Philippine Journal of Public Administration, Vol. XXXVI, No. 4 (October 1992)

Implications of Environmental Legislations to Development Sectors

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The government's concern for the environment evolved through the years of policymaking. The nature of such concern is reflected in the environmental policies and the functioning of the administrative machinery responsible for implementing such policies. The strengths and shortcomings of the existing environmental policies and machinery in responding to the ongoing environmental crisis are reviewed in this paper. Emerging from the review is the need to integrate environmental considerations in economic policies at all levels. Hence, the role of local government planners in integrating environmental concerns in regional or local development plans is a vital component in environmental protection.

Brief History of Philippine Environmental Law

Generally speaking, all laws of the land are part of the government's environmental policies because all laws affect to a certain extent, the way resources are allocated and utilized. The quality of the environment is in turn determined by resource utilization. However, this paper considers environmental legislation to encompass all laws that pertain to the management of natural resources and the regulation of discharge of materials into the environment.

Era of the Colonial Governments

The earliest legal edict on environment is contained in the Spanish Law of Waters of 1866 which was implemented in the Philippines in 1871 by the Spanish colonial government. Article 268 of this law states that "when an industrial establishment was found, after due investigation, to have contaminated the water with substances or properties noxious to the public health, the Governor-General could suspend its operations until the owner adopted a suitable remedy." Under the American colonial government from 1900-1935, environmental legislations consisted mainly of regulations on the allocation and utilization of forest, water, and fisheries resources.

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This paper was prepared for the Environmental Management Bureau (EMB) Project on Human Resource Development for Sustainable Development funded by the United Nations Development Program.

One of the first laws promulgated by the Americans was on the regulation of the use of forest resources. This is embodied in the Spooner Amendment to the Army Appropriation Bill of 1901 which mandated "that no sale or lease or other disposition of public lands or the timber thereon, or the mining right therein shall be made.....until the establishment of a permanent civil government." This provision was further strengthened in 1902 when the existing Forestry Bureau was given the power to ascertain and delimit lands for agricultural and forest purposes.

The basis for present-day statutory and administrative provisions for the appropriation of public waters is embodied in Act No. 2152 passed by the Philippine Legislature in 1912. The order of priority in allocation of water use as established in Section 3 is as follows: domestic, agricultural, industrial, fishponds, and mining.

Act No. 4003 passed in 1932, also known as the "Fisheries Act," sets environmental rules and regulations on the exploitation of fishery resources through provisions prohibiting the use of toxic substances and explosives for fishing, banning the gathering of fry or fish eggs and small fishes not more than three centimeters long except for propagation or educational purposes, and forbidding the discharge or deposition of petroleum, chemicals, refuse or other substances deleterious to fish or aquatic life.

Wildlife conservation concerns are noted in the numerous legislative acts on protection of floral and faunal species found in wilderness areas. Protection of wild animals is provided for in Act No. 2590 of 1916 and its various amendments. The list of protected wild animals, however, were limited to game species of birds, fishes, and mammals. The conservation of non-game animals was totally ignored. Act No. 3983 of 1932 provides for the protection of wild flora by prohibiting outright the collection of rare wild plants.

It is worthy to note that it was during this period that the basic legal foundation for the creation of national parks was enacted. Act No. 3915 of 1932 mandates that "any portion of the public domain which, because of its panoramic, historical, scientific or aesthetic value, should be dedicated and set apart as a national park for the benefit and enjoyment of the people of the Philippine Islands."

An examination of environmental legislations promulgated during the Commonwealth era (1936-1942) shows the predominance of laws regulating the development and utilization of the country's economically most important nonrenewable resource; i.e., minerals. Commonwealth Act No. 137 or the "Mining Act" approved in 1936 defines the regulations for the exploration, disposition and development of mineral lands and minerals. Environmental protection provisions are explicitly stated in Section 77 of this Act, which declares that "every lease granted.....shall contain a clause by which the lessee shall bind himself to comply with such rules and regulations for the policing and sanitation of mines, easements, drainage, disposal of wastes or tailings...." As a means of sanction, the implementing

rules and regulations for this Act provides that "any person who willfully and maliciously causes or permits sludge or tailings to accumulate in, or flow from his mining claims so as to cause danger, injury or obstruction to any public road, rivers or streams or other public property, shall be punished upon conviction, by a fine not exceeding two hundred pesos, besides paying for any damage which may have been caused thereby."

Commonwealth Act No. 383 of 1938, although enacted in relation to flood control and to navigational uses of river systems, is the first law to deal directly on waste disposal. Also known as the Anti-Dumping Law, Section 1 prohibits the "dumping into any river of refuse, waste matter, or substances of any kind whatsoever that may cause an elevation of the level of river beds, or block the course of streams..."

Period from Independence to 1972

After the Philippines gained independence in 1946, the trend in environmental legislation did not change. Thus, environmental laws were still closely linked to the natural resources sector.

In the fisheries sector for instance, laws were passed prohibiting the use of fishing methods that would lead to the depletion of fishery resources. Thus, RA 428 enacted in 1950 and amended by RA 1535 (1956) declares as illegal the possession, sale, or distribution of fish or other aquatic animals stupefied, disabled or killed by means of dynamite or other explosive or toxic substances. Other laws enacted prohibit trawl fishing in areas that are less than seven fathoms deep (RA 3048 of 1961), exportation of bangus fry (RA 3586 of 1963), and electro-fishing in fresh-water areas (RA 6451 of 1972).

In the forestry sector, laws on reforestation and afforestation were passed such as RA 115 of 1947 and RA 737 of 1952 which provide for the reforestation and afforestation of denuded areas within public forest lands. Establishment of municipal and city forests, tree parks, and watersheds was encouraged, as embodied in RA 5752 of 1969.

The basic mining law governing the exploitation of minerals remained unchanged from that promulgated during the Commonwealth period. No amendments were enacted specific to environmental protection.

With respect to energy development, the Petroleum Act of 1949 (RA 387) was enacted to promote the development of petroleum resources. Article 24 of this Act includes as one among the general obligations of a concessionaire the institution of measures to avoid hazards to life, health, and property and prevent pollution of air, land and water.

The landmark wildlife conservation measures passed during this period were RA 826 of 1952, RA 1086 of 1954, and RA 6147 of 1970. RA 826 provided for the creation of the Commission of Parks and Wildlife whose main purpose is the development, maintenance, and conservation of national parks, national monuments and wildlife. RA 1086 called for a more strict enforcement of the prohibition against killing of the tamaraw.

RA 6147, on the other hand, declared the Philippine eagle, *Pithecophaga jeferryi*, also known as the monkey-eating eagle, as a protected bird in the Philippines. As such, Section 2 provides that it is illegal to kill, hunt or wound the eagle or to disturb, destroy or take away its nests and eggs.

It can be gleaned from the above that there is not much difference in the nature of environmental legislation between the colonial period and the period after independence. Environmentally related edicts were generally in association with the promulgation of basic developmental policies in the various natural resource sectors.

In the 60s, however, an added dimension to environmental policy was marked by the enactment of RA 3931 in 1964. This is the first legal declaration that pollution control is a major environmental policy to be pursued by the state. This is also an indication of the changing economic picture in the country that started in the 50s and which was characterized by the establishment of manufacturing and industrial firms especially in the urbanizing areas. The pollution problems spawned by these economic activities were aggravated by a rapidly growing population.

