), unless they are specifically made exceptions to trade liberalization clauses⁹. These measures may also be coupled in some cases with certain subsidies or tax reduction, in which case the same benefits may have to be extended to foreign imports in order to be compatible with WTO/GATT.

Second, some Annex I countries may decide to implement carbon tax or environmental tax as a way to combat climate change. Taxes are considered very effective tools for achievement of environmental goals, particularly in the context of global warming, creating incentives for polluters to limit their activities that cause emissions of GHGs. However, the taxes will raise inevitable question of competitiveness, and therefore an effective system for border tax adjustment is indispensable in order to offset the tax-related production costs¹⁰. This is one of the topics discussed at length at the WTO Committee on Trade and Environment, which needs to be resolved, as well.

Third, there have been debates about the use of subsidies in the form of financial support for investments with the objective of developing technologies and goods that reduce emissions. Environmental subsidies are generally considered to be non-actionable, though they can be actionable if they are regarded as substantially trade-distorting in which case certain countervailing measures become permissible under the WTO/GATT law.

The details of the Kyoto Mechanisms and other unresolved issues must be worked out by October-November this year when the COP 6 is to be held in the Netherlands in order to make the Kyoto Protocol "ratifiable" by major countries so that the Protocol takes effect by the year 2002, a goal set by the COP 5 held in Bonn last fall. It should be borne in mind that its trade-related aspect is at the forefront of the climate change issues that the international community is facing today.

⁹ It is reported that in 1999 the European Union filed its observation regarding Japan's new regulation on automobiles' fuel consumption under the Revised Energy Conservation Law, which, in its view, may have trade distorting effect on foreign autos.

Similarly (though it may not be directly related to climate change), a new law was established in 1998 in Japan requiring, not the consumers or municipalities, but the *producers*, of household electric appliances (such as TV sets, refrigerators, air-conditioners and washing machines) to recycle their products after their use. This means that the producers must design their products so as to facilitate recycling, the policy adopted in accordance with the OECD recommendation on "the extended producer responsibility" (EPR). These measures will no doubt have significant adverse effect on the producers and exporters of the newly industrialized Asian countries who are trying to export their goods to Japan.

¹⁰ Paul Demaret & Raoul Stewardson, "Border Tax Adjustment under GATT and EC Law and General Implications for Environmental Taxes", *Journal of World Trade*, vol.28, no.4, 1994, pp.8f.; Murase, *op.cit.*, *supra* note 1 (Perspectives), pp.403-408.

3. The Cartagena Protocol on Biosafety

The Cartagena Protocol on Biosafety to the UN Convention on Biodiversity was finally adopted on January 29, 2000, in Montreal, after a long, heated debate. The Protocol permits a country to ban imports of certain “living modified organisms” (LMOs), *i.e.*, genetically modified products, in order to protect the environment from damage caused by genetically modified plants, animals and bacteria, if the importing country feels that, in accordance with the precautionary approach (Article 1), there is not enough scientific evidence showing that the product is safe.

Reflecting the concerns raised by environmentalists and a few scientific studies that genetically modified organisms could wipe out native species, disrupt natural cycles and cause other damage, the Protocol is to be applied to “LMOs for intentional introduction into the environment”, that is, seeds for agricultural use, for which import approval is granted only after the appropriate risk assessment under the “advance informed agreement” (AIA) procedure. The LMOs for “direct use as food or feed, or processing” (the so-called “commodities”) do not come strictly under the AIA procedure, but they can be subject to the domestic procedure similar to AIA (Article 7). The Protocol is not directly applicable to the processed foodstuff made with LMOs.

The Protocol also provides rules for transport and labeling, requiring that the words “may contain LMOs” appear on all shipments of genetically altered commodities (Article 18, paragraph 2).

The most controversial issue in the negotiation was over which should prevail: this Protocol or WTO? The original draft tabled at the Conference in Cartagena last February contained a clause identical with Article 22, paragraph 1 of the Biodiversity Convention, which was in effect implied the primacy of the Protocol over WTO in case there is “serious damage or threat to biological diversity”¹¹. In Montreal in January this year, the Conference deleted this controversial clause altogether, and instead, inserted three paragraphs as part of the preamble, not as an operative paragraph, of the Protocol, which read as follows:

“Recognizing that trade and environment agreements should be mutually supportive with a view to achieving sustainable development,

“Emphasizing that this Protocol shall not be interpreted as implying a change in the rights and obligations of a Party under any existing international agreements,

“Understanding that the above recital is not intended to subordinate this Protocol to other international agreements, ...”¹²

¹¹ Draft Protocol on Biosafety, Article 31. UNEP/CBD/ExCOP/1/L.2/Rev.1, Feb.1999.

¹² Final Text, Cartagena Protocol on Biosafety, UNEP/CBD/ExCOP/1/L.5, 28 Jan.2000.

These three preambular paragraphs are modeled after the Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, done at Rotterdam, September 11, 1998, 38 *I.L.M.* 1(1999).

While the first paragraph indicates that the Protocol and WTO are on an equal footing, the second and the third paragraphs appear to imply, in conflict with each other, the primacy of the WTO and the Protocol respectively. Thus, the relationship between the Protocol and WTO remains unsettled.

Given the ambiguity of legal criteria, the relationship of the two instruments must be clarified through appropriate dispute settlement procedures. Since the WTO dispute settlement is compulsory, contrary to that of the Biodiversity Convention, it appears that the issue will be left to the judgment by WTO panels and the Appellate Body, most likely in favor of WTO.

4. A Proposal for Coordination

Having described the diverse implications involved in the problem of “trade and environment”, we come to a conclusion that clear criteria need to be established for coordination between the MEAs and WTO. As you are all aware, the WTO Committee on Trade and Environment (CTE) has been considering the question for many years, but without success.

With regard to the methods for accommodating MEAs into GATT, there has been a division of *ex post* and *ex ante* approaches. The former is based on the idea that the existing GATT provisions are adequate to deal with the question and that any clarification can be provided, as necessary, *ex post*, either through the WTO dispute settlement or through the use of waiver procedure. The latter *ex ante* approach includes an amendment of the existing GATT provisions, such as the insertion of the term “environment” into Article XX(b). All these suggestions have failed to attain full support among the WTO members.

My own suggestion on this point is that we should consider an amendment to the effect of incorporating into GATT an “approval procedure” similar to the exception for international commodity agreement of Article XX(h)¹³, as explained in some detail below. This proposal has become the core of the position taken by the Environmental Protection Agency (EPA) of Japan on the basis of the recommendation made by an EPA’s advisory study group in March last year¹⁴. Due to certain differences among the Ministries, however, it remains at the present stage to be the EPA’s provisional proposal, but we hope that it will be formalized as Japan’s official proposal for consideration at the CTE, or at the WTO’s millennium round of negotiations.

¹³ Murase, *op. cit.*, *supra* note 1 (Perspectives), p. 348.

¹⁴ Fuji Sogo Kenkyuusho, *Kankyo to Boeki ni kakawaru Chosa Hokokusho* (Report on the Survey concerning Environment and Trade), March 1999, pp.17-22; Shinya Murase, “Kankyo to Boeki Mondai no Genjo to Kadai” (Current Situations and Problems regarding ‘Environment and Trade’), *Juristo Zokan: Kankyo Mondai no Yukue* (Jurist, Special Edition on Environmental Problems), 1999, pp.314-318.

The gist of the proposal is to insert, as a new subparagraph (i) or (k) of Article XX of the GATT, the following provision:

“(of measures) undertaken in pursuance of obligations under any multilateral environmental agreement which is submitted to the CONTRACTING PARTIES (Ministerial Conference) and not disapproved by them.”

This is a combination of *ex post* and *ex ante* approaches, and in my view, this proposed method is most appropriate for harmonizing the conflicting obligations of free trade under GATT on the one hand and the protection of the environment under MEAs on the other, as it will satisfy the requirement of assuring the legal stability and predictability, while at the same time maintaining flexibility. If it is difficult to take the form of an amendment to the existing GATT provisions, it could be considered that the above provision be incorporated in the form of a binding “Understanding” to be annexed to the WTO Agreement.

In order to guarantee certain objectivity in the approval procedure, a set of “Guidelines” is attached as an integral part of the proposal. It includes conditions such as : (a) an eligible MEA should be open to all States, and, (b) more than three fourth of the WTO members are the contracting parties both to the WTO and the MEA in question. Obviously, the most likely candidates for such MEAs would be the CITES, the Montreal Protocol and the Basel Convention. The Guidelines also recommend that the competent organs of WTO and MEA would hold consultations with a view to reconciling MEA trade-measures with the GATT principles such as the “necessity”, “proportionality”, “effectiveness” and the “least restrictive alternative” tests, where appropriate. When the Ministerial Conference approves (or, rather, “not disapproves”) specific MEAs presented thereto, it will be recorded in the “Annex” of the Understanding or the Guidelines.

There are already more than twenty MEAs with trade measures awaiting the objective criteria to be formulated. New environmental treaties like the Kyoto and Cartagena Protocols are being elaborated with similar trade measures. Furthermore, increasing number of cases are expected to be brought before the WTO panels and the Appellate Body. It is therefore strongly hoped that the international community will reach a consensus on this important agenda as soon as possible.

Growth and Environmental Governance

Yohei Harashima

1. Introduction

Environmental governance is about how societies deal with environmental problems. It is concerned with the interactions among formal and informal institutions and the actors within society that influence how environmental problems are identified and framed. It also relates to how environmental issues reach the political agenda, policies are formulated, and programs implemented¹.

A purpose of this paper is to identify the main characteristics that define environmental governance within the countries of Asia with special reference to case studies of Japan, Thailand, China, and India². It also takes into account of each country's level of economic growth, because the integration of economy and environment is an ultimate goal of environmental governance. Accordingly, this paper consists of the following four parts; 1) board overview of environmental governance, 2) relationship between economic growth and environmental policy, 3) roles of actors in environmental governance, 4) recent trends of environmental governance, and 5) concluding observations.

2. Broad Overview of Environmental Governance

In Asian countries, environmental laws and policies have been strengthened, particularly in the 1970s and again in the 1990s. Japan was the first amongst Asian countries to launch policy responses against environmental problems. Japan adopted in a relatively short period since the Basic Law for Environmental Pollution Control of 1967, comprehensive anti-pollution measures. They had been successful by the mid-1970s. After the Earth Summit in 1992, the Basic Environmental Law, which replaced by the Basic Law of 1967, was enacted to provide the basic principle and the policy instruments for environmental issues including not only industrial pollution and nature conservation but also global environmental issues.

It was the 1972 Stockholm Conference on the Human Environment that aroused the environmental awareness of the Chinese government. Following the conference, the Chinese government prepared

¹ This work is based on the research activities of IGES Environmental Governance Project supervised by Prof. Kazu Kato, Nagoya University, and Japan.

² The material in this paper is derived mainly from the following country papers; Xin Zhou, "Environmental Governance in China"; Mineo Kato, "Environmental Governance in Japan"; Somrudee Nicro and Christine Apikul, "Environmental Governance in Thailand"; and Jyoti Parikh, Tata L. Raghu Ram, and Kirit Parikh, "Environmental Governance in India". They are compiled into IGES Environmental Governance Project (ed.) (1999), *Environmental Governance in Four Asian Countries*, Institute for Global Environmental Strategies.

the 32-Chinese character guiding principles for the First China National Conference on Environmental Protection held in Beijing in 1973³, which marked the beginning of environmental policy in China. After the conference, the State Council established the Leading Group on Environmental Protection in 1974. Since the Environmental Protection Law (in trial implementation) was enacted by the Eleventh Meeting of the Standing Committee of the 5th People's Congress of 1979, China's environmental protection has been enforced on a sound legal basis. China's institutions for environmental policy and legislation have been improved since the late 1980s. In 1989, the amended Environmental Protection Law was promulgated. At present, there are 6 environmental protection laws in total, and 9 laws for resource protection. The revised Criminal Law made it a criminal act to destroy the environment and natural resources. The nation has issued 28 environmental administrative regulations, 70 rules and 375 national environmental standards. There are more than 1,000 local environmental regulations. After the Earth Summit, sustainable development has received common recognition. In 1994, the Chinese government released China's Agenda 21 - White Paper on Population, Environment and Development in the 21st Century, in order to respond to the outcomes of the Earth Summit. In 1998, the former National Environmental Protection Agency (NEPA) was upgraded to the status of ministry and was named the State Environmental Protection Administration (SEPA), which is symbolic of the raising environmental awareness in China.

During the late 1970s, Thailand gradually recognized that its natural resources were at risk. Increased public interest in environmental problems and the environmental movement led by civil society in Thailand emerged in the late 1970s. The movement followed a similar course to the environmental movements in industrialized countries, and an interrelated political movement for democracy, calling for changes in the overall ruling system. In order to deal with its environmental degradation, Thailand first showed a commitment to environmental protection in its Fourth National Plan (1977-1981) after participating in the Stockholm Conference. However, the Plan's priority was rehabilitating the economy rather than environment, particularly because the 1970s was a period of worldwide recession. Since the late 1980s and early 1990s, Thailand has witnessed a renewed interest and concern with environmental problems. Increasing enthusiasm to meet environmental challenges in Thailand has clearly been reflected and reinforced in the Seventh and Eighth National Plans which recognize environmental non-governmental organizations (NGOs) as important actors in environmental protection. The country has started to adopt a bottom-up approach, focusing on the concept of decentralization. The international calls for a turnabout in the attitude towards environmental problems, particularly from the Earth Summit, cannot be neglected as key external factors that catalyzed this change. In fact, Thailand saw rapid improvements in legislation and other institutional changes related to environmental protection at the government's initiative in the first half of the 1990s, including the new 1991 Constitution of the Kingdom of Thailand and the enactment of the 1992 Enhancement and Conservation of National Environment Quality Act, which repeals the previous 1975 Environment

³ The 32-Chinese character guiding principles suggested "overall planning, rational layout, comprehensive utilization, recycling, public participation, taking initiative actions, environmental

Acts, with the intent of improving the enforcement of environmental laws.

In India, the need to integrate environmental concerns into the process of economic development was voiced as far back as the late 1960s, during the formulation of the Fourth Five-year Plan (1969-1974), which stated that “planning for harmonious development is possible only on the basis of a comprehensive appraisal of environmental problems”. Integrating the management of environmental resources with national economic planning started with the Sixth Five-year Plan. The Water (Prevention and Control of Pollution) Act of 1974 has resulted in the creation of both the Central Pollution Control Boards (CPCB) and State Pollution Control Boards (SPCB) with the aim of prevention, abatement and control of water pollution. The Air (Control and Prevention of Pollution) Act of 1981 also empowered the CPCB and SPCB to deal with air pollution control. Shortly after the large Bhopal chemical disaster of 1984, the Environment (Protection) Act was enacted in 1986. It is an umbrella law that empowers the central government to decide emission and effluent standards, restrict industrial sites, lay down procedures and safeguards for accident prevention and handling of hazardous waste, investigate and research on pollution issues, conduct on-site inspections, establish laboratories, and collect and disseminate information. The Seventh and Eighth Five-year Plans have recognized the issues of preservation of environmental resources and sustainability as being as important as many other developmental objectives. The policies enunciated in the National Conservation Strategy and Policy Statement on Environment and Development and the Policy Statement on Control of Pollution, both of 1992, are being pursued in the Ninth Five-year Plan (1997-2002).

