Part Ⅲ: Additional Studies on National Environmental Governance and Cross-Sectoral Issues in Asia

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Environmental Governance in Indonesia

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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

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[1] GBHN (Guidelines of State Policy) 1973.

[2] Koesnadi Hardjasoemantri, 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

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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 Kebijakasanaan 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/mayoralty), 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/mayoralty-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/mayoralty 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.

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[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 1999[14] 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/mayoralty 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 mayoralty/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 Hadiwiardjo, 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

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[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 Forectry 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

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[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 Hardjasoemantri, 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

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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's[1] 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

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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.

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[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 sensibilities 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 km^2 and is divided into two landmasses, separated by the South China Sea. Peninsular Malaysia, in the west, has an area of about 132,000 km^2 and is composed of eleven states and the Federal Territory of Kuala Lumpur. East Malaysia, occupying about 198,000 km^2,

consists of Sabah, Sarawak and the Federal Territory of Labuan. Malaysia's territorial waters cover an area of 549,500 km^2. 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. Their 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 has 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, in 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 Minster, 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 to 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 l964. 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, poultries, 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 contacts. 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
National Water Resource Board (NWRB)	Water conservation and allocation
Department of Public Works and Highways (DPWH)	Flood control; landslide mitigation
Department of Science and Technology (DOST)	Earthquake, typhoon, climate 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 groups[3] 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 terrestial. 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 Envt	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 Netwrok	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 Netwrok	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 Category[5]

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).

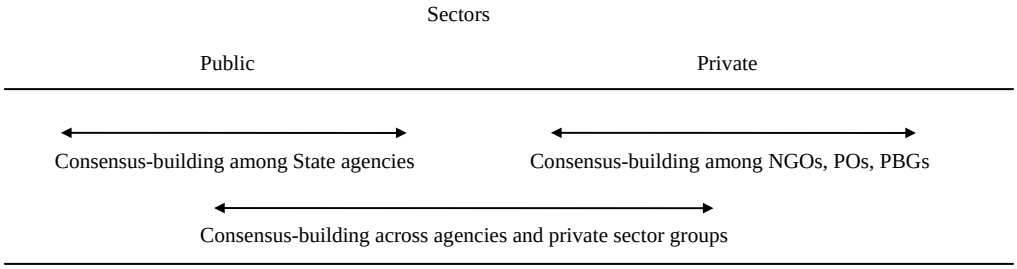

Figure 1. Schematic Illustration of Inter- and Cross-sectoral Consensus Making on Environmental Governance in the Philippines

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.

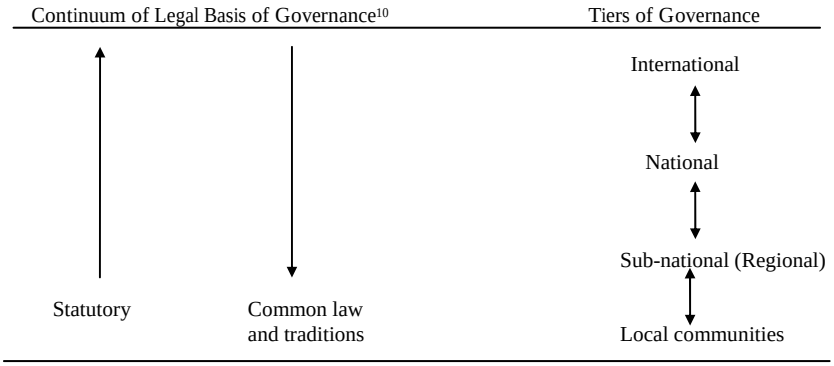

Figure 2. Tiers of Environmental Governance in the Philippines

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.