Thus, we can see that the drafting of Philippine environmental policies as embodied in our legislations is largely influenced by the pattern of growth in the country.

Period From 1972-Present

This period saw the emergence of organic legislations that defined environmental management as a major policy objective to be pursued by the State. Such a trend in environmental policymaking was a direct offshoot of the 1972 Stockholm UN Conference on the Human Environment, which brought to the attention of the global community the urgency of incorporating environmental issues and goals in the overall concept of development.

The laws promulgated from 1972-1986 (martial law period) comprise the main body of environmental laws presently being implemented. These are the Pollution Control Law (PD 984), Philippine Environmental Policy (PD 1151), Philippine Environment Code (PD 1152), and the Establishment of the Environmental Impact Statement System (PD 1586).

Laws pertaining to the natural resources sector promulgated during this period consisted of legislations streamlining organizational structures and updating existing laws. Examples of these are the Forestry Reform Code (PD 389 as revised by PD 705) and the Mineral Resources Development Decree of 1974 (PD 463).

Review of Current Environmental Legislations

The environmental laws in the Philippines may be classified into two general headings: one, those laws that have wide-ranging applications and general in nature; and two, those laws that pertain to specific sectors. This chapter discusses those two types of legislations in some detail.

General Legislations

General legislations include the relevant provisions in the Constitution and those that apply to environmental protection and management in general.

Relevant Constitutional Provisions. Being the fundamental law of the land, the constitution provides the framework for policymaking in the executive and legislative branches of government. The Constitutions of 1935 and 1973 do not include policy statements on environment in their sections on Declaration of Principles and State Policies. However, for the 1973 Constitution certain provisions on national patrimony can be construed as statement of concern for environmental protection. Section 11 of Article XIV on the National Economy and Patrimony of the Nation explicitly provides that conservation, ecological, and developmental considerations be taken into account in the utilization of land resources.

On the other hand, the Declaration of Principles and State Policies of the 1987 Constitution expresses as a state policy the protection and advancement of "the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature." Other environmental provisions can be found in Article XII on National Economy and Patrimony. Section 3 provides that utilization of lands of the public domain shall take into account requirements of conservation, ecology, and development. Section 4 is a new feature which calls for the delineation of areas that will be designated as forest lands and national parks and which will be strictly for conservation. The Constitution, likewise, mandates Congress to pass measures to prohibit logging in endangered forests and watershed areas.

Legislations on Environment. Promulgated in 1976, PD 1151 (Philippine Environmental Policy), PD 1152 (Philippine Environment Code) and PD 1586 (Establishment of the Environmental Impact Statement System) set forth the legal framework for an integrated approach to environmental management.

PD 1151 defines general State policies on the pursuit of a better quality of life for this generation and the future generations, without degrading the environment. Specifically, it mandates the undertaking of environmental impact assessments for all projects which may significantly affect the environment.

PD 1152, on the other hand, establishes specific environmental management policies and prescribes environmental quality standards to provide the structure to pursue a comprehensive program on environmental management. Thus, management policy objectives and strategies are defined for various aspects of environment such as air and water quality management, natural resource development, land management, and waste management.

While PD 1151, as a statement of policy, provides for the adoption of Environmental Impact Assessment (EIA) as the policy instrument to be used in incorporating environmental considerations in development, PD 1586 lays down the framework for its implementation. A major provision of this law is the delineation of developmental activities that would require environmental impact assessment. Thus, Section 4 specifies that only those projects or areas which are environmentally critical will be within the scope of the EIA requirement. Subsequently, Presidential Proclamation No. 2146 was issued to identify three types of environmentally critical projects and twelve kinds of environmentally critical areas.

Sectoral Legislations

Three sectors may be considered, namely: the management and conservation of natural resources; the prevention and control of all types of pollution both domestic and industrial; and land use planning and management.

Natural Resource Management

(1) Forestry

The Forestry Reform Code of the Philippines (PD 389 as amended by PD 705) codifies, updates, and revises all forestry laws in the country. It places emphasis on the utilization of forest resources which will not impair or disrupt the natural processes for growth and sustainability. It also considers reforestation and rehabilitation of degraded forest lands as primary responsibilities of the State. Other forestry laws promulgated that are related to the enhancement of the environment include laws penalizing illegal cutting of trees (PD 330 and PD 953), laws on tree planting (PD 953 and PD 1153) and a law requiring all public forests to be developed on a sustained yield basis (PD 331).

(2) Fishery

PD 704 revises and consolidates all laws and decrees affecting fisheries, and declares as State policy the preservation of optimum productivity of fishery resources through conservation and protection. Specific provisions on conservation and protection are found in Chapter VI (Prohibition and Penalties). The first set of prohibited activities that carry penalties includes the use of explosives, toxic substances, and electricity to catch fish; fishing with fine-mesh nets; trawl fishing in shallow waters; and exportation of bangus fry. The second area of prohibition refers to discharge of pollutive substances into fishing grounds which might be deleterious to aquatic life. Thus, it can be seen that acts and activities that are inimical to sustainable fishery production are explicitly prohibited by law.

Other environmentally related legislations on fisheries are: PD 1015, which bans the operation of commercial or other fishing gears and trawls in waters within a distance of seven kilometers (or 3.78 nautical miles) from the shoreline if public interest so requires or the ecology of the marine resources may be impaired; and PD 1058 which increases the penalties for illegal forms of fishing practices such as fishing with the use of explosives, toxic substances, and electricity.

Protection of corals to ensure the preservation of the country's marine environment is embodied in PD 1219. A basic premise which this law recognizes is the importance of coral ecosystems as natural breeding ground and habitat of fishes and other marine organisms.

It is to be noted that in the case of renewable resources such as forests and fisheries, policymakers have recognized from the start that to ensure sustainable productivity for these resources, harvesting rates should not be allowed to exceed rates of growth or replacement of the resource over an extended period of time. As such,the laws passed regulating the exploitation of these resources reflect the concern for maintaining the regenerative capacity of the renewable resource. However, whether such policy intent has been strictly implemented is another matter.

(3) Minerals

It is in mining operations that the classic trade-off between development and environment can best be illustrated. By the very nature of mining operations, adverse effects on the environment such as pollution of air and waterbodies and irreversible alterations of landforms, can never be eliminated completely. Because of the public goods nature of our air, waters, and public lands, the environmental costs associated with their degradation do not enter the cost calculations of mining firms. Such negative environmental effects are externalities, i.e., external to the decisionmaking framework of the firm. It is through the use of the regulatory

powers of the State that the private sector is compelled to shoulder the costs of these externalities.

It is for this reason that mining legislations carry specific provisions on environmental protection measures to be undertaken by mining operations. Thus, PD 463 which amends the Mining Act of 1936 requires all mining lease contractors to comply with pollution control laws and regulations. Moreover, penalty provisions are included to cover pollution from mine wastes and mill tailings. Thus, Section 81 states that dumping sludge, tailings, and mine wastes in public roads, rivers, or other public property shall be a punishable act penalized by payment of fines or imprisonment or both.

Another environmental provision is found in Section 91 which delineates specific conservation measures for resource recovery and prevention of pollution. An added dimension is the requirement that mining operations should institute measures to make the area habitable and economically useful upon abandonment of operations due to exhaustion of the mineral resource or for other reasons.

PD 1198 reinforces the above provision wherein all entities engaged in mining are required "to the fullest extent possible to restore, rehabilitate, and return the lands, rivers, and the natural environment.....to their original condition."