The above national experiences in the four Asian countries are summarized in Table 1 as a comparative chronology.

3. Relationship between Economic Growth and Environmental Policy

So far, rapid economic growth in Asia has been accompanied by environmental problems. There is, however, no evidence that environmental quality deteriorates steadily with economic growth. At low per capita income levels, economic growth has led to excessive environmental degradation. As income rises, demands for improvements in environmental quality, as well as resources available for environmental investment, increase. As a result, environmental degradation levels off, and gradually declines once the level of economic growth has passed a certain turning point⁴.

protection and benefiting the whole society”.

⁴ This point is argued by the following studies: World Bank (1992), World Development Report 1992, Oxford University Press.; Gene M. Grossman and Alan B. Krueger (1995), “Economic Growth and the Environment”, Quarterly Journal of Economics, Vol. 110 No.2, pp. 352-377; and Michael P. Vogel (1999), Environmental Kuznets Curves: A Study on the Economic Theory and Political Economy of Environmental Quality Improvements in the Course of Economic Growth, Springer.

Figure 1 GDP per Capita at 1985 PPPs

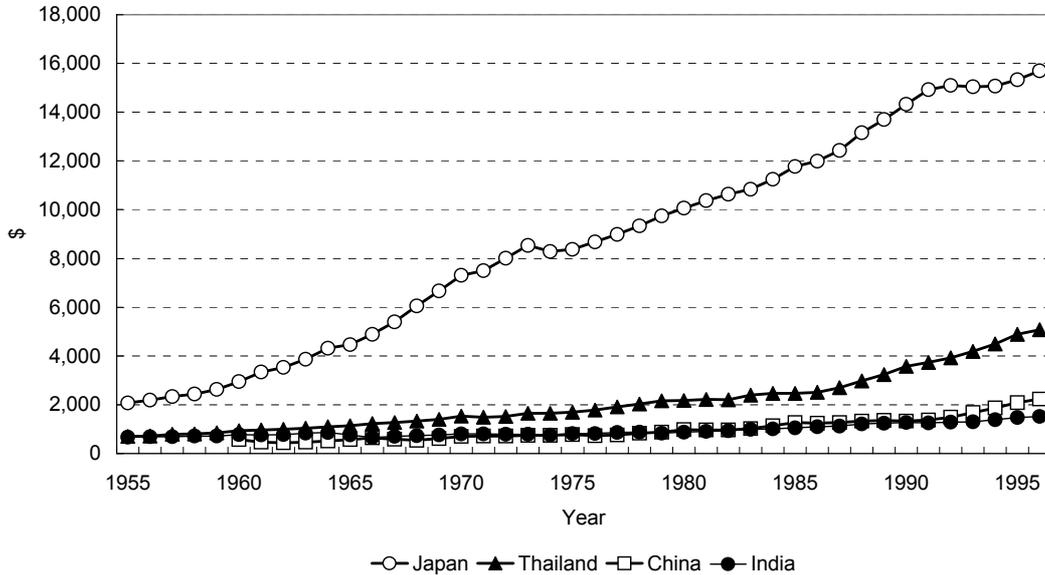


Figure 1 shows GDP per capita at 1985 purchasing power parities (PPPs) in the four Asian countries⁵. At the level of 1,000 dollars in GDP per capita, Japan's environmental policy was initiated. During the level of 3,000-5,000 dollars in GDP per capita, environmental degradation had overridden Japan. GDP per capita of the year, when the Basic Law of 1967 was enacted in order to tackle against these problems, was 5,391 dollars. The environmental degradation in Japan reached a peak and eventually pollution fell after the early 1970s. On the other hand, many of Asian countries have not yet reached such a turning point of environmental degradation.

When compared to Japan, the tempo of institutional development of environmental policy in Asian developing countries has been faster than that of their economic growth⁶. For example, table 2 shows the GDP per capita, when umbrella laws for environmental policy in the Asian countries were enacted. Even though detailed contents of each umbrella law are different, they are similar to each other in the sense that they intended to consolidate and strengthen environmental policy for solving serious environmental problems. The table implies that umbrella laws for environmental policy in Thailand, China, and India were, in that order, enacted at lower level of economic growth than that of Japan.

⁵ The data are collected by both Penn World Tables (Mark 5.6) and World Development Indicators.

⁶ For further detail of national experiences in East Asian countries, see Yohei Harashima and Tsuneyuki Morita (1998), "A Comparative Study on Environmental Policy Development Processes in the Three East Asian Countries: Japan, Korea, and China", *Environmental Economics and Policy Studies* Vol.1 No.1, pp.39-67., and Yohei Harashima (1999) *Environmental Policy Development* (in Japanese), Taizo Yakushiji (ed.) *Asia no Kankyo Bunka (Asian Environmental Culture)*, Keio University Press, pp. 181-206.

Table 2 Umbrella Laws for Environmental Policy in Asian Countries

Country	Name of Law	Year	GDP per Capita	X/Japan
Japan	Basic Law for Environmental Pollution Control	1967	5,391	
Thailand	Enhancement and Conservation of National Environmental Quality Act	1975	1,686	31%
	Enhancement and Conservation of National Environmental Quality Act	1992	3,924	73%
China	Environmental Protection Law (in trial implementation)	1979	879	16%
	Environmental Protection Law	1989	1,352	25%
India	Environment (Protection) Act	1986	1,092	20%

GDP per Capita = \$ at 1985 PPPs

Asian developing countries can enjoy “latecomer’s” advantages in not only the technological but also institutional aspects of environmental policy, and have great opportunities to introduce advanced technologies and institutions at lower costs and at earlier stages. In fact, despite imperfections, many of these countries have adopted new features of environmental policy such as the polluter pays principle (PPP) and environmental impact assessment (EIA) systems which were first devised in Western countries. In addition, many advanced policy responses have been transferred to Asian developing countries through international development assistance programs with environmental components.

It should be noted that advanced policy responses, transferred from developed countries to Asian developing countries, do not always succeed or work in the same way. In spite of strengthening of environmental institutions, Asian developing countries could not satisfactorily ensure policy effectiveness without benefits from economic growth.

4. Role of Actors in Environmental Governance

Effectiveness of environmental policy is considerably influenced by roles of various actors such as local governments, citizens and industries as well as the central government within its society. Supposing that all Asian countries adopt the same policy responses each other, the degree of policy effectiveness widely differs due to differences in the role of each actor. This seems to be the core question of environmental governance. The following are the summarized roles of key actors in the Asian country’s society.

Local Governments

In Japan, the local government initiated environmental policy against industrial pollution, beginning with the Tokyo Prefectural Ordinance for Factory Pollution Control of 1949. In contrast, the central government was blind to these issues in the beginning. Subsequently, local governments adopted

several advanced policy instruments, such as EIA systems, in advance of the central government.

However, unlike Japan, environmental policy formation and implementation has taken the lead by the central government, and still trends to be top-down in most Asian developing countries.

- China has exercised the democratic centralized system since 1949 when the People's Republic of China was founded. Since environmental protection in China greatly relies on the government, environmental administrative authorities hold important positions relating to environmental governance. The State Environmental Protection Administration (SEPA) and the provincial Environmental Protection Bureaus (EPBs) are responsible for decision-making, macro-level guidance, coordination among sectors and supervision over lower levels. Town and county-level EPBs are responsible for the implementation of state policies, laws, regulations and standards, monitoring pollution sources, supervision of reporting and registration of pollution discharge, issuing pollution discharge permits, investigation of pollution control and collection of pollution charges. They have the duty to report to, and enjoy the right to submit proposals to the upper levels in the government.
- The Thai government adopted Western concepts including those in the field of natural resources management. In 1896, the Department of Royal Forestry was established and decreed that all forests in the country belonged to the government. Accordingly, in 1940, the government implemented the National Forest Act, which re-stated that all forests in the country belonged to the government. As a result of this policy, natural resources management depends, by and large, on governmental decisions and policies. The government depends greatly on a command-and-control approach to administer its task. Despite the fact that the delegation of environmental authority from the environment related governmental departments on national level to provincial level were made, many policies remain top-down.
- The Indian constitution provides the necessary support for framing and enforcement of environmental legislation. It classifies various legislative subjects into three categories, namely, union list, state list and concurrent list. For example, while water supplies, irrigation and canal drainage are within state jurisdiction, the regulation and development of inter-state rivers and river valleys are subjects for the central government to address. Forests and protection of wild animals and birds are examples of subjects in the concurrent list. When the central government enacted the Water Act of 1974, since the Parliament has no power to make such a law for the states, it had to resort to the Indian Constitution, which allows the Parliament to act only at the request of the states. The environmental policy was explicitly incorporated into the Indian Constitution in 1976. Under India's federal structure, the central government has exercised much more power to legislate measures for environmental issues than suggested in the description of powers in the Indian Constitution. Since then, the policy process relating to environmental problems has been

heavily centralized⁷.

Citizens

In Japan, citizens' actions against environmental pollution, such as in the case of the Honshu-seishi Incident of 1958, have had a strong influence on environmental policy development. In order to respond to public pressures, the Basic Law of 1967 was enacted and the Environment Agency was established too.

On the other hand, environmental policies in Asian developing countries had progressed under the limited environment related information disclosure; therefore the role of civil society in environmental governance was weaker than in Japan.

- Due to political reasons and low environmental awareness among the public, in the past, few environmental NGOs existed in China. The public and NGOs played minor roles in environmental governance. However, in recent years, frequent incidences of pollution accidents and their damage to public health have aroused public concerns about environmental problems which are closely linked to their health and living, such as noise, air and water pollution. Victims have complained about degraded environmental quality. They have informed local governments about pollution discharge and a few even brought lawsuits against polluters, placing pressure on local governments to certain degree. However, organized civil protest on environmental issues has not yet emerged in China.
- In Thailand, an environmental movement emerged in the 1970s and 1980s in which the people challenged the bureaucratic and military elite such as a scandal in the Thung Yai Naresuwan Wildlife Sanctuary in 1973. Significant changes in the government's position on environmental problems could be observed in the 1990s, partly in response to an increasingly organized people's movement around environmental issues. The 1992 Enhancement and Conservation of National Environment Quality Act recognizes certain legal rights and duties of Thai citizens in relation to the protection of the environment, and also allows NGOs, Thai or foreign, that are directly engaged in environmental protection activities to register as "environmental NGOs". Public awareness of Thailand's environmental condition has increased partly as a result of media coverage. The media have extensively cooperated with NGOs in almost every environmental and developmental issue, to ensure that the issues reach the political agenda. In 1988, the construction of the Nam Choan Dam was suspended; in 1995, local communities received compensation for damages after the construction of the Pakmum Dam; and also in 1995, the plan to build a garbage-burning electric power generation plant in Hangdong was withdrawn. These events

⁷ R.K. Saprú (1998), "Environmental Policy and Politics in India", Uday Desai (ed.) *Ecological Policy and Politics in Developing Countries: Economic Growth, Democracy, and Environment*, Sage

received wide media coverage, which may have given people the courage to raise even more disputes concerning the environment.

- Similarly, numerous NGOs have been organized in India, and their activities have covered various aspects of environmental problems. For example, the Chipko movement in the Uttar Pradesh hills and the Appiko movement in Western Ghats of Karnataka were launched against tree-felling for commercial purposes, and environmental movements were launched against the construction of dams over Bhagirathi in Uttar Pradesh, Subernarekha in Bihar, and Narmada in Madhya Pradesh.

Industries

Japanese industries had an increased interest in pollution control since the early 1970s. Faced with the regulation of exhaust gases by the U.S. Muskie Act in 1970 and the oil crisis of the 1970s, Japanese automobile manufacturers were forced to develop new energy-saving and environmentally sound technologies to compete with other automobile makers. As a result, Japanese automobile manufacturers have developed advanced energy-saving and environmentally sound technologies.

Market mechanism has brought about measures for environmental initiatives by industries in Japan. In contrast, industries have not had much incentive to address environmental problems in Asian developing countries. Small firms in particular are a large source of environmental pollution, and the problem of bringing small firms into compliance becomes important.

- Most enterprises in China have a passive attitude towards environmental problems. Environmental awareness amongst enterprises is still low. According to the Resolution on Environmental Protection of 1984 adopted by the State Council, large and medium sized enterprises are required to set up environmental units or designate regular staff for environmental work within each enterprise. Large-scale enterprises usually invest in pollution control more intensively than small and medium sized enterprises. The industrial sector is the major contributor to achieving rapid economic growth in China, and in particular, the positive roles played by Township and Village Enterprises (TVEs) cannot be neglected. In recent years, their share of total industrial production has increased quite rapidly. Therefore, pollution generated by the TVEs has become a growing factor for many environmental problems. However, large and medium State-owned enterprises are the only main targets of environmental monitoring, pollution charges and fines, while small-scale enterprises escape from liability and TVEs are excluded from environmental monitoring and pollution charges.
- By the 1980s, businesses and environmentalists in Thailand were often assumed to be structurally and strategically in opposition in major environmental debates, rather than in alliance. Some of the

early struggles in Thailand reflected this tendency, as in the campaign against the Union Carbide-dominated Thailand Exploration and Mining Corporation (TEMCO) from 1974 to 1975. More recently, business has been regarded at least as a partner in caring for the environment. At the national level, a number of prominent businesses groups and individuals have taken up environmentalists' stands in one form or another. The best known individuals who have committed to making industrial practice compatible with environmental initiatives are Sophon Suphaphong, President of Bangchak Petroleum, and Pornthep Pornprapha, President of Siam Motors. Nonetheless, although factories, industrial estates, large commercial buildings, hotels, restaurants and large condominiums are required by law to treat their waste on-site, the waste is, in most cases, released directly into the water without treatment.

- Similarly, a large number of small-scale industrial facilities (including unorganized and household units) are not adequately addressed in India's current pollution control. With regard to providing fiscal incentives, such as financial assistance for setting up common effluent treatment plants, or for the adoption of clean technologies, the main problem is the lack of incentive mechanisms to induce firms to take advantage of these schemes. In the absence of strict enforcement of discharge standards, there is no reason for polluting industries to voluntarily avail themselves of the fiscal incentive schemes.