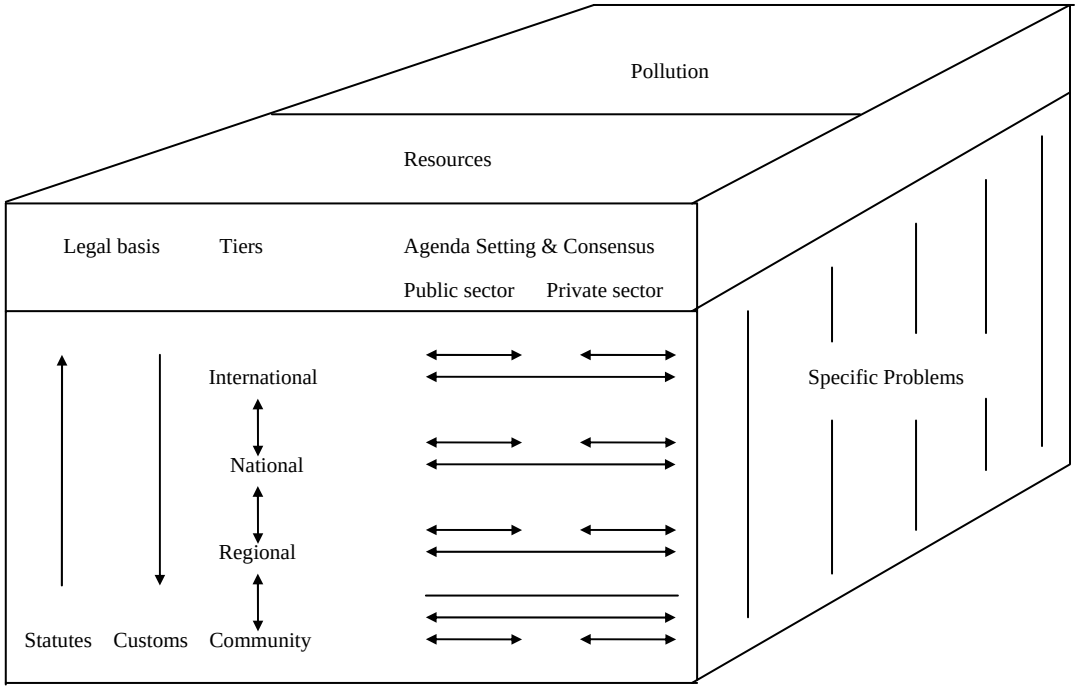

Figure 3. Structure of Environmental Governance in the Philippines

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.

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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
	Terrestrial	Solid or toxic/hazardous wastes, domestic or industrial, organic or inorganic
	Genetic	GMOs in foods, LMOs in the free environment
Resources	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).

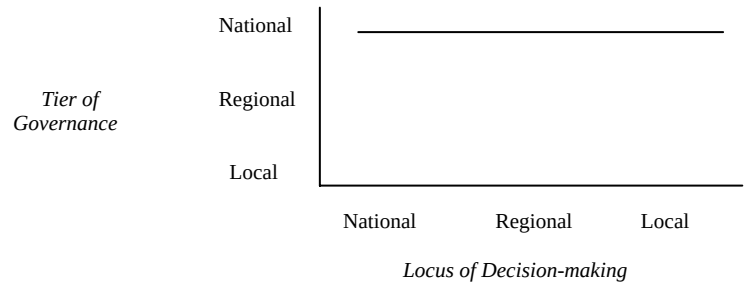


Figure 4. The Concept of Decentralization

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).

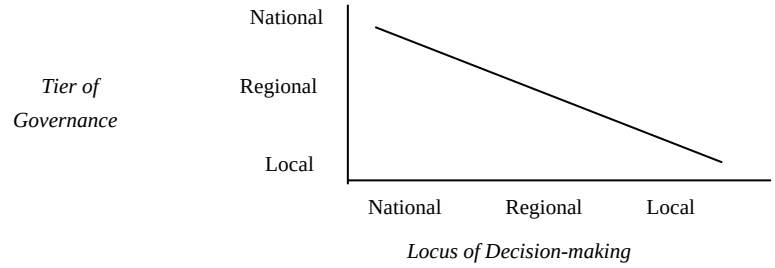


Figure 5. The Concept of Devolution

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).

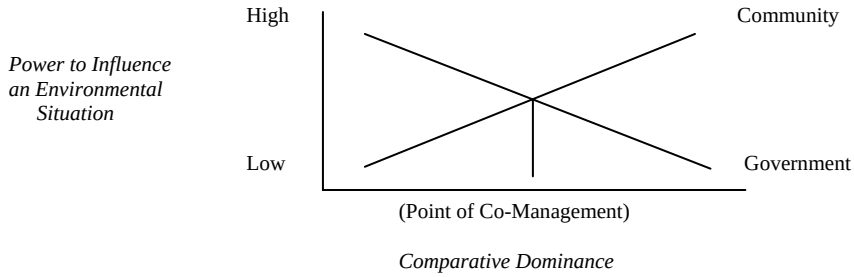


Figure 6. The Concept of Co-management

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 lloilo-Guimaras Strait in Western Visayas, Cebu-Mactan Channel, lligan 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 poultries, piggeries 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 Meycauayan 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	231	11
	Samar		
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 Pulupandan 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 anthropologenic 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, NOx and SOx; (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.