PD 1251 was promulgated for the purpose of imposing fees on mine wastes and tailings generated from the operations of existing mining companies. The funds created will be used to pay for damages to lands, agricultural crops, forest products, aquatic resources, and infrastructure caused by pollution due to mining operations.

Pollution Control

(1) Air and Water Quality Management

The major legislation governing air and water quality management is PD 984 as amended by Executive Order 192. This piece of legislation sets up the administrative and regulatory machinery for pollution control. The implementing rules and regulations of this law (as amended by DENR Administrative Orders No. 34 and 35 Series of 1990) establish air and water quality standards that define maximum allowable limits of emissions from industrial activities.

Several legislations are directly related to water pollution control. PD 600 as amended by PD 979, on the prevention and control of marine pollution prohibits the discharge of oil, noxious liquid substances, and other harmful substances into the country's inland and territorial waters. PD 602 established a National Operations Center for Oil Pollution at the Philippine Coast Guards Headquarters to handle the containment of oil spills from tankers. PD 1067, known as the Water Code of the

Philippines, contains provisions that prohibit the introduction of sewage, industrial wastes, or any substance that may pollute a source of water supply. It also penalizes dumping of mine tailings and sediments into rivers and waterways.

With regard to air pollution, PD 1181 supplements provisions of PD 984 on this aspect of pollution. Thus, PD 1181, which provides for the abatement, control, and prevention of vehicular pollution mandates the establishment of maximum allowable emissions of specific air pollutants from all types of vehicles and specifications of appropriate pollution control devices for installation on motor vehicles.

(2) Solid Waste Management

Under the provisions of PD 825, improper disposal of garbage and littering are punishable by imprisonment or payment of fine or both. PD 856, otherwise known as the Sanitation Code of the Philippines, places responsibility on local government units for the provision of an adequate solid waste disposal system in their area of jurisdiction.

(3) Control of Toxic Wastes and Hazardous Substances

RA 6969 was signed into law in October 1990 to regulate the importation, manufacturing, distribution, use and disposal of chemical substances which may pose risks to human life and the environment. This legislation is seen to address a gap that has long existed in environmental policy. Since the late 70s, the problems of proliferation of toxic substances and disposal of hazardous wastes have been recognized, but there were no direct legislations governing these. Existing regulations were specific to the control of particular chemical substances such as pesticides (PD 1144) and food additives, drugs and cosmetics (RA 3720, RA 6425, PD 280). With the enactment of RA 6969, intractable chemicals such as mercury and arsenic and hazardous materials will be regulated. A significant provision of RA 6969 is the outright prohibition of the entry of hazardous and nuclear wastes and their disposal in the country.

(4) Incentives to Control Pollution

To encourage the installation of pollution control equipment, several incentives are provided for in Section 56 of PD 1152 (Philippine Environment Code). These incentives include tax exemptions for those importing pollution control devices, tax credits for firms using locally manufactured devices and tax deductions for those engaged in research for the development of technologies for the manufacture of pollution control devices. This provision, however, was effective only for a period of five years, from 1980 to 1985.

Land Use Management

Zoning is the most important regulatory instrument for controlling land use. Local government units have the responsibility for spatial allocations of various activities within their administrative jurisdictions. Thus, local zoning ordinances provide for the classification of sites according to permissible uses to the exclusion of other uses. Other government regulations supplement provisions of zoning ordinances.

PD 856 (Sanitation Code) stipulates that industrial establishments shall be allowed to operate only in places or zones for the kind of industry by existing zones, laws, ordinances or policies. The local health authority is empowered to determine the suitability of location where no zoning law, ordinance, or policy exists.

PD 1096 (National Building Code) regulates the location and siting of buildings and structures through the issuance of building permits. A prerequisite to the issuance of the building permit is the compatibility of the location of the proposed building to the local land use plan or zoning policy.

Relationship Between Development Sectors and Environmental Legislations

It can be gleaned from the previous sections that in general, the nature of environmental legislations promulgated is directly related to the kind of economic activities that dominate economic growth and development.

Prior to the 1960s, exploitation of our natural resources was the main source of economic growth such that environmental policies were closely linked with the development and utilization of our renewable and nonrenewable resources. As a result, legal stipulations on environmental protection were sectoral in approach and usually embodied as one among many provisions in various enabling legislations regulating the development and exploitation of natural resources.

It is only in the area of wildlife conservation that we can truly recognize environmental protection as the overriding consideration in the enactment of laws.

In the 1960s, the government adopted economic policies towards industrialization. The industrial activities that emerged from this resulted in pollution problems which we are experiencing until today. The legislative reaction to this was the promulgation of pollution control laws.

With the adoption of more holistic approaches to planning, environmental policymaking became proactive rather than reactive in nature. Thus, the major concern was on the adoption of planning tools that would render economic factors

and environmental concerns comparable during the process of decisionmaking. This resulted in the promulgation of (1) EIA, both as a management tool and a regulatory instrument, and (2) the adoption of land use planning that allows the incorporation of environmental parameters in determining compatible land uses.

Table 1 summarizes the environmental policy objectives of each piece of legislation as applied to the various development sectors.

Table 1. Summary of Environmental Legislations Affecting Various Development Sectors

Sectors	*Major Legislations*	*Policy Intent Relevant to Environment*
Forestry	PD 705 - Revised Forestry Reform Code as amended by PD 1159 and PD 1995	- Sustainable Production
	PD 531 - Requiring that all public forests be developed, managed, and utilized on a sustainable yield basis	- Sustainable Production
Fisheries	PD 704 - revising and Consolidating all laws and decrees affecting fisheries	- Sustainable Production
	PD 1219 - Providing for the exploration, exploitation, utilization, and conservation of coral resources	
Minerals	PD 463 - Providing for a modernized system of administration and disposition of mineral lands and to promote and encourage the development and exploitation thereof	- Pollution Control
	PD 1198 - Requiring all individuals, partnerships, or corporations engaged in the exploitation and development of natural resources or in the construction of infrastructure projects to restore or rehabilitate areas to their original conditions	- Rehabilitation
	PD 1251 - Imposing a fee on operating mining companies to be known as "Mine Wastes and Failings Fee" to compensate for damages to private land owners and for other purposes	- Pollution Control

Table 1. (Cont'd.)

Sectors	*Major Legislations*	*Policy Intent Relevant to Environment*
Agriculture	PD 705 - Revised Forestry Code Provides for land classification into forest lands and agricultural (A & D) lands	- Land use classification based on conservation / environment objectives and economic goals
	PD 1144 - Creating the Fertilizer and Pesticide Authority	- Pollution control
Industry and Infrastructure	PD 984 - Pollution Control Law (as amended)	- Pollution Control
	PD 1586 - Establishing Environmental Impact Assessment System	- Incorporation of environmental considerations in decisionmaking
	RA 6969 - Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990	- Pollution Control
	PD 856 - Sanitation Code	- Land Use and Zoning Policy
Tourism	PD 1586 - Establishing Environmental Impact Assessment System	- Incorporation of environmental considerations in decisionmaking
	PD 984 - Pollution Control law	- Pollution Control
	PD 856 - Sanitation Code	- Land Use and Zoning Policy
	PD 1096 - National Building Code	- Land Use and Zoning Policy
Energy	PD 1586 - Establishing Environmental Impact Assessment System	- Incorporation of environmental considerations in decisionmaking
	PD 984 - Pollution Control Law	- Pollution Control
Transport	PD 1181 - Providing for the prevention control and abatement of air pollution from motor vehicles	- Pollution Control

Environmental Administration

The major environmental agency in government is the Department of Environment and Natural Resources (DENR). However, other national government agencies whose main mandate may not be environmental protection may also have regulatory or developmental functions that affect environmental policymaking.