4. Recent Trends of Environmental Governance

Environmental governance in the Asian countries, however, has changed quite dramatically. Recently, new trends can be found, and the following progress is likely to be noteworthy.

First, new environmental actors have emerged. A good example is the civil society movement in Thailand. The 1992 Enhancement and Conservation of National Environment Quality of Thailand is an advanced example of legislation in Asia which formally recognizes the existence of Thai and foreign NGOs directly engaged in environmental protection activities. Moreover, in China, the media has begun to play a positive role in revealing environmental violations, informing the public and reporting pollution accidents, and they influenced business behavior and governmental decisions. The Long March of Environmental Protection, a special documentary film co-produced by the TV broadcasting station and the government, received nationwide coverage in 1994 and portrayed the state of the environment, both environmental friendly and unfriendly business behavior, and ecological degradation.

Secondly, more traditional actors also have been increasingly involved in environmental governance. In India, the panchayats, who are representatives of people from various sectors of society, are in charge of matters related to agriculture, land, animal husbandry, irrigation, housing, and roads, etc. Collection

and treatment of wastewater in the domestic sector is also the responsibility of the village panchayat⁸. In addition, it is characteristic that decisions of the justice system influence decision-making in the Indian government. The Thai monarchy is also a unique force in promoting Thailand's commitment to environmental protection. Royal projects have had an environmental profile for some time, particularly King Bhumibol Adulyadej's development projects among highland ethnic minorities. As an initiative by the Royal Family, the highest national authority in Thai society, it is influential in raising public awareness for environmental protection.

Thirdly, while environmental policies, which are institutionalized in formal processes, have not always worked effectively in the Asian countries, campaigns for environmental protection have been increasingly organized both formally and informally. The Chinese government, in 1997, promoted a weekly reporting system on urban air quality. In response to this, many cities have issued their air quality reports via the media, which aroused the attention of municipal governments, received more concern from the public and increased the environmental awareness of enterprises. A reforestation project to mark the fiftieth anniversary of coronation of the Thai king, as mentioned above, is another example. Similarly, India's experience suggests that concerted awareness campaigns targeting all concerned stakeholder groups and creation of conflict resolution mechanisms at the protected area level can assist biodiversity conservation much further than ineffective conservation laws and policies.

Fourthly, informal and voluntarily negotiations between governmental agencies and polluters could be observed in the process of environmental policy implementation in the Asian countries. In this regard, the "pollution prevention agreement" between industries and local governments in Japan is one of the well-known and widespread examples. The agreement prescribes responsibilities of industries and regulations on their industrial activities such as regulations on pollutants, and it also includes administrative inspection and operation shutdown as a punitive measure in case of contract violation. Recently, similar response can be found in Thailand. In 1997, for example, Samut Prakarn communities protested against plants in Bangphli, Samut Prakarn that released hazardous waste, which caused eye irritation and respiratory problems. In order to respond to the public protest, the Bangphli district and the provincial office negotiated with the plants in question and demanded the halt of the practice.

5. Concluding Observations

The main points that have been made in this paper can be summarized in the following sentences: While the institutional developments of environmental policy in Thailand, China, and India have been faster than that of Japan, their policies have not produced sufficient results. The policy development has depended on the central government's initiatives, and civil societies in each developing country have not played key role in this field. In addition, as measures for environmental problems brought

⁸ Trupti Jain (1998), "Strengthening Local Institutions - Role of Gram Panchayat for Management of Grazing Land in Gujarat" Paper to be presented at the Capacity Building in Environmental

about by market mechanisms were weak, incentives to address environmental problems have been lacking in industries, and in particular small firms.

Under the situation, some proposals are often made in order to improve the environmental governance system in Asian countries. Above all, the followings are widely noticed and likely to hold the key to the solution of the question.

- An expansion of public participation: There are few adequate channels for communication among policy-makers, industries, and citizens in the process of environmental policy formation and implementation in many of Asian countries. This is largely attributable to domestic political reasons. Environment-related information delivery to people using various methods, if anything, is likely to promote a participatory approach for environmental protection.
- An introduction of economic instruments: The economic instruments such as pollution charges have attracted considerable attention in Asian countries because they could help in achieving integration of economy and environment. Nonetheless, pollution charge systems adopted in China and India do not satisfactory result in reducing pollutants. Although at present, the polluter pays principle has been accepted in the Thai government's environmental policy, no comprehensive system of pollution charges or incentives for industries to reduce their pollution exists yet. It should be considered here that the condition they face for adopting in practice and enforcing the economic instruments differ widely, such as administrative capacity, public environmental awareness, environmental monitoring, and market mechanism.

The current state of environmental problems in developing countries in Asia is more serious than those experienced in developed countries in 1960s and 1970s. Moreover, it is worrying that the Asian economic crisis could cause delays in dealing with environmental problems⁹. It presents, however, a golden opportunity to reconsider the conventional thoughts about patterns of economy and environment¹⁰. For that, making better use of public participation and economic instruments would lead to the improved role of various actors in each society.

Governance in Sustainable Development Workshop, 8-10 December, 1998, Bombay, India.

⁹ World Bank (1999), Environmental Implications of the Economic Crisis and Adjustment in East Asia, Discussion Paper Serious No.1, World Bank.

¹⁰ For example, Michael E. Porter argues that "The strong proof that environmental protection does not hamper competitiveness is the economic performance of nations with the strictest laws. Both Germany and Japan have tough regulations, and both countries continue to surpass the U.S. in GNP growth." Michael E. Porter (1991), "America's Green Strategy", Scientific American (April), p.96.

Environmental Security and the Asian Region

Miranda A. Schreurs

1. Introduction

Asia is the most populous region of the world. Together India and China account for two-fifths of the world's population. Indonesia is the fourth most populated country in the world. Strict population control policies in China have helped to reduce the birth rate in that country. Still, China's population is expected to increase by over 300 million in the next thirty years. In contrast with trends in China, growth rates in Indonesia remain high. Indonesia's population is expected to grow from 197.6 million to 276 million between 1995 and 2025 (World Resources Institute, 1997).

A complex set of factors, ranging from high population densities, to large income inequalities, and the pressures of rapid industrialization, have combined in different ways to make Asia one of the most polluted regions in the world. While developing Asia's contribution to some global environmental problems, such as global climate change, are far smaller than that of the industrialized states of North America, Europe, and Japan, environmental conditions in many parts of Asia are far more threatening to human health than is currently the case in the advanced industrialized states. Moreover, because of the biological richness of the tropical regions of Asia, environmental degradation in these areas can result in unusually high levels of species extinction.

Asia is also a region that is religiously and cultural very diverse and has historically been beset by military tensions. Memories of warfare and ethnic conflict have limited the extent to which Asian states have learned to cooperate and form multilateral institutions of mutual benefit. It is for these reasons that Asia is a particularly interesting area to consider in relation to the concept of "environmental security."

2. Environmental Security: Competing Definitions

In recent years, there has been growing interest, particularly among Western scholars, in the idea of "environmental security". Environmental security is a broad concept that has been defined in different, and often competing ways (Dabelko and Dabelko, 1995; Conca and Dabelko 1998; Deudney and Matthew, eds., 1999). One influential view links environmental problems to violent intra- and inter-state conflict. This perspective on environmental security stresses the potential for natural resource shortages and environmental degradation to cause political instability or conflict among groups or nations (Thomas Homer-Dixon, 1999; Smil and Yushi, eds., 1998). A related view suggests that environmental degradation can be a major factor leading to the migration of large numbers of people and the related stresses this causes on governments, individuals, and the environment

(Lonergan and Parnwell 1998; Brennan 1999). Yet another view considers how uncontrolled economic development and poverty both can cause environmental degradation, which in turn, can contribute to natural disasters (e.g. landslides from deforestation and erosion) or the spread of infectious disease. Infectious diseases can harm or kill large numbers of people and thus, pose a threat to national security (Pirages 1998). When security is viewed “comprehensively” it can also include such issues as “energy security” and “food security” (Ohta 1998).

Daniel Deudney (1990) has challenged strongly the use of the term environmental security to mean that environmental degradation is a matter of “national security”. He argues that it is analytically misleading to think of environmental degradation as a national security threat; environmental problems and solutions, he suggests, have little in common with traditional threats to national security. Deudney does agree that war is destructive of the environment. He also acknowledges that environmental degradation may kill people. Still, he finds problematic the idea of linking environmental degradation to national security. Rather, he argues that because the environment does not recognize national borders environmentalists should not be distorting the debate by focusing on national security concerns, but instead by challenging the predominant consideration given to the nation-state in the international system and to the issue of environmental sustainability.

Others use the term “environmental security” more loosely. They are less concerned about issues of “national security” than with the health of the globe. In this useage, security refers to the continued survival of humans and the earth. Goodland and Daly (1998), for example, suggest that environmental sustainability will depend on our ability to control population growth and control consumption. This interpretation of environmental security emphasizes the threats to the sustainability of ecological systems and thus, to humans as well, from excessive consumption, population pressures, and large-scale environmental disruptions caused by human activities (e.g. climate change and sea-level rise).

A new and important addition to the literature by Simon Dalby (1999) examines the North-South clash in how environmental security is understood. Dalby argues that the literature has been biased towards the concerns of industrialized states and has treated environmental degradation as an “external” threat to the security of the industrialized states. In this process, he argues, blame for global environmental problems has been pushed onto the developing world, rather than onto the high consumption northern societies that have caused many (most) global environmental problems. This North-South split in views was already evident at the first United Nations Conference on the Human Environment (Stockholm 1972) when efforts were made by northern countries to problematize the high population growth trends in the developing world. Northern concerns provoked some angry rebukes from developing states which argued that the issue was not population, but poverty and inequality.

Finally, another view sees a positive light in the otherwise depressing subject of environmental destruction. This view sees environmental problems as a set of issues that can bring states closer together as they search for ways to deal with common problems. This perspective urges that greater

attention be placed on promoting cooperation among state and sub-state actors on environmental governance matters in order to improve the security environment (Conca 1998; Schreurs 1998). This perspective also stresses the importance of environmental governance at the national and international levels as a means of minimizing environmental damages and enhancing cooperation.

As Jack Goldstone (1996) suggests, it is less important to consider which of these definitions is right than to recognize that having a debate on the different meanings of environmental degradation for security is an important exercise in and of itself. With this intention, I will consider what each of these views of environmental security raise as questions for the IGES Project on Environmental Governance in Asia. Asia is a legitimate focus of attention for the debate on environmental security. Asia accounts for about half of the world's population. High population density, income inequality, and economic development mix in this region to produce severe environmental pressures. What the implications of these trends are for "environmental security" and "environmental governance" is a matter of critical importance.

3. Environmental Degradation, Resource Depletion and the Potential for Inter-State and Intra-State Conflict in Asia

In a recent book, Thomas Homer-Dixon (1999) argues that "environmental scarcity" or "scarcity of renewable resources" can contribute to ethnic tensions and civil violence. He predicted that in the future water shortages, reduction in farmable land, and forest depletion could lead to heightened levels of civil violence, primarily within states (rather than between them). He is cautious in his prediction, however, suggesting that the relationship between environmental degradation and civil conflict and instability is obscure. Environmental scarcity's main social effects are to enhance poverty, result in mass migration, exacerbate ethnic tensions, and call into question the state's capacity to govern. These destabilizing developments can contribute to civil unrest, violent conflict, and political insurgencies.

There are regions in Asia where environmental scarcity is becoming a reality. Several of the countries that Homer-Dixon views as pivotal states experiencing severe environmental degradation are in Asia. By pivotal states he means states whose stability has profound implications for regional stability. Three states in Asia that fall into this category are India, Pakistan, and China. He considers most closely the cases of India and China.

In the case of India, Homer-Dixon (1999, pp. 19-22) sees rapid population expansion as a major factor contributing to water scarcity, deforestation, salinization of land, and erosion. In addition, large income disparities between rural and urban areas contribute to waves of migration from the countryside to cities. The swelling of urban communities is occurring faster than the capacity of municipal governments to deal with the infrastructural and health care needs of growing populations. Homer-Dixon concludes that as a result of these kinds of problems Indian social institutions and democracy are under very severe strain.

In China's case, Homer-Dixon also addresses the country's large population and raises concerns about the ability of the country to sustain its one child policy into the future. The combination of China's large population and rising per capita resource consumption are contributing to resource depletion and pollution. Northern and western China have experienced severe water shortages. Cropland availability is very low and declining because of erosion, salinization, and urban expansion. Income growth in the cities has resulted in a major gap in wealth between the cities and rural areas. In China's case this has resulted in one of the world's largest migrations of people between rural and urban areas, estimated at as much as 100 million people. Environmental degradation in China, moreover argues Homer-Dixon, increases the susceptibility of the Chinese economy and society to shocks like droughts, floods, and changes in the international economy. A drop in economic growth could accentuate the underlying stresses seen in China and exacerbate urban and rural unrest.

Other Asian states are also at risk. The Philippines, he suggests, has experienced conflict resulting at least in part from environmental marginalization. Cropland and forest degradation and gross income inequalities were factors motivating upland peasants to support revolutionary ideologies. (pp. 152-153). Homer-Dixon concludes that "In the next decades, growing populations, rising per capita resource consumption, and persistent inequalities in resource access guarantee that scarcities of renewables will affect many poor countries with unprecedented severity, speed, and scale. As a result, resource substitution and conservation tasks will be more urgent, complex, and unpredictable, boosting the need for many kinds of ingenuity." (p. 26)

Drawing upon the work of Homer-Dixon, Alan Dupont (1998) has examined more closely the potential for environmental problems to adversely affect inter-state relations in Asia. One case he considers is Southeast Asia's forest fires in 1997 and early 1998. In this case, the severe forest fires, which were caused by fires that were deliberately set to clear forest land but then got out of control because of draught conditions, spread a dense cloud of pollutants as far away as Australia, Malaysia, and Singapore. The economic costs of the forest fire were estimated at \$1.4 billion in short-term health care, lost agricultural and industrial production, and lost tourist revenue (p. 12). Indonesia was forced to apologize to its neighbors for the pollution.

Another case he considers is the Spratly Islands which are contested among China and Association of Southeast Asian Nations (ASEAN) member countries. The region is potentially oil rich and thus, of considerable strategic and economic interest to these countries. Tensions have arisen among states of the region because of their interest in this oil rich area. Similarly, notes Dupont, there have been tensions both in Southeast Asia and in Northeast Asia regarding marine resources and fishing rights.

Shortages of fresh water supplies, he argues, could also lead to an environmental security problem. He suggests that the loss of freshwater supplies in Pacific Asia will reduce the region's ability to feed itself. In addition, population displacement caused by dam construction could prompt political

instability.