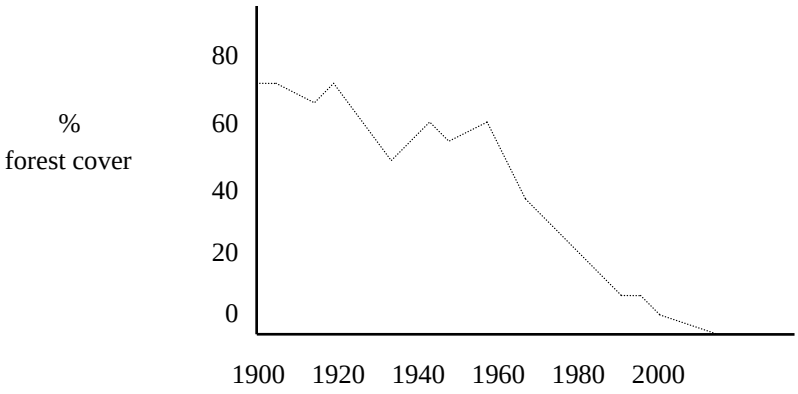
Intensity of Deforestation

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.

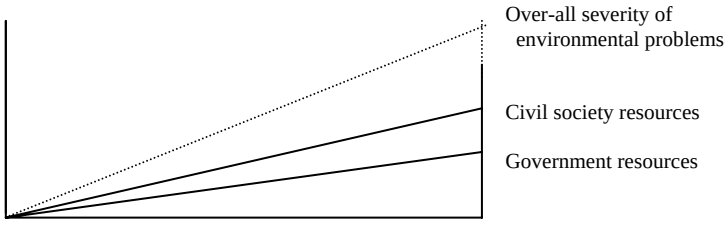
Actors' Interests in Implementation

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.

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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 constitutencies, 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 Trustee 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 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

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 colossus 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 materiel 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 Narayangonj, 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), sulpher dioxide (SO_2), 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, SO_2 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, SO_2 and NO_2 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 sulpher 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 taxies. The government has recently decided to prohibit baby taxies 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 mehogony. 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 celamities. 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 lead 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 resolves these conflicts are cursory, creating further alienation.

There are no institutional arrangements to assure the market and prices for produced 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 ascentics), 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 ehough, 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, SO_2 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 (SO_2) 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	4,607	4,811	5,331	6,306	7,239	8,504
(% of GDP)	(1.64)	(1.62)	(1.65)	(1.79)	(1.86)	(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 Environmental 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 Charge[2]).

[1] Ten air pollutants, including SOx 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.