The role of nongovernment and people's organizations in the formulation and implementation of environmental policy is already recognized. The thrust now is towards strengthening the coordination between these organizations and government.

This section will discuss the administrative machinery responsible for the formulation and implementation of environmental policies. These will include government institutions and nongovernmental organizations.

Government Institutional Structure

The government institutional structure on matters pertaining to environment and natural resources has undergone several changes since the Philippine Independence in 1945. A historical perspective is important to fully understand the rationale behind the current organizational structure.

Independence to 1972. Environmental management during this period was essentially carried out by various agencies in the process of implementing policies on their sectoral concerns. As such, the former Department of Agriculture and Natural Resources (DANR) implemented programs on resource management which included reforestation, soil conservation, and conservation of fisheries and aquatic resources, in addition to its main line function of regulating natural resource exploitation.

Concerns of the Department of Health (DOH) included environmental sanitation. Pollution complaints were investigated independently by the DANR, DOH, and the former Department of Public Works and Communications depending on which department the complaints were originally lodged.

In June 1964, RA 3931 was passed by Congress, creating the National Water and Air Pollution Control Commission (NWAPCC). Its main task was to prevent and abate pollution from activities of the industrial sector.[6] From the start, its operations were hampered by inadequate funds due to partial releases of its annual budgetary appropriations. During its first year of operation, it operated on a measly ₱50,000 out of ₱12.5M authorized appropriations.

1972 to 1986. In the mid-70s, however, environmental concerns took a wider perspective that needed a holistic and integrated approach. This stemmed from a growing recognition that environmental problems were interrelated, necessitating coordinated efforts among the various government agencies concerned. This is a direct offshoot of the initiatives engendered by the 1972 Stockholm UN Conference on the Human Environment.

Towards this end, Letter of Instruction No. 422 was issued on 6 July 1976, creating the Inter-Agency Committee on Environmental Protection (IACEP) under the coordination of the then Ministry of Natural Resources. The IACEP consisted of 18 agencies whose functions touched on environmental protection. The Committee's main function was to assess the existing environmental situation and government policies and programs relevant to environmental protection.

The Committee's evaluation of the status of environmental protection efforts in the country showed that there was absence of coordination among at least 22 government agencies in the implementation of environmental programs. Another area identified at the policy level which was of major importance was the absence of a mechanism to assess the environmental impacts of development projects.

As a consequence, the Committee recommended the creation of a body to effect a coordinated and integrated formulation of environmental policies and implementation of environmental programs. On 18 April 1977, PD 1121 created the National Environmental Protection Council (NEPC). Under the aegis of the NEPC, two laws on environmental protection were promulgated in 1977. These were PD 1151, Philippine Environmental Policy, and PD 1152, Environment Code.

It was also during this period that the pollution control agency NWAPCC was reorganized into the National Pollution Control Commission (NPCC) by virtue of the promulgation of PD 984. This legislation sought to correct the legal impediments encountered by the NWAPCC in the implementation of pollution control rules and regulations by broadening the regulatory functions of its successor, the NPCC.

1986 to Present

(1) Department of Environment and Natural Resources

The institutional set-up whereby natural resource management was discharged by the Department (or Ministry) of Natural Resources while environmental protection was executed by the National Environmental Protection Council and the National Pollution Control Commission, which were attached agencies of a different ministry (Ministry of Human Settlements), prevailed until a new administration took over the reins of government in 1986. However, significant changes in environmental administration occurred since then.

By virtue of Executive Order No. 192 issued in June 1987, reorganizing the then Ministry of Natural Resources into the Department of Environment and Natural Resources (DENR), both NEPC and NPCC were abolished. Their functions and powers were absorbed by a newly created bureau within the DENR, the Environmental Management Bureau (EMB). This development of placing pollution

control within the jurisdiction of the government agency responsible for natural resource development was a major change in the environmental administrative set-up.

Pursuant to the decentralization policies of the government, the regulatory functions of the DENR, including those on pollution control formerly discharged by NPCC, were delegated to the regional offices of DENR. Thus, the bureaus of the department, namely; Forest Management, Land Management, Mines and Geo-Sciences, Environmental Management, Ecosystems Research and Development, and Parks and Wildlife recommend policies and programs to be implemented by the regional offices of the DENR.

At present, however, the EMB still performs a regulatory function, i.e., the implementation of the EIA system, because of the lack of manpower in the regional offices. Thus, within DENR, the execution of regulatory functions on environmental protection is lodged in the EMB and the regional offices. The EMB implements the EIA system while the regional offices enforce pollution control rules and regulations.

In line with the enforcement of pollution control laws, the determination of pollution cases rests on the Pollution Adjudication Board (PAB), a body created by virtue of EO 192. It is a collegial body consisting of the Secretary of DENR as chairman and the following as members: two undersecretaries of DENR, the Director of EMB, and three others designated by the Secretary of DENR. The PAB assumes the powers and functions of the former NPCC with respect to the adjudication of pollution cases. The EMB serves as the secretariat of the Board.

(2) Other National Agencies

There are other national agencies whose mandates affect the formulation and implementation of environmental policies. An example of this is the Department of Agriculture. It is in charge of the implementation of programs on soil conservation, measures to protect marine ecosystems, and the regulation of agricultural chemicals such as fertilizers and pesticides.

The Department of Public Works and Highways, in line with its primary function of infrastructure development is responsible for the construction of flood control systems, sewerage facilities, and solid wastes disposal sites.

Other national agencies with functions related to environmental protection are the: Department of Health which takes charge of environmental health and sanitation; Philippine Coast Guard which enforces laws on marine pollution; Department of Science and Technology which undertakes environmental research; and Housing and Land Use Regulatory Board which is responsible for enforcing regulations on land use.

(3) Regional Institutions

The Laguna Lake Development Authority (LLDA) is a government agency charged with enforcement of pollution control laws within the Laguna de Bay region. The original intent in the creation of LLDA in 1966 was not environmental but developmental. RA 4850 which created LLDA states that the Authority will "lead, promote, and accelerate the development and balanced growth of the Laguna Lake area." Among the powers and functions of LLDA as defined in RA 4850 included the authority to engage in agricultural, industrial, and commercial activities to accelerate growth within the region.

By 1975, however, it was recognized that unless the quality of the Lake's water resources improved and the Lake's watershed protected, whatever growth achieved could not be sustained indefinitely. PD 813 revised the declaration of policy embodied in RA 4850 to include explicitly environmental management and the prevention of undue ecological disturbance and pollution as major mandates of LLDA. Its regulatory powers in this aspect were further strengthened in 1983 when Executive Order 927 empowered LLDA to enforce pollution control laws within its areas of jurisdiction.

The Metro Manila Authority is another regional institution whose mandates include the provision of environmental services to the population of Metro Manila. These include the enactment and enforcement of land use plans and solid waste management.