Importantly, both Homer-Dixon and Dupont are wary of suggesting that environmental degradation will be a direct cause of conflict in Asia. Both, however, suggest that air and sea pollution will at times increase tensions between states as has occurred with major oil spills in the past and in the case of the Indonesian forest fires.

4. Population Pressures, Environmental Degradation, and Migration

Population levels have been singled out as another matter of special importance to “environmental security”. There are many scholars who feel that population growth is stretching the carrying capacity of the globe. This view stems from the early writing of T. R. Malthus (1798), Garrett Hardin (1968), and Paul and Anne Ehrlich (1969), each of whom expressed concern about population levels, consumption, and the limited carrying capacity of the earth. How population pressures relate to “environmental security”, however, is still a matter of considerable debate.

From a practical policy perspective, China’s one child policy suggests a concern on the part of the Chinese government that is grounded in a Malthusian view of the world. This approach contrasts sharply with the cases of India, Indonesia, and Bangladesh, where population growth remains very high and the state does not have the capacity, will, or desire to address population trends as directly as has China. Supporters of China’s one child policy (if not of all of the methods employed to carry out the one child policy) suggest that China is acting responsibly. Critics view this policy as a draconian invasion of privacy. In the future, comparisons of India, China, Indonesia, and Bangladesh on the relationship between population growth, population policy, and environmental protection will be critical.

Environmental degradation and resource depletion are also matters of concern because they can result in large-scale migration. Homer-Dixon and Valerie Percival (1996) have examined tensions that erupted between Bangladeshi and India as a result of migration. Bengali migrants left Bangladesh for northern India because of floods, land scarcity, and poverty. Homer-Dixon and Percival argue that violence in Assam and Tripura, two states in India, erupted beginning in the early 1980s because of the migration of Hindus from Bangladesh into the formerly Buddhist-Christian majority era of India. Religious tensions, thus, were brought to a boiling point by environmentally induced migration.

Demographic pressures combined with poverty in China, India, Indonesia, and elsewhere in Pacific Asia, have contributed to the environmental problems facing many areas of the region. Vaclav Smil (1993) has brought attention to the rapid loss of agricultural land in China that has resulted from demographic pressures and industrialization. Moreover, because of market liberalization coastal urban centers have boomed and income inequality is becoming a serious problem (Xin Zhou, 1999: 26). There are now huge waves of migration between impoverished rural areas and urban centers in China.

This migration is both a result of resource scarcity and a contributing factor to the pollution problems of urban areas. The Chinese government has recognized the necessity of dealing with this income inequality and has initiated some policies to address it, but illegal migration is rampant and the ability of the state to redistribute wealth from urban to rural areas is questionable. The problem of income inequality may be even more severe in places like Indonesia, India, the Philippines, and Bangladesh and cannot be divorced from environmental governance concerns.

5. Globalization, Poverty, and Environmental Security

The Asian Financial Crisis, as Somrudee Nicro and Christine Apikul (1999) discuss, highlights how closely intertwined are the issues of poverty, environmental degradation, and social and political stability. The sudden financial and economic shock of currency devaluation and rapid bankruptcies in Southeast Asia and Korea caused a great deal of social and political instability in the region. Labor unrest, riots, and civil conflict have erupted throughout the region. Indonesia has perhaps been hardest hit by the crisis and both humans and the environment have suffered as a consequence. The unwelcome experiences of the Financial Crisis suggest just how important financial and economic stability are for environmental protection and political stability. They also lend support to views that suggest that poverty alleviation must be one of the top priorities of governments if the environment is to be protected and civil unrest prevented.

6. Resource Depletion, Environmental Degradation and Sustainability

Anil Agarwal and Sunita Narain have challenged international attempts to lay blame for climate change on developing countries like India and China (1998). Their argument is that it is the northern industrialized states that are the big per capita consumers and that are primarily responsible for most global environmental problems being experienced today. Clearly, in terms of sustainable development, it is the rich countries of Europe, North America, and Japan that are the excessive consumers of the world's natural resources (Lafferty and Meadows, forthcoming, 2000). Thus, as is hinted to above, linking population issues to sustainable development can reek of a form of "environmental colonialism".

Yet, it would also be ill advised to ignore how resource depletion affects "environmental security" in Asia (whether defined to mean the quality of human life or in relation to civil violence and unrest). Northern consumption patterns must be changed. At the same time, however, ways to prevent environmental collapse in Asia must be found.

Deforestation is an example of a serious resource depletion issue addressed by the Environmental Governance Project. The tropical forests of Southeast Asia are second only to Brazil in terms of their importance, but they are rapidly disappearing. The vast tracks of tropical forests that once covered the Philippines are now largely gone. Tropical deforestation also is progressing rapidly in Indonesia,

Thailand, Malaysia and most recently, Papua New Guinea. There are many reasons for this deforestation. They include traditional slash and burn agriculture, in which small plots are cut and burned for subsistence agricultural purposes; the cutting of forests for fuel wood; and logging to clear land for development and the export of logs to Japan, the US, and other consumer states.

Tropical deforestation is of concern internationally because of what it means for the major loss of biological diversity. By some estimates the tropical forests account for as much as 90% of the biological diversity of the planet. It also is tied to the global climate change issue because a loss in forest cover means a loss of carbon dioxide sinks since forests absorb and store carbon dioxide.

More immediately, deforestation is a cause of erosion. As Nicro and Apikul (1999) mention in their study, the Thai monarchy has been moved to address resource degradation issues in rural Thailand that have brought poverty and devastation to highland ethnic minorities (p93). The environmental health of the region will be greatly affected by forestry management practices.

7. Sustainable Development and Energy Security

As a result of population growth and economic development energy demand is soaring in the Asian region. Per capita energy consumption in the industrializing states of Asia is still only a small fraction of energy consumption in the industrialized states of the world. Still, the rate of growth in energy consumption in Asia is very high.

China is now the largest energy consumer in Asia. The dramatic growth in energy demand in China will have serious environmental consequences in the future. To meet this growing demand for energy, China plans to expand the use of its abundant reserves of low-quality brown coal. Growing energy consumption in China is linked to environmental problems at the regional and global levels as well. As a result of China's heavy dependence on poor quality coal, China is among the world's largest emitters of sulfur dioxides, a precursor to acid rain. Acid rain is both a domestic problem for China and a transboundary environmental problem affecting Japan and Korea.

Air pollution in China is also related to concerns about global climate change. Per capita emissions of greenhouse gases in China are still well below levels in Japan and in particular, the United States, but total emissions already place China third behind the United States and the European Union. Moreover, by 2010, China and India are likely to produce more than half of total world emissions of carbon dioxide.

To meet its energy demands, China is also developing other sources of energy. The Three Gorges Dam that is being built to control the flow of the Yangtze River is the world's largest dam project. The dam is expected to provide China with large amounts of hydroelectric power. Environmentalists, however, are concerned about the environmental disruption it will cause. Taiwan fears that the dam will

contribute to the pollution of the Yangtze River and the East China Sea (Economy, 1998: 66).

Nuclear energy is another option that is attracting growing attention in China and elsewhere in the region. Japan, which is heavily dependent on energy imports, is concerned about its energy security needs and the impact that China's growing energy demands will have on its own access to energy sources. In part to enhance energy security, but also to meet commitments Japan made at the 1997 Kyoto Conference, the Japanese government announced plans to build an additional twenty nuclear power facilities. In light of the Tokaimura uranium processing plant accident in 1999, however, these plans are being reconsidered. South Korea is also expanding its nuclear energy program and Japan and the United States are exploring ways to cooperate with China in building nuclear power plants. They also have agreed to help North Korea develop civilian nuclear energy capabilities. Nuclear safety issues have yet to be addressed at the regional level, and are therefore an important issue for the region (Fujiike, 1998).

8. Promoting Asian Environmental Cooperation: A Win-Win Strategy

There are not many international environmental agreements among the nations of East and Southeast Asia. On the positive side, however, there are many signs that environmental protection is becoming more important for the region. New environmental governance mechanisms are being established both at the national and the regional levels. Pollution control technology transfers are increasing, information flows are improving, and environmental networks are forming. Growing public discontent with pollution throughout much of the region is contributing to a change in the seriousness with which many national governments address environmental problems. Slowly, governments of the region are beginning to discuss their environmental problems and what can be done about them.

Resolving the environmental problems that confront the states of East and Southeast Asia will require not only greater attention to pollution control and environmental protection at the domestic level, but also cooperation and policy coordination among states at the regional level. Without commitment to cooperate in problem solving, the region's seas will become more polluted, acid rain will become an increasingly severe problem, greenhouse gas emissions will soar, and species loss is likely to accelerate.

The challenge is great. It will be exceedingly difficult for Asia to develop quickly effective regional institutions for environmental protection. There is tremendous diversity in the region. Japan, Singapore, Australia, New Zealand, Taiwan, and Malaysia are relatively wealthy countries. Thailand, Indonesia, and South Korea were all recognized as Asian tigers, but now are struggling to recover from the financial crisis that has crippled their economies. China is still a developing economy even though some regions have shown tremendous economic growth and rising income levels. Some countries in South and Southeast Asia are still struggling to feed their populations. This economic diversity makes it difficult to achieve consensus on priorities.

At the political level, the region includes relatively old democracies (e.g. Australia, New Zealand, and Japan), relatively new democracies (South Korea, Taiwan, and Russia), authoritarian states (Indonesia, Malaysia, Thailand, Singapore), communist countries (China), and totalitarian states (North Korea). These political differences make regional policy coordination far more difficult than it is among European countries where there are relatively similar political systems.

Moreover, pollution-control efforts within all but a handful of states, most notably Singapore, Japan, Australia, and New Zealand have been very limited. In the one party-dominant and authoritarian political systems of the region, close ties formed among politicians, bureaucrats, and industry. These networks tended to result in policy decisions that favored industrial development over environmental protection. Moreover, because in most of the states of Southeast and East Asia non-governmental organizations (NGOs) are small and poorly funded and environment agencies and ministries also tend to be weak, there were few voices that could speak out and challenge policy decisions that harmed the environment.

Today, this is changing to some extent as environmental awareness increases throughout Asia. Still, there are only limited financial resources in the developing states of the region, and this raises important questions about who will pay the costs and provide the technological know how for environmental clean-up and pollution control. China, India, and Malaysia have frequently demanded northern assistance in paying the costs of addressing global environmental issues, which they claim have been largely caused by the more industrialized countries of the world. Japan, which is perceived both as a country of Asia and a member of the club of wealthy Western states has been under considerable pressure to finance pollution control efforts in Asia. Environmental monitoring is only just beginning and scientific research remains limited. There are few trained engineers and specialists with the know-how to operate and maintain sophisticated pollution control equipment, to conduct environmental impact assessments, or to monitor environmental data.

Environmental norms at the domestic and international levels in Asia are slowly changing. Environmental protection is receiving much greater attention than it did in the past. In the 1990s, Japan began to consider ways that it could play a larger role in promoting environmental protection throughout the region. China's leaders recognize that pollution control and energy efficiency improvements must be made if economic growth is to continue. As a result numerous new environmental laws, regulations, and guidelines have been established in China. As the case studies of Thailand and India of the Environmental Governance Project also suggest, similar changes are evident in these countries as well.

Furthermore, heightened international attention to the environment has placed pressure on countries in the region to take environmental protection issues more seriously. International concern about tropical deforestation in Southeast Asia led to international NGO campaigns and boycotts designed to pressure Japan and Southeast Asian nations to promote sustainable logging. The United Nations

Conference on Environment and Development in 1992 and the Kyoto Conference on climate change in 1997 helped raise environmental awareness in the region.

Environmental protection also has become a matter of concern to the APEC and ASEAN economic forums. In 1981 ASEAN had its first regional programme on Environmental Education and Training, the Marine Environment and Environmental Management. In 1987 a review of this environment programme was made and after the UNCED an ASEAN Strategic Plan on the Environment was formed. The plan calls for regional cooperation in addressing issues like biodiversity conservation, the promotion of sustainable use, and development of a system for the promotion of environmentally sound technologies. The forest fires in Indonesia prompted ASEAN members to reach the Indonesia Haze Resolution in 1997, in which they agreed to prevent a recurrence of this kind of disaster. Also in 1997 the first ASEAN State of the Environment Report was produced. Similarly, APEC had its first meeting of Environment Ministers in 1994 and adopted a series of environmental action programmes in 1996.

Some of the most important signs of growing regional cooperation are the environmental networks that are emerging in the region. Information flow among NGOs, scientists, and academics in the region can be critical for obtaining accurate information about levels of pollution and environmental degradation, prioritizing concerns, developing strategies of action, and developing public awareness.

International environmental dialogue in Asia is still very young. It only began in the 1980s with early scientific exchanges and limited inter-governmental contact. Since the UNCED, however, the pace of network building has grown substantially. These developments must be encouraged. Not only do they have the potential to improve environmental conditions in the region, they can also enhance regional stability. The Environmental Governance in Asia Project speaks specifically to this need by attempting to bring together academics, practitioners, and policy makers in Asia to address environmental governance concerns.

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Comments

Tae Yong Jung

This session is for cross-cutting issues related to environmental governance. Three stimulating papers are presented in this session. Let me make brief comments on each paper in reverse order, since the third paper by professor Schreurs covers more broader issues on environmental governance. Then, the second speaker, Dr. Harashima touches the issue of economic growth and environmental policy in selected Asian countries. Finally, the first speaker, professor Murase points out the potential conflicts between WTO and two multilateral environmental protocols in concrete way.

First of all, professor Schreurs raises a very important issue on environmental governance. The concept of 'environmental security' is relatively new one in environmental area. In fact, the term of 'security' implies strategic definition. As she points out, the environmental governance should include this strategic approach like national security or energy security. Especially, in Asian Region, due to heterogeneous factors, the introduction of 'environmental security' in environmental governance will make a lot of sense. She figures out main drivers for environmental security. For example, environmental degradation, resource depletion, population pressure might be some of reasons that cause tensions among inter-states and intra-states. It is quite interesting observations and also makes a lot of sense.

I think that one of her messages is that environment is no more free. She mentions the concept of 'environmental scarcity' by Thomas Homer-Dixon. Scarcity is basically economic concept. Since natural and human resources are limited, somehow we pay for utilizing them. As the same token, the clean air or water is no more free goods. I totally agree with her in the sense that we should pay for better environment. Now, how to set up the value of environment or how to price it is quite critical, but this question is really dependent on the situation of each country. I think the important point is that the environmental governance, which includes all environmental activities by all agents in a society, should reflect this kind of new paradigm. Especially, in Asia, she emphasizes the international and regional environmental cooperation. At the same time, I think it is also important to include environmental factors in whatever other domestic policies or actions. To be effective, it is necessary to improve environmental consciousness in every human activity of a society.