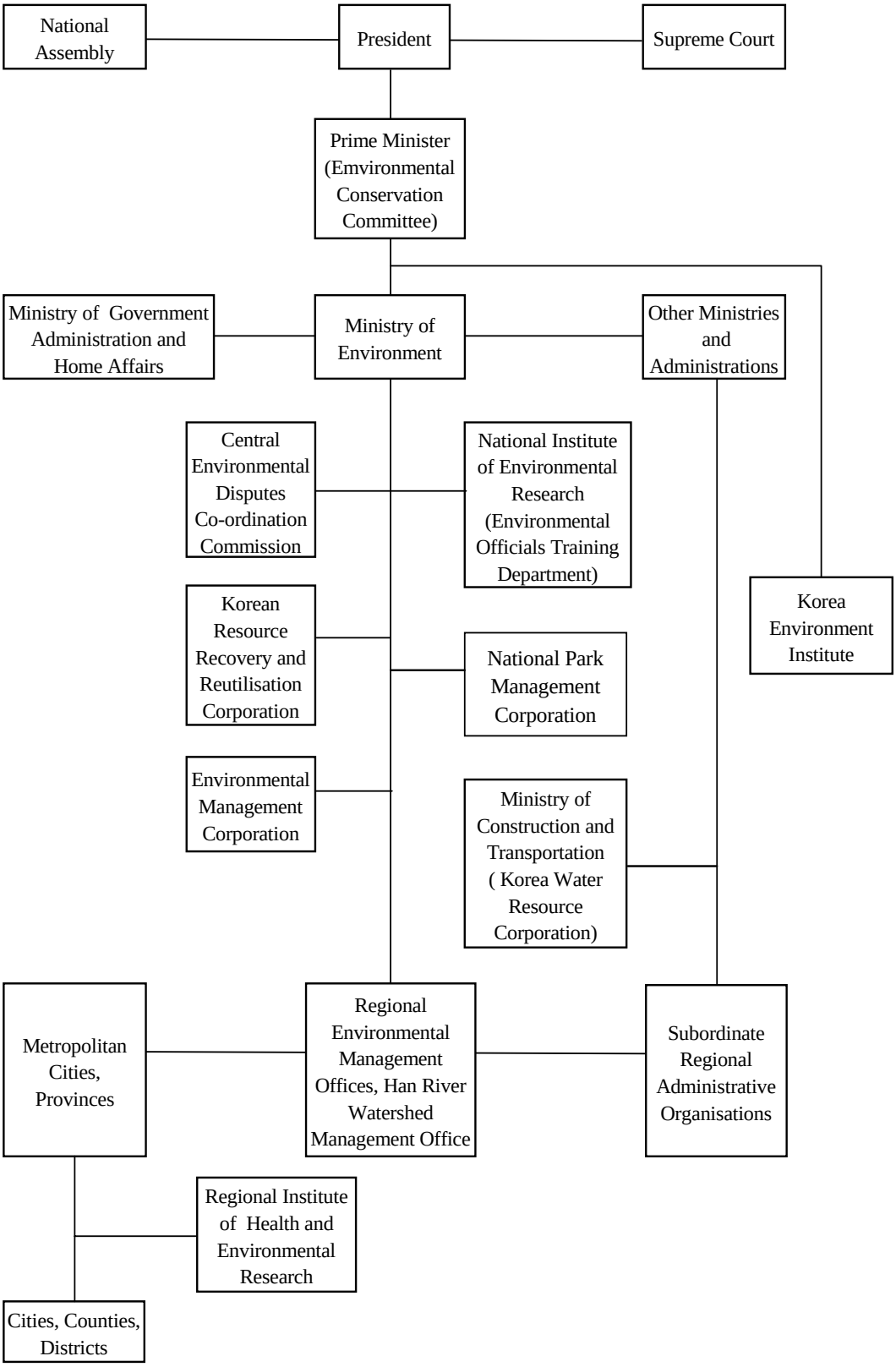
Administrative Responsibility for the Protection of Nature

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 km^2 in 1995 to 8,954 km^2 by 2020, which means a 84% of increase. On the contrary, forests and agricultural lands are expected to be reduced from 87,477 km^2 in 1995 to 83.607 km^2 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 km^2 or 7.5% of the total land area. This consists of 4,814.956 km^2 of land (4.8% of the total land area) and 2,713.874km^2 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.

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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 CO_2 emissions growth rates have stabilized at 2-3%, Korea recorded a high CO_2 emission growth rate of 8-9% prior to the economic crisis of 1998. Moreover, the growth rate of CO_2 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 CO_2 reduction requirements without severe costs

[Table 5-4] Prospect of CO_2 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 Shannxi 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).