Nongovernmental Organizations

A major policy initiative pursued by the Aquino government is to institutionalize the participation of nongovernment organizations (NGOs) in the affairs of government. Given the limited capacities of government to respond to the needs of the citizenry at the community level, nongovernment organizations are seen to be the vital links between the government and the people for delivery of services. A "Policy Agenda for People-Powered Development" was adopted by the Cabinet in June 1986 and established the framework for NGO participation in decisionmaking, planning, and implementation of development programs.

There are about a hundred NGOs all over the country directly involved with environmental protection activities. The National Capital Region accounts for 37 percent of the number. There have been a number of networks and alliances formed among the environmental NGOs such as the Philippine Federation for Environmental Concern (PFEC), Solid Alliance of Vigilant Environmentalists (SAVE), the Philippine Ecological Network (PEN), the Public Education and Awareness Campaign for the Environment (PEACE), the Environmental Education Network of the Philippines (EENP), the Green Forum, and the Green Coalition, among others.

Evaluation of Environmental Policy

The evaluation on existing policies and institutional structures is specifically limited to regulations of discharges into the environment, i.e., pollution control. However, the framework of analysis employed here can also be done for the natural resource management sector.

Environmental Regulations

There is a wide range of policy instruments that can be used for preserving environmental quality. This ranges from direct controls that employ regulations limiting permissible limits of emissions, to methods that rely on market processes, and to methods that involve direct government expenditures for the construction and operation of facilities for environmental protection.

Direct regulatory controls are the basic instruments employed to carry out environmental policy in the country. Over the years, the government has tended to rely on direct controls coupled with a system of monitoring and penalties for noncompliance. The most apparent advantage of direct regulations is the complete authority the government has over the private sector's compliance to pollution control laws and therefore is perceived to have a more certain effect on environmental quality. Another factor why government relies more on direct regulatory controls is that it is more experienced with this policy instrument as this approach is pervasive in other sectors of government.

Air and Water Quality Standards. Based on PD 984 as amended by Executive Order 192 and DENR Administrative Order No. 34 and 35 Series of 1990, air and water quality standards that define maximum allowable limits of emissions from industrial activities are enforced by the DENR.

(1) The Process of Standard Setting

The first set of standards was established by the NWAPPC in 1967. Ideally, standards should be based on scientific studies and health impacts of pollutants coupled with analysis on the technological and economic feasibility of attaining such standards. However, due to manpower and financial constraints, this process was not done. The standards set in 1967 were adopted from relevant air and water quality laws in the US.

In 1978, the standards were revised through a process of review by an *ad-hoc* committee composed of government officials, academicians, industrialists, and scientists. The 1978 rules included provisions on noise, heat and odor pollution, and more stringent criteria for ambient air and water quality. In 1982, effluent standards were promulgated.

In developing the revised standards, those prevailing in Europe, Japan, and the USA were used as basis for comparison. More importantly, information based on local surveys, research studies, and data base generated on the nature, extent, and magnitude of pollution were utilized in generating the final values for the standards.

The revised standards of 1978 and 1982 were already partially based on local studies previously undertaken. Nevertheless, during the years of implementing these, difficulties still arose on the attainability of permissible limits set for some parameters. For instance, the cost of attaining sulfur dioxide (SO_2) emission standards from stationary sources were considered prohibitive taking into account available technology for abatement. In another example, the effluent standard for color for class C waters was seldom attained. It was considered too stringent.

The process of standard setting should neither be static nor rigid. The process should be flexible enough to accommodate changes in technology and changes in the standards of living which affect societal environmental quality objectives. Taking cognizance of this, the EMB formed a technical committee in 1988 to revise the 1978 water quality criteria and 1982 effluent standards. This committee on standard revision was of similar composition to that formed in 1977 having members from the academe, government, and the private sector. The output of this committee was subjected to a public hearing prior to its adoption by the DENR.

Due to the absence of scientific studies on the effects of varying concentrations of pollutants on local plants and animals and on the health effects of pollution under local conditions, the process of reviewing and revising standards took note of studies done in other Asian countries and by the World Health Organization.

The committee on standards revision fully recognized that any standard to be promulgated should be "practicable, i.e., capable of being attained or enforced technically, financially, politically, and socially." Applying this maxim to the classification of water bodies in the country, the current best beneficial usage that is expected to last at least for the next 10 to 20 years is the main criterion to be utilized. However, under circumstances warranted by political, social, or economic considerations, certain water bodies may be classified according to the intended or future beneficial use, as exemplified by Pasig River.

For this reason, and considering the constraints in manpower and facilities on the part of regulatory agencies, the number of parameters to be monitored for purposes of classification was reduced to four significant parameters, namely; dissolve oxygen (DO), pH, biochemical oxygen demand (BOD), and total coliform organisms. This is to be compared with the number of parameters ranging from 26 to 46 for purposes of waterbody classification in the 1978 ambient water quality criteria.

For regular monitoring of ambient quality, the number of parameters was reduced from 50 to 24 relevant ones. The revised standards also include a guide on significant parameters to be monitored in 21 industries. For instance, recommended significant wastewater parameters to be monitored for the beverage industry are BOD, pH, suspended solids, settleable solids and oil and grease. For the mining industry, three parameters are considered significant, namely; suspended solids, heavy metals, and arsenic.

With respect to the effluent standards on BOD, the 1990 revised standards are more flexible and less stringent than those of the 1982 standards. For a period not to exceed ten years, existing industries will comply with less strict interim standards than those for new industries. In addition, BOD effluent standards with very strong wastes (greater than 5,000 mg/l BOD) are relaxed by providing less stringent standards for a period of four years within which to allow the firms to implement plans for meeting long-term standards.

However, for toxic substances such as heavy metals and intractable chemicals, the 1978 and 1982 standards were retained. The risks to human health and life associated with these substances and the uncertainties surrounding their effects on the environment do not warrant the adoption of less stringent standards.

(2) Evaluation of Implementation

The effectiveness of enforcing air and water quality standards as a means of abating pollution can be assessed in terms of the achievement of environmental quality goals and the efficiency by which these goals are attained. However, in this paper, only the first criterion will be examined. Data available are insufficient to undertake a cost-benefit or cost-effective evaluation of enforcing standards.

For water pollution control, the stated environmental quality goal is expressed in Section 68 of the 1978 Rules and Regulations on Water Quality Criteria which states that "the quality of Philippine Waters shall be maintained in a safe and satisfactory manner according to their best usages." For this purpose, a body of water is to be classified according to its current best beneficial use that is expected to last for the next ten to twenty years.

How does the water pollution control regulatory effort fair with respect to this goal? The monitoring data for parameters DO and BOD in the past decade shows that the quality of the rivers in Metro Manila never improved. The stated goal of maintaining these waters for fishery purposes and propagation of aquatic life was never attained.

As regards air quality, the avowed objectives are expressed in terms of National Ambient Air Quality Standards for a number of pollutants, including

suspended particulate matter and sulfur dioxide. Due to the spotty data available on air quality, conclusions which can be made are only with respect to suspended particulate matters (TSP). The magnitude of the reported readings on the concentration of TSP shows that this has been increasing over the years, with high values two to four times the standard being recorded in the past two years.

Based on the above analysis, the pollution control program pursued by the government markedly fell short of its stated goals. However, it is instructive to look at the resources allocated for pollution control before any conclusion can be made regarding the gap between policy objectives and implementation. Table 2 shows the budget allocated to the environmental agencies. The environmental budget share in the national budget is 0.03-0.04 percent from 1979-1988. There was an unusual increase in 1989 due to the allocations for equipment in the regional offices of DENR, but this share was again reduced to 0.04 percent in 1990.