The second speaker touches brief overviews of environmental governance in Japan, China, India and Thailand. Then, he mentions the relationship between economic growth and environmental policy by comparison of those four countries, which is quite interesting analysis. Especially, the comparison of four countries in table 2 has good implication. In this table, he compares GDP per capita, when environmental protection law is implemented in each country. In general, we observe that most developing countries enact the environmental laws with much lower per capita income level, compared

with Japan. This argument on economic growth and environmental protection is known as 'environmental Kuznets curve'. The 'environmental Kuznets curve' is an empirical finding that as the shape of this curve is an inverse U shape. This pattern has been observed from many developed countries. Now, the question is when a country starts to improve its environmental quality. Obviously, it depends on various factors. For example, in many developed countries, the local pollutant problems were taken care of with much lower income level than the case of global environmental one such as climate change. Now, as Dr. Harashima shows in table 2 that developing countries start to handle environmental issues with lower income level. The question is why they take environmental initiatives at the early stage of income level.

In my opinion, Dr Harashima's observation reflects the fact that the paradigm of economic growth and environmental protection is changing now. For developed countries, the economic growth or development has been top priority. After it reached certain level of income, a developed country tries to resolve the environmental issues. We see the typical example of Japan. This kind of strategy is in some sense, true for other developing countries. However, now the big difference is that the environmental protection is becoming more and more important for a country's economic development. For the sustainable development, the environmental factors are becoming crucial ones. In a sense, every developing country is now struggling to find proper solutions of how to harmonize economic development and environmental protection, which is most suitable to its own situation. I think it is one of key issues in environmental governance to develop a new paradigm that can harmonize economic development and environmental protection.

Professor Murase raises the issue of 'trade and environment' from legal perspectives. He concretely makes arguments on potential conflict between multilateral environmental agreement and WTO rules. I am not the expert on legal issue, so that I can not make comments on specific issues that he raised. Probably, he is right on the issues that he points out. Even if I have no objection on professor Murase's conclusion, let me make following two points. First of all, in introduction, he says, "because the notion of sustainable development is helplessly vague". In legal sense, he may be right. However, the concept of 'sustainable development' itself is based on 'value-judgement'. Every country or every person has different views on this concept. This is one of the reasons why the definition of sustainable development seems to be vague. Therefore, we have to develop a minimum or common base for sustainable development that everyone can agree on. For example, one of the keywords for this century in Japan is 'resource circulated-based society'. I understand this keyword as Japanese interpretation of sustainable development in concrete way. I think the process of making sustainable development more tangible is going on. Actually, this symposium also provides us the opportunity to understand each other.

Second, GATT or WTO is based on the advantage of 'free trade'. For economists, it is understood that free trade is based on classical or neo-classical economic theory of 'comparative advantage of trade'. However, still most of WTO member countries agree on Framework Convention on Climate Change

(FCCC) due to the following principle of the FCCC. In the Article 3, it says, “common but differentiated responsibilities’ asking the leadership of developed countries in combating climate change. I think the Kyoto Protocol provide some economic mechanisms to implement climate policies. Again, so called ‘Kyoto mechanism’ is also based on the Article 3 of FCCC. (“...policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost...”) I think the approach to resolve potential conflicts between FCCC and WTO should follow the principle and spirit of FCCC. Second, he points out the possibility that for emission trading, governments might allocate the permits to give favors to domestic firms. I think this is an important issue. Again, in Article 3 of FCCC, it clearly says, “ Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or disguised restriction on international trade”. Therefore, I think the real question is for each country how to compromise the global interest and each country’s own interest.

Summary of Overall Discussions

Chaired by Kazu Kato

Chairperson (Prof. Kazu Kato):

I have invited one person from each session: Dr. Ben Malayang from session one, Dr. Vijay Pandey from session two, Dr. Hoi-Seong Jeong from session three, and Dr. Miranda Schreurs from session four. I will ask each of the panelists, first of all, speak for five minutes getting their overall impressions of the presentations and the discussions we had during the previous sessions, especially in terms of giving us their views of some points towards further development of the ways and means of promoting environmental governance in each country or in each region.

Dr. Ben S. Malayang III:

Everything I heard today seems to suggest that the declining quality of our environment and the degradation of our natural resources are being recognized as real threats to human society. Our widespread loss of forests, the decline of our fisheries, the deterioration of our water supply and the pollution of our lands and seas are now recognized to have the potential of breaking up communities and even nations and states. Thus, there is urgency in developing environmental governance among peoples, nations and states as a strategic intervention to lower the threats, not only to humans, but to all life that exists in our world.

I also heard today that government is probably becoming an anachronism as the locus of decision making on how to avert the threats to the environmental security of our modern world. Instead, effective actions should be germinated from no less than a total society response to the threats.

However, government remains important as an institution to consolidate the potentially most widespread sectoral response to our threats. But more sectors need to be involved. I particularly refer to the banking sector, which has the potential to direct or invent new investments by society toward improving the quality of our environmental capital, which is after all the basic material wealth of our nations.

I end by reflecting that perhaps what we need today is to develop a unified thinking of the environment - what it is to us, and what it is to our world. And at the same time, develop plural sectoral responses that are harmonized with each other. I reflect as well the need to develop harmonized national policies that put real value on our environment and natural resources to promote higher society-wide responses to protect them.

Dr. Vijay Laxmi Pandey:

I will start from my own presentation and from what I have understood of others. But involvement of grassroots level people is foremost for any program involved in the management of local resources. It should be a bottom-up approach instead of a top-down approach. So for the management of resources which are available at the grassroots level, the involvement of local peoples is first. Without involving them, we can't have a successful program.

We have so many laws and acts in all the countries, as we have seen. But what we need is to really act on it. We have promulgated many laws and acts, but we have not really acted and tried to take them into action. So there is a need to act on that.

Another point is that there is a need for inter-ministerial cooperation and coordination at the national level for all resources. As far as land regeneration is concerned, I have shown that there are so many ministries that are involved, but they don't have coordination. One ministry doesn't know what another ministry is doing. So there is a need for inter-ministerial coordination and cooperation.

As far as our developing countries have less funds, we need to generate the resources or funds for developing clean technology for land regeneration. So we should involve private parties. We should ask their cooperation and that of other international agencies who are willing to give support either in kind or in cash. We should ask developed countries to share their developed clean technologies which will help developing countries to reduce their emissions, and to have a lower slope on the Kuznets curve instead of going up to the top.

Again, as international cooperation is needed for environmental security, this is most important. And for that purpose, especially in India and China, we have to control our population growth. Without that, I think there is no answer to such types of problems.

On top of all this, there is a need to have a willingness at all levels-political, institutional and grassroots levels-for the improvement of the environment.

Dr. Hoi-Seong Jeong

Having today's presentations and discussions, I got various information and insights on environmental governance. I must thank you to IGES and Sophia University for giving me this very valuable opportunity.

Based on today's discussion, I would like to comment on three points of environmental governance. First, I think there is still confusion on the concept of environmental governance. I want to suggest to Prof. Kato that before finishing this project we should think about what environmental governance

means more carefully and definitely.

Second, we must distinguish between environmental governance structures and their function. Many countries have good governance structures, but they are sometimes malfunctioning. What I mean is that many environmental policies are not actually implemented in many countries. Therefore, we must think how they implement the actual policies in their processes.

The third I wanted to suggest is that key factors in the environmental policy process are, of course, governments and industries. So we must more closely look at their behaviors and their responses.

To make a good environmental governance structure, I want to suggest three points. I think the nation needs to have a good compensation for environmental victims. It is a basic requirement for a good environmental governance system. Maybe IGES will consider comparing legal systems of compensating environmental victims as a subject of future research.

The second thing I want to suggest is that social transparency is another requirement for good governance structures.

The last thing I want to mention is that market control of environmental issues is summarily important. You heard about the Korean experience and foreign currency prices since the end of 1997. Many industries were confronted with MEA procedures. I heard from an environmental lawyer, who helped the MEA process, say that many foreign industries which want to buy Korean firms ask for the information on environmental records. This gives great stimulus to the industrial sector to care for environmental matters in our country. So now our government is thinking about introducing environmental insurance, or a bank loan system based on environmental records of firms and industries.

Dr. Miranda A. Schreurs:

Let me just reiterate Dr. Jeong's comments that these presentations have been very informative, and I really thank the organizers for putting this together because I have learned so much from the many presentations.

My comments, however, are going to move away a little bit from the specific papers to some broader questions. The first is a very simple but very difficult question, "What do we mean by Asia? What is Asia?" And if we are going to make recommendations for addressing environmental governance in Asia, I think it is important that we know what Asia is. The term "Pacific Asia", includes Canada, the U.S. and South America. After the Cold War, Russia considers itself part of Asia. And if there are political changes in Iran and Iraq, perhaps those areas would also be considered part of Asia. So is Asia something that is defined by culture or by history? Or if you think about the project focus on the

environment, is Asia something that is defined by environmental issues?

I think one suggestion for the project is to say that our term "Asia" maybe a little too broad for environmental governance recommendations. In that respect, it might be useful to think about how we can narrow the concept of "Asia" and link it to the problems and environmental issues that we are addressing. Perhaps we need to do, a little bit more thinking about what kinds of boundaries can we put on Asia? Should we think of Asia in terms of trans-boundary environmental problems, and look at sub-regions. This might include regions that have trans-boundary air or water pollution. Or should we think about states and regions that have common problems, such as deforestation. And should we think about how lessons can be learned from other states that have already gone through problems like deforestation, and think about the methods they have used to either stop it, slow it down, or perhaps even reverse it?

I think another question in terms of thinking about environmental governance in Asia is, who is doing the governing? You can think about that at multiple levels. It could be at the international level. Do we need some kind of Asian regional governance mechanism? If so, how broad should it be? Should it be sub-regions of Asia, or all of Asia wherever that lies? If you think about it in terms of bilateral relationships, is it something of a relationship between the richer and the less rich countries, and then which kinds of relationships?

There may be another way of looking at discussion of what environmental governance is. A lot of the project has stressed the idea of formal governmental institutions, laws, Ministries, federal prefectures, urban and rural environmental structures. I think that is very important, and it is an area where capacity building can happen. But so many of the papers focused instead on the importance of the need to build capacity for non-formal institutions, the local bottom-up approach. I think we need to think about that also in terms of the larger concept of regional cooperation in Asia. Maybe top-down international regional efforts are necessary, but also internationally linked bottom-up mechanisms. How can we improve the capacity for transnational grassroots actors to influence the environmental priorities of the region?

Finally, environmental governance, because of the way it is structured, has the state at its center. We looked at China, India, Thailand, Malaysia, Korea, Bangladesh and several other countries. But the environment knows no political boundaries. Environmental problems aren't structured by the concept of the state. And so perhaps a good addition to the environmental governance project will be to look at some of the cross-regional problems, and efforts that are being taken to address them. Examples might be the Tumen Development Project, linking together states that have had so little contact in the past. Perhaps also some regional cooperative efforts in the Southeast Asian states. I think that could show a lot of light on how environmental governance can be promoted in the region. By looking at steps that have been taken and drawing lessons from those to make suggestions for greater efforts within the region. Thank you.

Chairperson:

Thank you very much. You have struck at the heart of the problems that we are trying to grapple with. What is Asia? What is environmental governance? What is the role of non-governmental sectors in society and economy in terms of governance? Shouldn't we put more importance on the various roles being played by those sectors, including private business sectors as well. Also, as was mentioned by many speakers during the earlier sessions, the importance of much closer government involvement, and the participation of civil society. Also, public participation is not panacea. But we must find ways to involve all stakeholders in more effective systems and processes of environmental governance. So there is a wealth of information and practical experience out there that we need to examine further, perhaps in our future research activities.

I don't want to conclude the discussions before I open the floor for questions and answers sessions, or before hearing some of the views of the audience. First of all, Mr. Sakumoto, from the Institute for Developing Economies, made a comment as follows. Dr. Miranda Schreurs talked about environmental security from the perspective of environmental cooperation. As Dr. Schreurs mentioned, in Asia there are so many types of trans-boundary pollution, such as acid rain, AIDS, marine pollution, river pollution, spreading of toxic substances, environmental protection and nuclear safety. For this reason, it is important for countries to cooperate with each other to preserve the environment. But funding and technological cooperation are inadequate. We also need mutual surveillance or monitoring to set up some kind of regime for the global environment. Environmental governance at the regional level is required. South and Southeast Asian countries have mechanisms for it, but Northeast Asian countries such as Japan, Korea, China and Russia do not. So we need environmental cooperation in the northeastern part of Asia as well, not just in the South and Southeast Asian countries.

Mr. Mineo Kato, from Yokohama National University, has two questions related to trends in environmental governance. It is understandable that decentralization is very important now. However, at the same time, some environmental issues, such as ecological conservation, require trans-regional or nationwide and sometimes international policies, measures and plans. The job of conserving a certain natural environment cannot just be delegated to local governments. It should be tackled by the national government. The question is how this problem can be tackled with public and NGO participation at the regional levels.

Dr. Miranda A. Schreurs:

I think that the question is very important. Northeast Asia is a region that is known for its lack of forums for international cooperation of any form. There is no economic cooperation forum for Northeast Asia, and there are only limited cultural exchanges. Particularly if you include North Korea as an area of focus, there is extremely little cooperation. But there is tremendous interest in trying to

stimulate cooperation. And the environment, I think, is one of the areas that is very heavily focused on for promoting cooperation in this region.

The U.S. Secretary of State is quite interested in thinking about ways to improve relations with North Korea and other states in the Northeast Asian region. They question whether or not the environment is an area where that can be further promoted. Her interest suggests that in this case, the United States thinks of itself as part of Northeast Asia. That is, however, a tremendous problem with creating formal regional cooperation mechanisms. Perhaps what we need to look for in Northeast Asia first, are very informal means of simply establishing agreement on environmental priorities and enhancing informal linkages between environmental groups. I think the Trilateral Environmental Ministers meeting earlier this year was a very good sign of interest at the governmental level in promoting cooperation in Northeast Asia. So I think things are changing, but Northeast Asia is a problematic region for formal cooperation.

Dr. Ben S. Malayang III:

In most parts of Southeast Asia, we see that environmental problems really pertain more to resource degradation and loss than just to pollution. Decentralization in some countries, including the Philippines, is viewed more as a strategy for a more focused response to specific resources with specific problems pertaining to those resources. This is because there is a recognition that these resources occur in different ecosystems and in different areas of the country. The more local involvement there is attending to the problem, you add onto what otherwise is a limited government ability to respond to them. So I think that decentralization is viewed more as a strategy to widen the sectoral response to these problems.