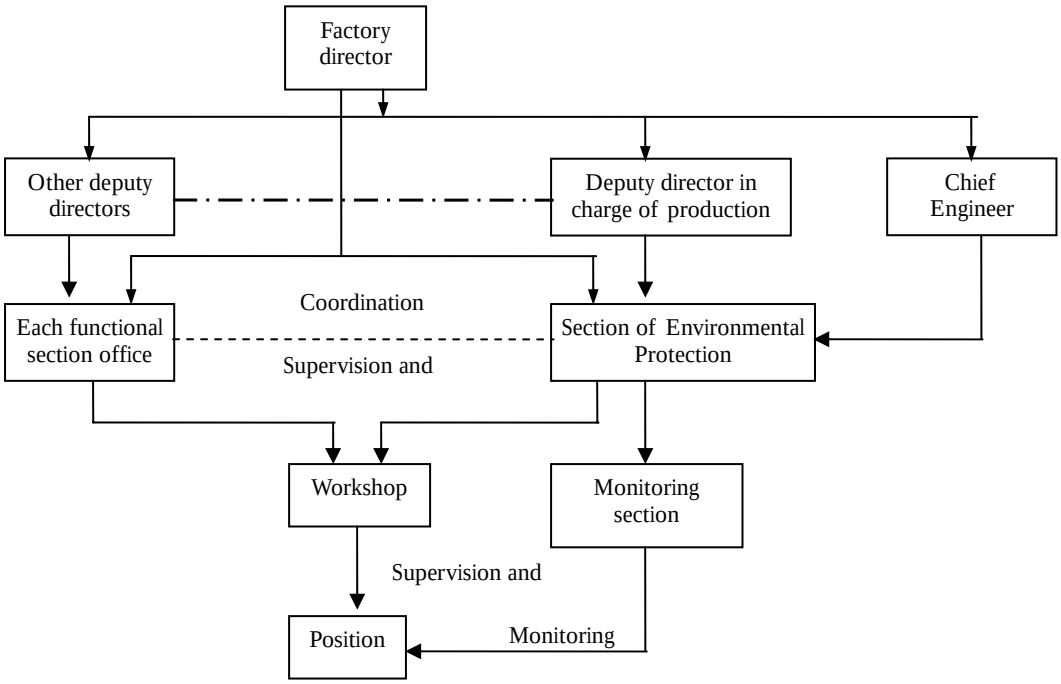

Figure 1. Diagram for the Environmental Management System in China's Enterprise

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 Eenterprise

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.

3. Environmental Management System

Since environmental protection in China greatly relies on the government, environmental administrative authorities hold important positions in environmental governance. In 1980s, a comprehensive environmental management mechanism with multi-levels and multi-departments was set up (see Figure 2).