Table 2. Budgetary Allocation to Environmental Agencies

Year	*NPCC*	*NEPC*	*Budget Allocated to Environment*	
			Amount	*% of National Budget*
1979	₱ 5,254,000	₱ 6,525,000	₱ 11,779,000	0.04
1980	6,132,000	7,001,000	13,133,000	0.04
1981	7,580,000	7,878,000	15,458,000	0.03
1982	9,298,000	8,680,000	17,978,000	——
1983	10,204,000	9,341,000	19,545,000	0.03
1984	9,102,000	7,893,000	16,995,000	0.03
1985	9,603,000	7,392,000	16,995,000	0.03
1986	16,771,000	8,149,000	24,920,000	0.04
1987	16,034,000	7,391,000	23,425,000	0.03
	EMB	REGIONS		
1988	17,082,000	7,141,000	24,223,000	0.03
1989	15,475,000	63,445,000	78,920,000	0.03
1990	36,804,000	33,669,000	70,473.00	0.04
1991	20,250,000	31,258,000	51,508,000	0.03
1992	21,633,000	35,988,000	57,651,000	0.03

Despite these modest increases in resources allocated in the past two years, these have not kept pace with the demands and expectations placed on the environmental agencies. The presence of many pending environmental legislation may appear to provide evidence of support for the achievement of anti-pollution and environmental goals, but environmental protection budgets are obviously more accurate indicators of true legislative and executive branch intents. Budget data suggest that despite major policy pronouncements, environmental protection still occupies a low priority.

It is instructive to note other country's commitment to improve their environment by examining the level of expenditures made for pollution abatement compared with their gross national product (GNP) when serious pollution problems existed in these countries and massive clean-up efforts were undertaken. The figures for the US and Japan, for the period 1971-1975 indicated that US spent from 0.81-1.0 percent of GNP while Japan allocated 1.3-2.0 percent of GNP. For Asian countries, Table 3 shows a comparison of environmental expenditures in the early 80s. The Philippines registered the lowest allocation to environment relative to GNP.

Table 3. Ratio of Expenditure in Environmental Administration to GNP For Some Selected Countries

Country	*Ratio of Environmental Adm. Expenditure to GNP*
India	0.012
Indonesia	0.381
Papua New Guinea	0.836
Singapore	1.087
Philippines	0.005
United States of America (pollution control only)	2.00

Source: ADB Environmental Planning and Management, 1986.

Another factor to be looked at in studying the gap between air and water quality goals and implementation is the nature of environmental problems in the Philippines. In the case of water pollution, the very high population density especially in urban areas such as in Metro Manila, coupled with lack of sewerage facilities make pollution control regulation more complicated. Some 70 percent of water pollution in terms of degradable organics is contributed by domestic sewage, hence, 100 percent compliance of industries to effluent standards will not necessarily result in the attainment of water quality objectives.

In reviewing the current state of implementation of standards, several areas of concern are identified which need to be addressed in order to correct the weaknesses of the present regulatory regime in environment and which would thereby strengthen the overall efforts in environmental protection.

(1) There should be an assessment of the effectiveness of the existing regulatory framework using cost-benefit analysis. This is necessary to determine whether the benefits derived from direct controls are greater than the costs incurred in administering such regulations.

(2) Serious considerations should be accorded to economic approaches to regulation such as effluent charges, which are charges for the use of common property environmental resources. Effluent charges can be seen as an alternative to the present regulatory framework. However, specific and detailed studies should be undertaken to determine how economic approaches can solve environmental problems more efficiently or at a lower cost than regulatory alternatives.

(3) Granting of economic incentives such as tax incentives and subsidies is another strategy that can be employed in environmental management. To be effective, tax incentives should be set at a level until the desired action is produced. The participation of the private sector in an endeavor that results from a tax incentives system may lead to further voluntary involvement. It may strengthen the firms' managers to corporate social responsibility so that environmental protection can become a continuing concern of the firms.

Subsidies may be granted to the local government units especially in the urban areas for the construction of municipal waste treatment plants. If these plants serve industrial users, the grants provide indirect subsidy for industrial waste treatment.

(4) In consonance with the continuing process of developing appropriate environmental quality standards, research activities should be undertaken on the following areas: (1) kind and extent of all identifiable effects of pollutants on health and welfare; (2) concentration and dispersal of pollutants through biological, physical, and chemical processes; (3) effects of pollutants on biological community diversity; and

(5) The lack of a competent monitoring system in the environmental regulatory set-up is recognized as a major drawback in the implementation of pollution control regulations. This is an area that would need strengthening in terms of acquisition of adequate facilities and skilled manpower in the environmental agencies.

Environmental Impact Assessment (EIA). This section presents the legal and institutional aspects of the EIA system and an evaluation of its implementation.

(1) The Philippine EIA System

The introduction of EIA as a tool in environmental management sought to address the emerging problems of environment other than pollution control. It was recognized in the mid-1970s that a more comprehensive approach should be adopted that will take into account interrelations between population, economic growth, and environment. Such was the background for the introduction of environmental impact assessment as a major reform in environmental protection in 1977.

The EIA system as presently implemented is built upon a network of interagency and interdisciplinary groupings of experts. The main actors in implementing the EIA requirement are the EMB, the DENR Regional Offices, EIA Review Committee, other government agencies referred to as Lead Agencies, and a Committee of Environmental Officers.

The EIA Review Committee is composed of consultants representing various expertise, who come from the academe and other government agencies. This Committee is tasked the following: to evaluate and review the Environmental Impact Study and the document resulting from the Environmental Impact Assessment; to recommend the issuance or non-issuance of Environmental Clearance Certificate; and to render technical and professional advice on matters pertaining to EIA.

Lead agencies refer to government agencies with the expertise and/or direct responsibility concerning particular types of projects or undertakings. Lead agencies assist project proponents in determining whether a project is environmentally critical or will be located within an environmentally critical area. They also assist project proponents in complying with the requirements of the EIA System. Such assistance shall be limited to rendering explanations of the EIA System and environmental assessment methodologies for preparing an EIA and collecting data and suggestions as to where a project proponent may get additional information or assistance. Lead agencies, are not however, obliged to provide manpower in data collection or to prepare an EIA for the project proponent.

The Environmental Officers' (EO) Committee was created to effectively implement the EIA System. It consists of representatives from government agencies whose mandates touch on environmental protection and management. This Committee is charged with three primary responsibilities, namely; (a) to comment on proposed policies, programs, and projects concerning the EIA System; (b) to serve as the central working committee for the implementation of the EIA System; and (c) to provide technical assistance on matters concerning the EIA System to the member agencies. Unfortunately, due to lack of budgetary support, this Committee has not been effectively functioning.

Proclamation No. 2146 promulgated in 1981, defines the projects that are subject to the EIA requirement. These are the environmentally critical projects and projects located within environmentally critical areas. There are three major categories of environmentally critical projects. These are heavy industries, resource extractive industries, and infrastructure projects. On the other hand, there are twelve site categories considered as environmentally critical areas.

An important component of the EIA review process is the provision for the conduct of public hearings where all interested parties are invited to express their

views on the proposed project. Results of public hearings become integral components to the decisionmaking process in the eventual issuance or denial of an Environmental Compliance Certificate (ECC).