Chairperson:

We have another question. After the Stockholm Conference of 1972, in lectures given in Japan, the fact that environmental policies had been implemented in many countries was often mentioned. The 1971 dollar shock and the 1973 oil crisis caused economic problems. The declaration of the New Economic Order was adopted in 1974. I believe that the subsequent political turmoil brought on by these events was a factor that caused environmental and welfare-related policies to temporarily fall by the wayside. I would be interested to hear the panelists' comments on this. This is quite a wide-ranging issue.

Dr. Somrudee Nicro:

I think that the question touches on various issues that we have discussed today. But more than others, I think that it reflects two issues pointed out by Dr. Harashima in his presentation. One is on economic growth and environment, and the other one is on the point he raises from the four studies from last year. It seemed to lead to the conclusion that environmental initiatives are taken by the government.

In other words, it has been top-down. I think these are the two frameworks that we can look at to answer the preceding question.

In that regard, I would like to say that for the first question, it has to do with economic development and the environment. So far we seem to rely on only one model, which is the Kuznets curve, as Dr. James Nickum presented. No one has challenged it yet. But I would like to take this opportunity to do so.

I think that following the Kuznets curve presented by James Nickum with that rainbow (referring to Nickum's slide presentation), we can easily fall into the same problem as the modernization theorists do. That is, to look at changes as if they are linear. That is to say, it seems like in the past when people developed and applied modernization theories to newly emerged states after World War II, they tended to think the those countries would develop in the same path or pattern as industrialized countries. We found out later, as early as in the '60s especially in the Latin American countries, that it is not the case. That is why there are other countries challenging modernization theories, like dependency theories, or the development of underdeveloped theories.

But now, just 10 years later we seem to forget that lesson. And the Kuznets curve says the same thing. If you develop your economic growth to a certain level, you will recognize environmental problems, and therefore fix them. With that thinking, we seem to assume that economic crisis will jeopardize environmental improvement efforts in these countries, which I don't totally agree with. Actually, there are many people in Thailand who don't agree with this line of thinking. There are a number of people who think of the economic crisis as a blessing in disguise.

It is also pointed out in Dr. Harashima's paper that maybe we can rethink development and environmental improvement. I think this is a good point because those who argue that economic crisis would hamper environmental improvement are relying on the linear thinking of the Kuznets curve. But they forget that there actually are many aspects of environmental improvement. For example, if you think about environment clean-up, especially the clean-up technologies that Western industrialized countries have developed before other countries (because they experienced the problems before) and which they are trying to sell to other countries, we, developing countries, or once NIC countries, could have difficulty in affording them because we simply don't have the money to do so.

But that is not the only way to improve the environment. We can also use a preventive approach. And we all know that economic growth, especially rapid economic growth, is the major cause of rapid deterioration of natural resources and the environment. So economic crisis is a blessing in disguise because it stops this deterioration. In Thailand, a professor who studies energy has already presented that, during this economic crisis, the consumption of energy in Thailand has declined substantially. That is just one support of this thinking.

Chairperson:

There are many more questions, but unfortunately we have run out of time, and I do apologize to those of you had taken the trouble of submitting your questions in writing. But unfortunately we are not able to raise all these questions. Now we have come to the end of today's symposium. I would like to thank all of you panelists and speakers in the sessions, and the members of the audience for your understanding and cooperation. Thank you very much for your attention.

第3部：国別環境ガバナンスと横断的問題に関する追加的研究（要旨）

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総合討論

インドネシア（エンドロ・スシロ 報告）

インドネシアの環境政策が始まったのは、1972年のストックホルムでの国連人間環境会議を受けてのことであった。それ以前には、環境問題が国家計画のなかに盛り込まれることもなかった。特に、環境法の進展にとって重要な年となったのは環境管理法（EMA）が制定された1982年であったが、この法律は満足に執行されず、それを支える技術的な側面も十分でなかった。環境問題が司法の場で解決されることは限られており、行政組織の面でも環境省とは独立して大統領令によって設置された環境管理庁（EPA）も期待どおり機能しているとは言えない。環境NGOの法的な地位は環境管理法のなかで認められていたが、NGOは反政府的な組織と見られがちで、政府から敵視されることが多い。1997年に改正された環境管理法では環境NGOの役割はさらに制限されたものとなっており、かなり議論を呼んでいる。1986年以来導入されてきた環境影響評価も開発許認可の一環として実施されているが、形骸化している。最近2年ほどの経済危機によって、経済回復が最優先課題となっており、どうしても環境問題への関心が薄らいで、目をむけられることが少なくなっている。今後の課題としては、中央集権を改めて、地方にも公平な取り分をもたらすような分権化が必要である。また、開発許認可の過程で天然資源からの利益が政府や企業に吸い上げられてきたが、これらに先住民の権利が認められるべきであろう。環境NGOの法的地位をより向上することも求められる。

マレーシア（ワン・ポーシャ・ハムザ 報告）

マレーシアでは1969年の民族間の対立がきっかけとなって新経済政策が導入された。その過程で環境問題も避けられない事実となっていき、1972年の国連人間環境会議を受けて、1974年に環境質法（EQA）が制定されている。この法律は、マレーシアが総合的な環境管理に取り組むようになった表われであった。1970年代から80年代初頭にはヤシ油やゴムの廃液、70年代中頃には大気汚染、70年代後半には産業廃棄物や廃水、80年代には騒音、そして自動車の排気ガスなどがそれぞれ問題視されてきた。これに対して、予防措置として導入されてきた環境影響評価も十分な成果を上げているとは言えず、特に連邦によってこれが実施される場合には州政府の権限を侵すものと見られている。マレーシアの環境管理は中央集権的であって、科学技術環境省が分野横断的に環境問題を扱っている。しかし、中央省庁のなかで科学技術環境省の地位は低く、発言力が弱いという問題がある。特に、経済危機に直面して、その主張はなかなか受け入れられず、予算も削減されている。国境を越えた環境問題に対しても、ASEANの枠組みのもとで積極的に取り組んでいるが、インドネシアのヘイズ（薄煙）などの事例では、ASEANの相互非干渉主義が対策を遅らせている。中央集権的な環境管理のなかでも、最近では、マスコミやNGOの役割は無視できないものとなっており、信頼、協力、責任の分担などが大切になっており、住民、コミュニティ、政府などさまざまなレベルでのパートナーシップの構築が求め

られている。

フィリピン (ベン・マラヤン 報告)

フィリピンでは、行政部門では環境天然資源省 (DENR) が環境問題を所管している。そして、環境法の面では、植民地の時代から、水、大気、森林など個別の問題について法律がつけられてきた。その結果、個別の環境法は数多くあるが、それらが実際に効果的に実施されているかどうかは大いに疑問である。最近では、政府だけに任せるのではなく、社会全体で協力して環境問題を解決しようという動きが見られる。こうしたガバナンスの問題を考えるにあたっては、「マルチ・セクター」、「マルチ・レベル」、「プロブレム・フォーカス」といった視点が必要である。フィリピン政府内では、環境天然資源省が中心となっているが、ほかの政府機関もそれぞれの立場で環境問題に取り組んでおり、これら相互のコンセンサスが必要である (マルチ・セクター)。また、環境問題に係わる意思決定は、制定法といった形で国家や政府のレベルだけで行われているのではなく、国際、地方、コミュニティの各レベルで行われており、ここでもコンセンサスが求められる (マルチ・レベル)。環境問題を、公害と資源、さらには大気、水、土地、森林、水産、遺伝子などの細かく分類して、問題ごとに解決を考えていく方法もある (プロブレム・フォーカス)。市民の支援によってアキノ政権が成立した後、フィリピン社会で NGO、市民団体、コミュニティの影響力が大きくなっているが、まだ政府やマスコミの動きに依存している部分が多い。これまで統治される側にいた人々がガバナンスに参加するというパラダイムシフトが起きており、政府と市民のパートナーシップが大切である。

タイ (ソムルディー・ニクロ 報告)

第2部に掲載の「タイの環境ガバナンス」に関する論文の要約が共著者であるタイ環境研究所のソムルディー・ニクロ博士から報告された

今井圭子コメント

東南アジアの諸国では、1972年の国連人間環境会議が環境政策の進展にとって重要な影響を及ぼした。そして、環境政策や行政の枠組みが徐々に中央政府主導から分権体制に移行している。さらに、環境保護の活動に関して市民の役割も大きくなっている。政府組織と社会組織との関係も、徐々に対立的な関係から協力関係を模索する関係に変わってきている。

南アジアの環境ガバナンス

バングラデシュ（カンダカ・メヌディン 報告）

バングラデシュでは環境問題はあまり重視されてこなかった。イギリス統治下には、すでに環境に関連する法律が存在していたが、これらは実施されてこなかった。環境問題を担当する省庁が設置されたのも1989年になってからのことで、第4次5か年開発計画になって初めて環境問題が盛り込まれている。その後、1992年には国家環境政策が承認され、環境保護法も95年になって制定されている。世界銀行や国連開発計画の支援による環境管理プログラムも始まっている。現在、第5次開発計画のもとで、さまざまな環境問題に関する政策文書が作成されているが、それらが実施に移されているかどうかは疑問である。森林、湿地、漁業、マングローブ、沿岸、海洋、煤煙、衛生、都市をめぐる問題が政策課題として取り上げられており、なかでも、首都ダッカにおける大気汚染の深刻さは世界でも有数である。環境に関連する政府機関もいくつかあるが、これらが開発プロジェクトに関与することはこれまであまりなかった。環境影響評価も、外資企業が行っているだけで、国内では実際に普及していない。NGOの活動には長い歴史があり、森林、衛生、上水などのプログラムに参加している。環境問題は深刻なっており、今後は国内で環境問題について優先順位を高め、諸外国の経験、知識といったものを役立たせることが重要である。

インド（ビジェ・ラックスミ・パンディ 報告）

インドでは1960年代後半から環境管理と国家経済計画との統合が求められてきた。その後、数多くの環境法がつくられてきたが、都市部を中心として、大気や水の汚染は悪化しており、依然として対策が十分でないというのが実状である。最近では、農村部でも環境汚染が酷くなっている。農村部では、燃料のほとんどが薪を焚いていることから、女性や子供を中心に汚染による被害が現れている。土地と森林の再生プロジェクトも始まっているが、再生される森林は年間で200ヘクタールに過ぎず、満足な成果があがっているとは言えない。その原因としては、地元住民のプログラムへの参加が制限されていること、土地からの収穫物や土地の利用についての権利が保障されていないこと、森林の収穫物について取引市場が確立されていないこと、森林再生のコストが高いこと、技術が不足しており、古からの地元の知恵が活かされていないこと、そして、国が圧倒的に強い権限を持っていることなどが挙げられる。最近では、農村部に組合を組織して、森林再生プログラムを実施しているモデルケースがあって、いくつかは成功している。こうした成功例では、組合を通して、民主的に土地が利用されて、そこからの利益も公平に配分されている。草の根の参加を確保し、メリットを共有することが大切となっている。今後は、民間企業がこうしたプログラムに参画するような方策も検討する必要がある。

植村和志コメント

南アジア諸国では、共通して、環境ガバナンスについて良い変化が見られる。1990年代になって、環境法の整備が進み、多くのアクターが環境問題に関与するようになっており、地域や国家のレベルで意識が高まっている。しかし、基本的な環境情報とその公開や環境と経済計画の統合が課題となっている。

北東アジアの環境ガバナンス

韓国（鄭會聲 報告）

韓国では1960年代から環境問題が社会的な関心を集めており、環境運動の始まりも1966年に釜山の火力発電所による大気汚染に対する反対運動までさかのぼる。しかし、経済開発が国家の最優先課題であって、一般の環境意識も低く、1960年代から70年代にかけて環境汚染が全国に蔓延していった。特に、蔚山と温山における公害被害は注目を集めた事件であった。これに対して、1977年に環境保本法の制定によって、韓国の環境ガバナンスの基礎が築かれている。当時は、産業界も環境規制の遵守を徹底しておらず、環境対策が本格的に進んだのはようやく1990年代になってからのことである。この時期、政治的な民主化が実現して、1995年からは地方自治制度も復活している。環境分野では、1990年に環境行政組織が大臣級に格上げされて、新しく環境政策基本法も制定された。中央政府における環境予算も着実に増やされている。最も大きい変化は、マスコミによって環境問題が取り上げられることが急増したことであった。環境運動もますます活発となり、1990年代中頃には環境NGOの数は300を越えている。産業界においても、特に輸出志向の企業では、ISO14000国際規格の認証取得の動きが広がっており、自主的な環境監査やエコラベリングも導入されている。

中国（裴曉菲 報告）

中国では環境保護における市民や企業の役割が高まってきた。市民が環境保護に参加する形は様々であるが、行政組織に苦情を申し立てたり、マスコミに通報したりしている。特に新聞やテレビというマスコミが環境問題を取り上げることも多くなっており、世論の多くがマスコミを通じて環境情報に接している。多くの中国企業では環境管理の責任者が決められており、環境監査や汚染防止技術開発を行う企業もあることから、環境管理、環境監視、技術開発の3つを統合する必要性が指摘されている。このように市民や企業による取り組みがある一方で、依然として中国の環境保護は行政組織を中心として展開されている。これは水平と垂直の2つの関係に分れている。水平関係では中央政府レベルで複数の行政組織がそれぞれの職務の範囲で環境保護にあっている。垂直関係では中央と地方があり、中央政府と省政府が政策決定を行っている。郷鎮レベルで汚染物排出許可、汚染防止の調査、汚染物排出費の徴収などの政策を実施している。下位レベルは上位レベルに

報告する義務を負っているが、このようなトップダウン方式には弱点が現れている。中央が政策決定しているが、政策実施の主体は地方であり、その政策が現場の状況を反映しないものとなることがある。また、政策決定の際に、行政、企業、市民など相互のコミュニケーションが円滑に行われておらず、企業が環境保護に取り組むインセンティブが生まれず、市民の意見が政策に反映されないという問題点がある。

ジェームズ・ニッカム コメント

韓国と中国とでは、共通して、急速に環境ガバナンスが変化している。特に中国の場合、国有企業の移行、郷鎮企業の増加、都市化の進展などに伴って厳しい状況に直面している。こうした環境ガバナンスの変化においては、環境クズネツ曲線の考え方が示すような経済成長や工業化よりも、各国における政治的あるいは行政的な変革の方が影響を及ぼしている。さらにオリンピックのような環境問題以外の一般的事件も関係している。これら北東アジア諸国でも、欧米社会と同じように、環境 NGO の活動や汚染賦課金など経済的手法を重視すべきか、注意深く検討する必要がある。

横断的問題

貿易と環境 (村瀬信也 報告)