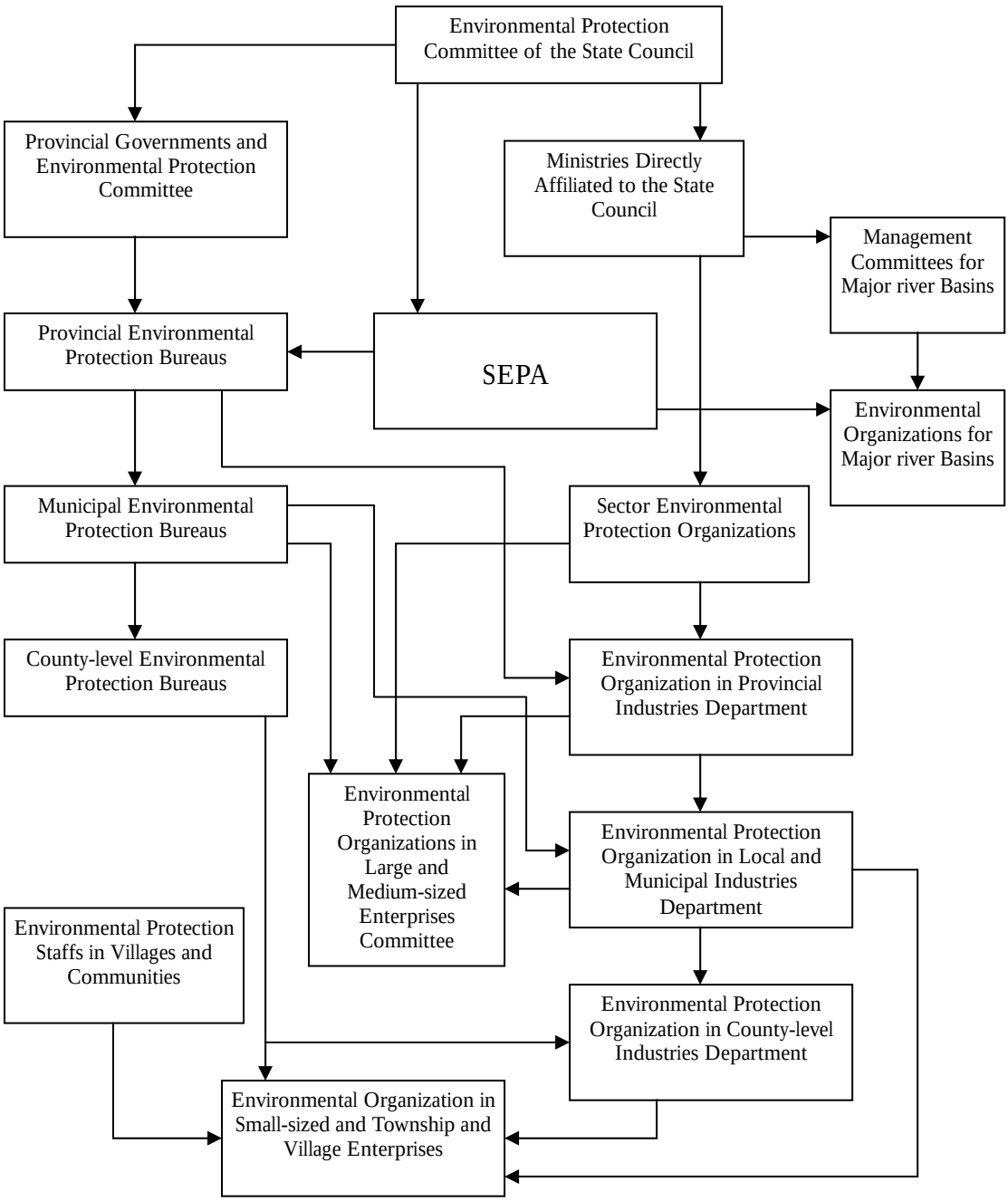

Figure 2. Environmental Management System in China

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.

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[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 instruments[3], 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.

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subsidies (see Fiorino, 995: 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 trade[1].

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 question[2]. Another type is intended to impose trade restrictions as disincentives on non-parties to a particular treaty regime[3]. The third is a mechanism to apply trade sanctions on non-compliant parties within a particular treaty system[4]. Finally, the fourth category is to provide trade incentives in order to induce compliance with the treaty instrument in question[5].

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 Protocol[6].

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

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[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- discrimination[7].

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

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[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 clauses[9]. 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 costs[10]. 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.

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[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]

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[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 year[14]. 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.

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[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 implemented[1].

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 India[2]. 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

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[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 1973[3], 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 point[4].

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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

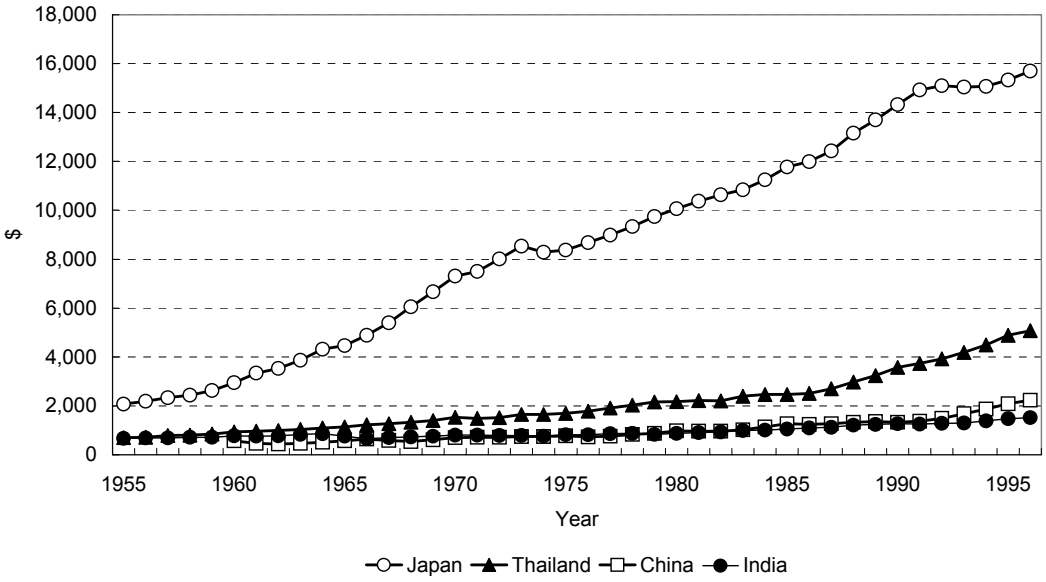

Figure 1 shows GDP per capita at 1985 purchasing power parities (PPPs) in the four Asian countries[5]. At the level of 1,000 dollars in GDP per capita, Japan's environmental policy was initiated. During the level of 3,000-5,000 dollars in GDP per capita, environmental degradation had overridden Japan. 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 growth[6]. 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 Indictors.

[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 centralized[7].

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. Sapru (1998), "Environmental Policy and Politics in India", Uday Desai (ed.) Ecological Policy and Politics in Developing Countries: Economic Growth, Democracy, and Environment, Sate

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. Eenvironmental 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

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University of New York Press, p.175.

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 panchayat[8]. 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 counties 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 problems[9]. It presents, however, a golden opportunity to reconsider the conventional thoughts about patterns of economy and environment[10]. 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 then 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 Bangaldesh 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 UNDCED 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 1997the 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, practioners, 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 develop 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 is sues, 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.