(2) Evaluation of Implementation

EIA was developed primarily as a tool in decisionmaking with the view of including environmental considerations in decisions concerning developmental activities. There are two levels at which EIA could be utilized; namely, at the project level and at the program/regional level. Ideally, to be effective as a decisionmaking tool at the project level, the EIA should be undertaken at the feasibility stage of the project cycle. At the program/regional level, the EIA would entail definition of environmental objectives or constraints prior to the identification of specific projects to pursue. In the Philippines, EIA is implemented at the project level. Recent developments in environmental policy formulation, however, indicate a move towards a programmatic and/or regional approach to EIA.

Legal provisions establishing EIA (PD 1151, PD 1586) clearly aims at implementation of EIA at the project level. From the period 1983 to first quarter of 1991, a total of 2293 projects have applied for clearance from NEPC/EMB (Table 4). Of this number, only about 8.3 percent were required to undertake an EIA, on the basis of the magnitude of adverse environmental impacts which these projects would generate.

Table 4. Summary of EIA Statistics

Project	*1983*	*1984*	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*Total*
Heavy Industries										
(1) Non-ferrous metal	0	0	2	1	1	1	2	2	16	25
(2) Iron & Steel	0	0	0	1	0	2	3	19	24	49
(3) Smelting	2	1	3	1	1	0	2	5	1	16
Resource Extractive										
(1) Mining & Quarrying										
Metallic	47	33	14	11	15	22	55	48	33	278
Non-Metallic	189	131	99	99	23	35	14	25	116	660
(2) Forestry	1	0	0	0	0	1	3	20	36	65
(3) Dikes & Fishpond	0	0	0	0	0	0	0	8	23	31
Infrastructures										
(1) Dams	2	1	2	0	0	0	1	2	9	17
(2) Power Plants	0	2	5	0	4	6	18	20	13	68
(3) Reclamations	0	1	1	0	1	1	0	1	1	6
(4) Roads & Bridges	6	1	2	0	0	1	0	12	21	43
Other Types	4	20	23	5	59	117	155	277	375	1035
Total	251	190	151	42	113	186	253	439	668	2293

Prior to 1986, a large portion of compliance to the EIA requirement comes from the mining sector, specifically, more than 60 percent of project documents submitted. This is attributable to the permitting system prevailing in the mines regulatory agency, wherein EIA is one of the requirements in securing a mining permit. However, from 1987 to the present, there is an increasing trend in the submission of documents for EIA clearance from the other sectors. Thus in 1990 and 1991, the mining sector accounted for only 16 percent and 22 percent, respectively, of the documents submitted for evaluation. The other sectors such as industries and infrastructure accounted for the rest.

Since 1986, with a new administration and its concern for a more effective bureaucracy, the EMB renewed its enforcement of EIA with vigor. Closer coordination was forged with NEDA to ensure that developmental projects programmed for implementation will undertake EIA. Nongovernmental organizations and citizen groups were likewise mobilized for monitoring of compliance.

Despite the improvement in compliance, EIA implementation is still hampered by lack of financial and manpower resources. EMB with its staff of eleven in the EIA section cannot cope with the increasing volume of PD/EIA submission.

DENR's efforts of strengthening the EIA system involve a gradual process of decentralizing implementation from EMB to the regional offices. A parallel activity being pursued is the training of DENR environmental personnel at the regional offices. With the implementation of the Local Government Code, local government units will carry on functions related to the EIA system.

In spite of the greater awareness on the EIA process, this is still widely regarded as merely a regulatory requirement completely overlooking its utility as a management tool. Thus, in majority of cases, the EIA is done as an add-on feature when the construction phase is about to start. As a result, this has often caused delays and added costs to the project. The timing in the execution of the EIA in the project cycle is very important. In this aspect, i.e., utilizing EIA as a management tool, EIA implementation has not been too successful.

As a means of conflict resolution, the use of EIA has had some success. The public hearings conducted in relation to EIA had forged agreements on working relationships among conflicting groups in the implementation of some projects such as those conducted for some mining, energy, and industrial projects.

In line with the underlying rationale for which EIA was developed, there is a shift towards applying environmental assessment at the broader levels of sectoral/ regional planning. Examples of these are the inclusion of environment in the preparation of the energy sector plan or transport sector plan. For instance, in

drawing up the medium/long term program for energy development such as the identification of alternative energy sources, the environmental implications of each alternative should first be assessed. Another example that can be cited are tourism projects. For these, the undertaking of area-wide EIA is encouraged to cover an entire area targeted for tourism development.

The full potential of EIA as a means for a balanced decisionmaking has not been fully realized due primarily to: first, misconceptions on EIA by both the private sector and some sectors in government, and secondly, inadequate mechanisms for implementation.

On the part of project proponents, EIA is seen merely as another bureaucratic regulation, resulting in "reactive" EIA. With this perception, a project is usually taken through all its engineering design and construction stages with no regard for the environmental impacts which may be generated. When the project is about to operate, an environmental study is hastily conducted simply to comply with EIA regulations. The objective at this point, is not to seek optimal choices, since the relevant choices have already been made. Instead, the objective becomes how to justify the project.

On the other hand, a weak institutional machinery, in terms of inadequate manpower and financial resources, has also precluded the full use of EIA as an integrated approach towards environmental management.

It is acknowledged that certain changes have to be instituted in the present framework of EIA in order to achieve a more meaningful application of EIA in our environmental management strategies. First, there should be an evaluation of the present scope of the EIA System. It is to be noted that in the list of environmentally critical projects, certain industries that have large impacts on the environment such as textiles, chemicals, alcohol distilleries, etc., are conspicuously absent. With regard to the enumeration of environmentally critical areas, this has to be site specific that needs to be delineated for each region.

Secondly, there is a need to conduct area-wide EIAs for certain activities such as mining and quarrying within a river basin or for industrial estates, and sectoral EIAs for certain programs of government such as the energy and transportation sectors. In the light of this development, the existing institutional mechanisms to implement EIA have to be supplemented and modified. For instance, for area-wide EIAs, this can only be undertaken by the relevant government agency and not by individual project proponents. Thus, in the case of quarrying and sand and gravel projects, area-wide EIAs should be conducted by the relevant DENR Regional Office.

There are certain processes that are currently pursued to strengthen the implementation of EIA. These need to be reinforced. Foremost among this is coordination with other organizations. At the national government level, coordination among the various sectors need to be strengthened to enhance the intersectoral linkages and interdependencies in decisionmaking especially at the policymaking level. The need for this type of coordination is notably marked between the environmental sector on one hand, and development and economic sectors, on the other (e.g., NEDA, DTI, DPWH, Energy).

Another aspect of coordination that needs improvement pertains to the permitting systems in various agencies. The EIA requirement should be integrated with the location clearance of the land use agency, mining permits, industrial permits, business permits, among others.

Stronger coordinative linkages should also be forged among DENR, local government units and nongovernmental organizations in the implementation of EIA. A major objective of this linkage is to ensure that environmental considerations are incorporated in the preparation of regional development plans and land-use plans, as well as in prioritizing of projects for implementation at the regional, provincial and municipal levels.

Information dissemination on EIA should be a continuing activity aimed at various target audiences such as policymakers, NGOs, media, and the private sector.

On the aspect of institutional strengthening, there is a need for the development of an effective data base and information system, and the upgrading of technical expertise of EIA personnel at EMB and the regions through training.