貿易と環境という場合、持続可能な発展の実現という観点から両者の両立を図ることが重要であるが、環境レジームと貿易レジームの間にはそれぞれ規範、原則、メカニズムがあり、両者の対立がある。したがって、適切な基準を策定するにあたって、両者のバランスをとることが重要である。法的な側面からは多国間環境協定と世界貿易機関 (WTO)、関税と貿易に関する一般協定 (GATT) の自由貿易の原則に基づくルールをどう両立させるかが問題となる。1997年の気候変動京都議定書、バイオセーフティに関するカルタヘナ議定書はこの両者の関係に問題提起する内容となっている。まず、京都議定書の京都メカニズムは今のところ時期尚早であり、WTOのルールと両立しないと考えられる。またカルタヘナ議定書に関しては WTO とどちらが優先するのかという問題に対し未解決のままである。多国間環境協定と GATT の自由貿易体制を両立させ調和させていくには事後的調整方式、事前調整方式を組み合わせたものが最も適切な手段ではないかと提案されている。また GATT のルールそのものを変更できないのであれば、WTO の合意に付加する形で盛り込むことが重要ではないかと思う。

成長と環境ガバナンス (原嶋洋平 報告)

アジア諸国では経済成長が環境問題を惹起してきた。しかし、経済成長が常に環境の悪化をもたらすものとは限らない点に注意しなければならない。経済活動が拡大すると環境

問題は悪化するが、経済成長がある一定の水準に達すると一転して環境問題は改善にむかうという経験則はアジア諸国においても妥当する。経済成長の水準から見れば、アジアの発展途上国では、日本などよりも速いテンポで環境政策が制度的に発展してきた。しかし、中央政府の強いイニシアティブ、環境情報の公開への制約、市場メカニズムの弱さなどが要因となって、地方政府、市民、企業が環境ガバナンスにおいて果たしてきた役割の範囲は限られてきた。アジア諸国では経済的手法や住民参加に関心が注がれているが、各国の経済水準や社会の多様性に適合した形でこれらを導入していくことが必要である。

環境安全保障とアジア地域 (ミランダ・シュロース報告)

環境安全保障とは何であるかといった議論が近年欧米では盛んである。中心となる議論の内容は環境悪化が国家の安全保障や国際的な安全保障にどのような影響を与えるのか、環境悪化、資源の枯渇が対立、紛争、戦争を招く可能性があるという懸念から生じたものである。その他にも環境安全保障とは何かといったとき、環境が悪化すると人類にどのような意味合いがあるのか、また子孫にどのような影響を与えるのかといった点から、生活の質（QOL）と関連している概念だと考える研究者もいる。しかし、いずれの概念が正しいというわけではなく多くの知見を活かすことが重要である。今アジアが環境安全保障に関心を持つ研究者の注目を集めているのは、アジア地域は近年まで外交関係を国家間で結んでいなかったため、緊張感が高まり、環境問題が紛争につながるのではないかと懸念されていたことからである。環境安全保障の概念を提唱することで、環境に関する問題解決、環境分野での国際協力、その機会を利用して、国家間の関係が逆に改善するかもしれない。そのような環境安全保障を実現していくことによって、生活の質の問題や、紛争解決に道が開かれていくであろう。つまり環境ネットワークを確立し、国家間の交流を増やし、国際協力関係を高めることによって同時に環境悪化等の問題に取り組むことが環境安全保障につながるのではないかと認識している。

丁太庸コメント

GATT や WTO と気候変動枠組条約とは相反するようであるが、WTO 加盟国のなかでも気候変動枠組条約に参加する国が増えているなど、環境保護を受け入れるようになっており、両者の対立を克服できるようなアプローチを模索していくべきであろう。また、環境安全保障という新しい概念は、環境劣化、資源枯渇、人口増大という点で、国家間や国内での緊張が高く、多様性に富むアジア地域にとっても意味あるものとなるであろう。さらに、経済成長との関係では、アジア諸国の環境政策は日本など先進国と違った様相が指摘されているが、このことは経済と環境のパラダイムシフトが起こりつつあることを示したものと見ることもできる。

10. 総合討論

第一部から第四部における報告と討議を受けて、最後の総合討論では、フロアの参加者からの質問も寄せられて、アジアの環境問題が直面する多様な問題点やその解決に向けた方策について熱心な討議が交わされた。このなかで強く指摘された論点は、次のように整理要約することができる。

第1に、政府に依存してきた現在の環境ガバナンスは時代錯誤となりつつあり、政府以外の部門の参加を促進して、社会全体で環境問題に対処する必要がある。特に、金融業界が社会の投資部門において果たす役割は大きく、環境資本の形成にとって金融業界への期待は高い。

第2に、環境ガバナンスの改善のためには、各国の政府が優れた環境ガバナンスの実践に対して「見返り」を与えることも検討すべきである。どのような「見返り」を与える仕組みを持つべきかについては、今後の研究課題となる。

第3に、現在の環境問題は一国にとどまるものではなく、国家レベルだけでなく、国境を越えた「地域的な」環境ガバナンスの協力についても議論が求められている。特に、北東アジアでは環境協力が不在であり、政府間での協力関係の構築が難しいのであれば、NGOの活動などを通して非公式な形態の環境協力を優先すべきである。

第4に、アジア諸国における環境ガバナンスの共通のトレンドとして、「地方分権化」が進んでいる。しかし、生態系保護などのように地方に委ねるだけでは解決が難しい問題があり、地方、国、地域のどのレベルで対策が必要かを慎重に見極める必要がある。

第5に、アジア各国では自国の経済発展を目指してきており、その結果として深刻な環境汚染に直面してきた。今後も、欧米諸国や日本といった先進国が経験してきた同様な環境と経済のパターンがアジアに当てはまるとは限らず、これまでの単線的な経済発展論を見直す努力も求められている。最近のアジア経済危機は、これまでの経済発展のあり方を再考するチャンスをもたらしてくれる。

第6に、環境法を強化し、政治による環境問題の取り組みを推進するためには、やはり一般市民の環境意識が高まることが大切である。市民における環境意識の向上は、選挙制度や司法制度などを通して、環境問題に対処するための政治的な意思に反映される。

第7に、すでに多くが指摘するところであるが、やはりアジアの発展途上国においては環境問題に対処するための財源を確保することが必要である。環境にやさしいクリーン技術の開発などの資金を調達するためには、民間部門とのよりいっそう緊密な連携が不可欠であり、先進国からの資金面そして技術面での支援も引き続き重要な役割を果たす。

作成協力：片野 洋平

Part IV: Improving Environmental Governance in Asia

A Synthesis of Nine Country Studies

**Kazu Kato
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1. Introduction

Environmental Governance is about how societies deal with environmental problems. It is concerned with the interactions among formal and informal institutions and the actors within society that influence how environmental problems are identified and framed. It is also related to how environmental issues reach the political agenda, how policies are formulated, and how programmes are implemented.

The processes and structures of environmental governance in Asia are rapidly changing. At the domestic level, new environmental laws, programmes and institutions are being established. At the sub-regional and regional levels also, environmental networks and cooperative schemes are beginning to be formed or the existing ones strengthened. These rapidly evolving governance systems are influencing greatly how environmental problems are addressed in the region. It is thus critically important to examine the nature of environmental governance in the region.

The main purpose of the Environmental Governance (EG) project of IGES is to address and analyse major issues of environmental governance and to propose concrete policy recommendations relevant to the Asian region. According to the project plan adopted for a period of three years, several national and sub-regional environmental governance systems were to be selected and examined in a cross-sectoral and comparative manner. Areas to be examined with regard to national environmental governance systems included: how decisions are made; who makes them; how decisions are implemented; what kind of information is available and from what source; how processes are reviewed; how these are influenced by internal and external forces; how systems are evaluated; and if they can be adapted to respond to newly emerging problems and challenges.

Countries initially selected for detailed study of national environmental governance systems were China, India, Thailand, and Japan. Based on the analytic framework developed by Dr. Miranda Schreurs of the University of Maryland, U.S.A., country studies were conducted in collaboration with competent research institutes and researchers from the four countries, utilizing a common methodology and format for analysis and comparison. The outcome of the four country studies were discussed and disseminated at an international workshop organized by IGES in March 1999. Later in the same year, country reports were prepared for five more countries of Asia, namely Bangladesh, Indonesia, Malaysia, the Philippines, and the Republic of Korea (South Korea), similarly in cooperation with research institutes in those countries. The results of these additional

country studies, along with the presentations made on some cross-sectoral issues such as “trade and environment” and “environmental security” were discussed at an international symposium organized jointly by IGES and Sophia University in February 2000, in which more than 300 people participated, representing a wide cross-section of public as well as private sector organizations and individuals interested in the subject matter.

This paper attempts to summarize the main outcomes of these country studies, and to present our preliminary findings and conclusions, including some policy recommendations for improving environmental governance in Asian countries.

2. Recent Trends

Many countries of Asia began to put environmental problems on their policy agenda in the late 1960s and early 70s. During the period, however, most of the environmental problems remained unsolved because environmental laws, policies and institutions, often modeled after or imported straight from the industrialized countries, did not work satisfactorily for these countries with different natural conditions, historical and socio-cultural backgrounds, political and economic systems, and at different stages of economic development. Therefore, later on, it became necessary for most of the Asian governments to review existing environmental policies. Consequently, environmental laws and policies were revised, reformed and strengthened again in the 1990s, and many positive trends have since emerged.

Beginning in the late 1980s to early 90s, the framework or umbrella laws for environmental policy enacted in the 1970s were revised or replaced by new laws in China, Indonesia, Malaysia, South Korea, and Japan. Their main purpose was to strengthen the implementation and enforcement of environmental laws and policies, to adopt a wide range of new policy measures and instruments, and to respond to the newly emerging global environmental issues such as depletion of the ozone layer, climate change, and transboundary movements of hazardous wastes.

On the other hand, the Asian economic crisis since 1997 threw cold water on growing environmental awareness in Asian countries. For example, the Thai government has inevitably cut its budget for environmental infrastructure in the wake of its currency crisis. Public attention in Indonesia focused on how to get out of the severe economic and political crisis; as a result, environmental issues were not addressed vigorously. There are indications, however, that some other economies of Asia were relatively unaffected by, or are already coming out of, the crisis situation. Even for those countries still in critical conditions, it remains to be seen how

long-lasting an impact they will have on the generally continuing trend toward heightened awareness among policy makers as well as the public about the importance of environmental issues, and consequently about the need for improved environmental governance and to promote international cooperation at all levels.

3. Major Actors

(1) Central Governments

Environmental policies were initiated by the central government in most of the Asian countries studied, except for Japan and India. So far, it can be said that central governments have played, and continue to play, a key role in environmental governance in Asian countries. Within the structure of central governments, however, environmental policy still tends to be separate or isolated from the mainstream policies of economic planning and industrial/agricultural development. In addition to the ministry of environment, many governmental ministries and agencies are responsible for environmental issues under their respective jurisdiction. As a consequence, the overlapping or duplication of policies and efforts can often be found in a number of policy domains related to environmental governance.

(2) Local Governments

Functions of local governments are defined within the constitutional system in each country. In the Asian region, local governments in Japan and India have played comparatively greater roles in dealing with environmental problems. After democratization in the Philippines, South Korea and Thailand, the local governments began to pay more attention to environmental problems. It is worth noting here that the governors of major provinces and capital cities are elected by public vote in all of these countries.

(3) Environmental NGOs

One of the newly emerging environmental actors in Asian countries is environmental NGOs. The definition of environmental NGOs and the relationship between the government and environmental NGOs are different in each country. Once environmental NGOs were not formally recognized, but rather regarded as strong opponents of government policies. Environmental NGOs themselves chiefly acted as a watchdog for government policies and institutions.

In the 1990s, the national governments of Korea, Thailand and Indonesia gave an official status to environmental NGOs in their framework legislation. Under the Aquino administration, the constitution of the Philippines was amended, amongst others to allow representatives of environmental NGOs to be involved in the various processes of policy dialogue and decision making by the government. In contrast, due to political sensitivities and the low level of public awareness about environmental problems, few environmental NGOs existed in China, and organized civil protest movements against environmental problems have not yet emerged. The mass media in China, however, have begun to play an increasingly positive role in exposing cases of violation of environmental laws and regulations, providing environmental data and information to the public, and reporting on pollution episodes and accidents, and thus exerting significant influences on business behavior and governmental decision making.

(4) Industries

Most industrial enterprises in Asian countries have maintained passive attitudes toward environmental management. Large corporations that are well connected with various governmental sectors have planned and carried out many development projects, but rarely have returned their profits to local communities. Industries, particularly export-oriented industries, in South Korea and Thailand have been aware of the importance of environmental protection largely due to international influence, and initiated voluntary activities for environmental management such as obtaining the certification of ISO 14000 series of standards for environmental management. Large enterprises in China are required to establish environmental units or to designate executive officers responsible for environmental protection within each corporate structure.

The most serious problem in industrial sectors is the non-compliance with environmental regulations by small and medium-sized enterprises (SMEs). Town and Village Enterprises (TVEs) in China are exempted from environmental monitoring requirements and pollution charges. Although factories and other industrial facilities are required by law to treat their wastes on site in Thailand, the wastes are, in most cases, released directly into water bodies without any treatment. A large number of small-scale industrial facilities, including unorganized and household units, are not adequately addressed in India's current pollution abatement policy.

4. Processes

(1) Agenda Setting

Agenda setting for environmental policies in Asian countries has depended largely on the central governments' initiatives. At first, the most influential factor in environmental agenda setting was the pressure to raise awareness from the international community rather than domestic environmental movements or pollution damages. In fact, the 1972 UN Conference on the Human Environment (UNCHE) became a watershed for the governments of China, India and the ASEAN member countries to develop their environmental policies. Afterwards, when each country went through a period of rapid economic growth, pollution incidents and degradation of the natural environment led to new policy responses.

The civil society actors such as environmental NGOs and business corporations in Asian countries have partly gained opportunities to participate in the policy-making process in the field of environment. In the Philippines, South Korea and Thailand, national councils or forums for building consensus on environmental policies have been organized, which are comprised of representatives from both public and private sectors.

(2) Policy Instruments

Many Asian governments have introduced policy instruments such as environmental impact assessment (EIA) procedures and market-based instruments (MBIs), which had been adopted earlier in Western countries and worked effectively there. But rarely have Asian countries made innovative modifications or adjustments to the policy instruments introduced from other countries. These policy instruments have, in many cases, been transferred to Asian countries through international development assistance programmes and projects with environmental components. However, it needs to be carefully examined whether the more advanced policy responses transferred from Western countries work in the same way under existing conditions in Asian countries. In Bangladesh, for example, EIA procedures are now being practiced in large-scale projects carried out by foreign companies, but are yet to be applied widely to domestic projects.

(3) Policy Implementation

Even though the tempo of institutional development of environmental policies in Asian countries

has been faster than that of their economic growth when compared to the past records of Western nations, the ineffectiveness of environmental policies and institutions has become a serious problem. Strong initiatives of the central governments are often not accompanied by adequate reflections on the ground-level realities of policy implementation and failed in addressing the root causes of priority environmental problems of a specific locality. In other words, the policy-making process in these cases does not provide for adequate channels of communication between governmental and private sectors. Therefore, business enterprises had little incentives to respond to such environmental policies, and the public is not motivated to play an active part in the process of policy implementation.

Recently, some of the Asian governments began to plan and implement environmental programmes jointly with various social actors; viz. Water Pollution Control in the Huaihe River Basin in China, Samut Prakarn Water Waste Management Project in Thailand, and the PROKASIH (clean river) programme in Indonesia. These new types of environmental programmes are expected to be implemented successfully.

5. Policy Recommendations

Taking into consideration the summary of findings and conclusions of the country studies described above, some preliminary ideas for improving the environmental governance systems in Asian countries are suggested as follows:

- To establish a network of regional and sub-regional institutions to monitor and review the status of environmental policy development and implementation in Asian countries and to widely disseminate the information and data obtained through various channels, including mass media and the Internet.
- To undertake a comprehensive review of existing laws, policies and institutions related to environmental management in both public and private sectors, with a view to identifying and removing any gaps or inconsistencies among them, further integrating environmental considerations into economic and other sectoral development policies and processes, and thus consolidating the ground for an overall policy framework for building a sustainable society.
- To promote decentralization and devolution of powers to local governments in environmental policy-making and implementation, in particular by delegating more authority as well as resources and responsibilities for environmental protection to relatively larger units of local

government.

- To expand the membership and participation of environmental NGOs and other civil society organizations (CSOs) in national and local legislative or other policy-making bodies, and to involve representatives of affected local communities in the process of planning and implementation of regional/local development programmes and projects.
- To explore the possibilities for applying the concept of strategic environmental assessment (SEA) and management (SEM) in the field, while ensuring that the existing procedures for EIA are actually followed and opportunities for public participation in EIA processes are enhanced and utilized.
- To give special considerations to bringing small firms and factories into compliance with environmental regulations, without imposing severe costs to them.

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第4部： アジアの環境ガバナンスの改善に向けて

アジア9カ国の研究の総括

加藤 久和

原嶋 洋平

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1. はじめに

環境ガバナンスとは、社会が環境問題にどのように対処するかに関わることである。それは、社会の中の公式、非公式な組織機構と個々の行為者（アクター）の間の相互作用に関連している。これらの相互作用は、環境問題がどのように認識され、どのように取り組まれるのかに影響を及ぼしている。また、環境問題がどのように政治課題として取り上げられ、政策が形成され、プログラムが実施されるかにも関連している。

アジアの環境ガバナンスのプロセスと構造は、急速に変化している。国内レベルでは、新しい環境法、プログラム、組織機構が確立されつつある。地域および準（サブ）地域レベルでも、環境ネットワークや協カスキームが形成され、既存のものも強化されつつある。このように急速なガバナンス・システムの進展は、アジア地域における環境問題への取組みに大きな影響を及ぼすものである。そこで、アジア地域における環境ガバナンスの特質を検討することが極めて重要である。

I G E S環境ガバナンス・プロジェクトの主要な目的は、アジア地域の環境ガバナンスに関連する主要な問題を検討分析して、アジア地域について具体的な政策を提言することである。3年間の研究プロジェクトの計画では、いくつかの国や準地域の環境ガバナンス・システムを選び出し、横断的な方法で比較検討を行うこととした。各国の環境ガバナンス・システムについての検討項目は、次のとおりである。

どのように意思決定が行われるのか、誰が決定するのか、決定がどのように実施されるのか、決定に当たってどのような情報がどこから提供されるのか、プロセスはどのように再検討されるのか、内部的及び外部的な要因がこれらにどのように影響しているのか、システムはどのように進化してきたのか、そして、これらが新たに出現している問題や課題に対応するために適したものか。

当初、国別の環境ガバナンス・システムに関する詳細な研究対象として、中国、インド、タイ、日本の4カ国が選ばれた。米国メリーランド大学のミランダ・シュロース博士によって作成された分析枠組みに基づき、これら4カ国の有能な研究機関や研究者との協力の下に、分析と比較のための共通の方法と様式を用いてカントリー・スタディーを実施した。1999年3月にI G E Sが主催した国際ワークショップでは、4カ国のカントリー・スタディーの成果が発表され、議論が交わされた。

同じ年の後半には、他のアジア諸国、すなわち、バングラデシュ、インドネシア、マレーシア、フィリピン、韓国の5カ国について、前の4カ国と同様に当該国の研究機

関や研究者の協力を得て、追加的なカントリー・レポートが作成された。これらの追加的なカントリー・スタディーの結果は、「貿易と環境」および「環境安全保障」といった分野横断的な課題に関する報告とともに、2000年3月にIGESと上智大学が共催して開かれた国際シンポジウムで議論された。同シンポジウムには、この問題に対する公共団体、民間企業をはじめ、広範な層の市民個人の関心を反映して、300名以上の多数が参加した。

本稿では、カントリー・スタディーによる主要な成果を要約するとともに、アジア諸国の環境ガバナンスの改善に向けた政策提言を含め、現時点で明らかとなっている解明点と結論を示すこととしたい。

2. 最近のトレンド

アジア諸国では、1960年代後半から1970年代初頭にかけて、環境問題が政策課題として取り上げられるようになった。しかし、環境に関する法律、政策、組織機構は先進工業国のものをモデルとしたり、そのまま持ち込んできたものが多く、自然条件、歴史的・社会文化的な背景、政治経済システム、そして経済発展の水準が異なっているアジア諸国では満足に機能しなかったため、この間、環境問題の多くは解決されなかった。そのため、その後大半のアジア諸国においては、既存の環境政策を見直さざるを得なかった。その結果、1990年代になって、環境法と政策は修正、改良、強化され、それ以来数多くの望ましいトレンドが生まれてきた。

1980年代後半から1990年代初頭には、中国、インドネシア、マレーシア、韓国、日本において、1970年代に制定された環境政策に関する基本法または枠組法が改正されたり、新しい法律に代えられた。これは、環境法と政策の実施や施行の強化、新しい政策措置や手法の導入、そして、オゾン層の破壊、気候変動、有害廃棄物の越境移動などの新たな地球環境問題への対応を主な目的としたものであった。

一方、1997年以来のアジア経済危機は、アジア諸国における環境意識の向上に冷や水を浴びせるものであった。例えば、タイ政府は、通貨危機に直面して、環境インフラストラクチャー整備に対する予算を削減せざるを得なかった。インドネシア国民の関心は、深刻な経済と政治の危機からどのように脱け出すかに向けられ、環境問題への取り組みがおろそかになった。しかし、他のアジア諸国の一部には、経済危機による影響も比較的少なく、危機的な状況を脱しつつあるという徴候が見られる。依然として危機的な状況にある国々においても、環境問題の重要性、ひいては環境ガバナンスの改善とあらゆるレベルでの国際協力の推進の必要性について、政策決定者や国民の意識は高まっ

ていくものと考えられ、これに対し経済危機がどのような長期的影響を及ぼすのかは現時点では判断できない。

3. 主要なアクター

(1) 中央政府

研究対象としたアジアの国々においては、日本とインドを除いて、大概中央政府のイニシアティブによって環境政策が始められている。これまで、アジア諸国では中央政府が環境ガバナンスにおいて重要な役割を果たしてきた。しかし、中央政府の全体構造のなかで、環境政策は、経済計画、工業・農業開発といった主流の政策分野から分離または孤立したものとなりがちである。環境省だけでなく、数多くの政府の省庁がそれぞれの所管事項の範囲内で環境問題に取り組んでいる。その結果、環境ガバナンスに関連するいくつかの政策分野において、施策や努力の重複がしばしば見受けられる。

(2) 地方政府

地方政府の機能は、各国の憲法システムのもとで定められている。アジア地域のなかで、日本とインドでは、地方政府が環境問題に対処するために比較的大きな役割を果たしてきた。フィリピン、韓国、タイでは、民主化の後、地方政府が環境問題に関心を払うようになった。これらの国々では、主要な地方行政区や首都の首長が住民投票によって選ばれていることが特筆に価する。

(3) 環境NGO

アジア諸国において新しく登場してきた環境分野のアクターのひとつが、環境NGOである。環境NGOの定義、そして政府と環境NGOとの関係は、各国によって違いがある。かつては、環境NGOは公式に認められる存在ではなく、むしろ政府の政策に強く敵対する存在と見られていた。環境NGO自身の側でも、その主な活動は政府の政策や組織機構を監視することにあると考えていた。1990年代になって、韓国、タイ、インドネシアの政府は、それぞれの枠組法の下で、環境NGOの存在を公式に認めるようになった。アキノ政権のもとでフィリピン憲法が改正され、政策対話や政府の政策決定に環境NGOの代表者が参加する道が開かれるようになった。これとは対照的に中国では、政治的に機微な問題であること、そして環境問題への意識が低いことから、環境NGOの数は少なく、市民による環境問題への組織的な反対運動は起きていない。しかし、中国のマスメディアは、環境法・規則の違反事件の告発、国民への環境データや情

報の提供、そして、公害事故や事件の報道において重要な役割を果たし始めており、企業活動や政府の意思決定にかなりの影響を及ぼすようになっている。

(4) 産業界

アジア諸国における主要な企業の多くは、環境管理に積極的な姿勢を示してこなかった。政府の各部門と密接な関係を持つ大企業が多く、開発プロジェクトを計画実施してきており、地域社会に利益が還元されることは少なかった。しかし、韓国やタイの産業界、特に輸出志向の企業は、国際的な影響を受けやすく、環境保護の重要性を認識するようになっており、環境管理のためのISO14000シリーズの認証取得など、自主的な環境管理にも着手している。中国の大企業では、環境ユニットを組織し、各企業のなかで環境保護の責任者を置くよう義務づけられている。

産業界について最も深刻な問題は、中小企業による環境規制の不遵守である。中国の郷鎮企業は、環境モニタリングの義務や汚染物質排出課徴金（排污費）を免除されている。タイでは、工場その他の工業施設は廃棄物を処理する法的義務を課せられているが、廃棄物のほとんどは未処理のまま河川に排出されている。インドでも、組織化されていない家内工業を含めて、数多くの小規模工場は、現行の公害防止政策の対象となっていない。

4. プロセス

(1) 課題の設定

アジア諸国の環境政策における課題設定は、中央政府のイニシアティブに大きく依存してきた。最初のうち、環境政策上の課題設定に最も強い影響を及ぼしてきたのは、国内での環境運動や公害被害よりも、国際社会から認識の向上を求められる圧力であった。事実、1972年の国連人間環境会議は、中国、インド、ASEAN加盟国の政府における環境政策の発展にとって転換点となった。その後は、各国が急速な経済成長を経験して、公害事件や自然資源の破壊が新しい政策的な対応を生み出してきた。

アジア諸国の環境NGOや民間企業など市民社会のアクターは、環境政策の決定過程に参加する機会を少しずつ得られるようになった。フィリピン、韓国、タイでは、環境政策についてコンセンサスを形成するための政府の委員会やフォーラムが組織されており、これらは公共と民間部門の双方の代表者によって構成されている。

(2) 政策手法

アジア諸国の政府の多くは、環境影響評価（E I A）手続や経済的手法（M B I）など、欧米諸国で考案され効果的に実施されている政策手法を取り入れてきた。しかし、アジア諸国で諸外国を模倣して取り入れた政策手法を大幅に変更したり、工夫が加えられることはほとんどなかった。これらの政策手法は、環境に関する項目を含んだ国際開発援助プログラムやプロジェクトを介して、アジア諸国に移転されることが多い。しかし、欧米諸国から持ち込まれた先進的な政策手法が、現状においてアジア諸国のなかで同じように機能するとは限らない点を慎重に検討する必要がある。例えば、バングラデシュでは、環境影響評価（E I A）手続は外国企業による大規模プロジェクトについて実施されているだけであり、国内プロジェクトには広く適用されていない。

(3) 政策の実施

欧米諸国の経験と比べると、アジア諸国では経済成長よりも速いテンポで環境政策が進展しているが、環境政策や組織機構が効果的に機能していない点が深刻な問題となっている。中央政府のイニシアティブが強いため、政策実施の現場における実態を適切に反映していないことがあり、地域性が強く優先度の高い環境問題の根本的原因に十分に対応できていないことがある。言い換えれば、このような政策決定のプロセスでは、政府部門と民間部門のコミュニケーションに適切なチャンネルが提供されていないのである。そのため、企業に対して環境政策に応えようとするインセンティブが与えられず、国民のなかにも政策実施のプロセスで積極的な役割を果たそうとする動機づけが生まれない。

最近、一部のアジア諸国政府においては、社会の多様なアクターとの共同による環境プログラムの企画立案と実施が始まっている。例えば、中国の淮河流域水質汚染管理、タイのサムット・プラカーン廃水管理プロジェクト、そして、インドネシアのPROKASIH（河川浄化）プログラムなどがある。これら新しいタイプの環境プログラムの成功が期待されている。

5. 政策提言

上述のカントリー・スタディーによって明らかとなった解明点や結論の要約を踏まえて、次のとおり、アジア諸国における環境ガバナンス・システムの改善に向けて若干のアイデアを提案したい。

- アジア諸国における環境政策の発展と実施の状況を監視評価し、マスメディアやインターネットなどの多様なチャンネルを通して情報やデータを広く提供する、地域的・準地域的な組織機構のネットワークを確立すること。
- 公共・民間部門における環境管理に関連した法律、政策、組織の間のギャップや不整合を明らかにし、これらを解消すること、そして、経済その他の開発政策とその決定過程に環境配慮を織り込んで、持続可能な社会を構築するため、政策枠組みの基盤を強化するという視点に立って、既存の法律、政策、組織を包括的に見直すこと。
- 大きな地方政府に対して環境保護に関する権限や資源と責任を移すことを中心として、環境政策の決定と実施について地方政府への分権と権限委譲を推進すること。
- 中央と地方の立法機関、その他の政策決定機関における環境NGOや市民社会組織（CSO）の参加機会を拡大するとともに、影響を受ける地元地域社会の代表者がその地域や地方の開発プログラムやプロジェクトの企画や実施のプロセスに関与できるようにすること。
- 既存の環境影響評価手続が実際に行われ、この手続への公衆参加の機会を拡充し活用されるようにするとともに、戦略的環境影響評価（SEA）や戦略的環境管理（SEM）の適用可能性を検討すること。
- 過大な費用を課すことなく、小規模な企業や工場が環境規制を遵守できるように特別な配慮をすること。

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