Land Use Management. At the regional/local level, land-use planning is seen as the basic tool for incorporating environment in the decisionmaking process. Optimal land-use allocations can be determined using environmental quality perspectives as an input along with the other economic and social demands for land-use planning. However, this has not been the case in the development of built-up areas in the country, such as Metro Manila and other urban areas. Zoning and development regulations had been largely determined by market forces in the real estate sector. Environmental factors are considered only when these pertain to specific regulatory requirements such as a pollution clearance or permit to operate potentially pollutive facilities.

There are certain basic principles in land-use planning which take into account ecological principles and impact of man's activities in natural systems. Some of these principles are self-evident. For instance, development should be discouraged in prime agricultural lands and in areas of natural and man-made hazards. Prime

agricultural lands are lost to housing and industrial uses at a fast rate. This has resulted to expanding agricultural activities to marginal lands and the uplands, causing further ecological damage. In areas of natural and man-made hazards, much of the losses to life and property can be avoided when areas of high risk can be identified in advance. However, in a country with a high population growth rate and with the majority of the population living below poverty levels, such high risk areas are the only available space for settlement for many people.

Another basic ecological principle in land-use planning is that the "carrying capacity" of the region should not be exceeded. This involves the determination of the kind and amount of development that will minimize the unnecessary degradation of the environment. The carrying capacity, defined as the regional environment's ability to accommodate human activities without being irreparably damaged, must be identified.

Most of the country's growing settlements are experiencing conflicting and incompatible land uses resulting from the random, and uncontrolled physical growth of communities. Nowhere is this more evident than in urban environments. Flat lands, so often selected for urbanization, is often as suitable for agriculture, but prime agricultural lands on which farms and pastures have evolved as a cultural and physical process are noncompatible with urbanization. This is immediately evident in the expansion of Metro Manila towards the east. The fertile rice lands formerly a main feature of the Marikina and Pasig areas have been replaced by sprawling residential-commercial-institutional areas. Even industries which were sited on locations that were once acceptable for industrial development have been engulfed by residential complexes rendering these areas no longer acceptable for further industrial expansion.

Land use regulations as exercised through zoning, development controls and building permits have very little influence in Metro Manila and other urban areas. For instance, a Metro Manila Zoning Ordinance was adopted in 1981 which defined the spatial allocation for various activities (residential, commercial, industrial, and institutional). An evaluation of the zoning ordinances shows that it lacks standards that would specify the allowable degree or intensity of activities for a given area. As a result, the provision of required infrastructures support often lags behind the increase in the intensity of activities in the metropolis. This is evidenced by the environmental problems we are currently experiencing such as inadequate garbage collection, lack of garbage disposal sites, flooding and traffic congestion. In addition to the basic weakness in the ordinance itself, enforcement is ineffectively pursued. The institutional set-up for enforcement is non-existent at present due to the hiatus in defining the specific role of the Metro Manila Authority. There is also a lack of coordination between the local government units and national government in enforcing land-use regulations and the permit system associated with these regulations.

Evaluation of Institutional Structures

The first step in evaluating institutional arrangements is to define the explicit standards or criteria by which the institutions are to be assessed. For our purpose, the current setup in environmental administration will be considered using two tests.

First: decisionmaking. Do our environmental agencies provide an effective mechanism through which the country can make sound decisions and policies to protect our environment?

Second: execution. Do the institutions function effectively to carry out the decisions and policies that have been made? Are regulatory measures enforced effectively?

Decisionmaking and Policy Formulation. By virtue of the legal mandate vested on DENR, the primary focus of the national effort to protect air and water quality has been on the identification of industrial sources of pollution and requiring that discharges be subjected to treatment or to a control device to achieve reduction of concentration of pollutants within limits set by standards prior to discharge to the environment. From a conceptual framework, the present regulatory structure is based on the establishment of air and water quality standards that set limitations to ensure that the body of water or ambient atmosphere would be suitable for designated purposes.

In this regard, the DENR has provided resources and expertise in defining policies governing control of pollution from industrial sources, as well as vehicular sources in the case of air pollution, and recommended programs/projects to meet them. For instance, air and water quality standards have been adopted by DENR and enforced by its regional offices and LLDA.

A major shortcoming of the present institutional set-up in environmental management is that it does not address all the components of the pollution problem in a balanced fashion. In the case of water pollution, the greater source of pollution which is from domestic sources remains largely outside the scope of the present regulatory framework. To address this imbalance, the DENR embarked on a coordinative approach to control pollution through its river revival programs. This scheme seeks to rehabilitate polluted river systems by coordinating the efforts of all agencies whose regulatory and developmental activities can bring about an improved water quality of a degraded river systems.

For this purpose, an Inter-Agency Task Force was formed for the first river revival program aimed at cleaning up the Navotas-Malabon-Tullahan-Tenejeros rivers. Among the members of the Task Force were government agencies tasked

with the following responsibilities: (a) the MWSS, NHA, MMC for the control of pollution from domestic sources; (b) the DPWH for dredging operations; and (c) the DOH for the health and sanitation components of the project. A notable feature of this project is the active participation of the private sector.

The concept is laudable, but the lack of financial resources to implement the planned activities severely hampered the operations of the Task Force. After three years, the Task Force succeeded in reducing pollution from industrial sources as a result of strict enforcement of pollution control laws by DENR. However, organic loading from domestic sources has gone unabated because the sewerage system has not been improved and squatter/slum colonies along the river banks have not been relocated. The success of an endeavor such as this which concerns the coordination of a loose aggregation of agencies with their own priorities is highly dependent on the presence of additional sources of funding in addition to the agencies' allocations from the national budget. If this is absent, only those targets which coincide with the member agencies' priorities will be met. This defeats the purpose for which the interagency program was created in the first place. This underlines the major issue that needs to be resolved at the national level: what portion of the national budget should be allocated to pollution abatement and environmental protection?

Execution. Enforcement of pollution control laws by regional offices has improved enforcement effectivity. Regional offices can closely monitor industrial activities within their regions and can respond promptly to pollution complaints. Enforcement activities, however, are still severely hampered by lack of equipment and trained manpower in the regions. DENR has traditionally been concerned with regulating exploitation of forest and mineral resources. Pollution control and environmental protection were merely added to its mandates in the DENR reorganization of 1987. As a result, allocation of resources within the Department is heavily weighted towards the traditional sectors of forestry, lands, and minerals. This is reflected in the distribution of the DENR budget among the various sectors.

A monitoring program is an essential component of enforcement. Obviously, the success or failure of our environmental quality management program and regulatory measures can be judged only by monitoring the quality of air and waterbodies and comparing these measurements with that specified in the objectives. The DENR regional offices are responsible for monitoring ambient air and water quality and monitoring of point sources of pollution. Although each regional office has such a program in place, the lack of equipment and trained personnel again severely hampers the implementation of regular monitoring activities. DENR recognizes this need, hence it made special representations to Congress in 1989 for budgetary allocations specifically for buying laboratory and monitoring equipment. This resulted in the release of ₱13M for capital outlay in EMB in 1990. Other ways being employed to acquire needed equipment is through technical assistance grants in other sectors such as energy and transportation which require environmental

monitoring. A personnel training program both at the bureau and regional offices has also been started to complement the acquisition of additional and new monitoring equipment.

Monitoring data are also necessary for making decisions on specific physical improvement projects for pollution abatement. Both the degree and source of pollution have to be identified from monitoring data so that appropriate control facilities can be determined and delineated. At present, gaps exist in our air and water quality monitoring data. The available data are not sufficient to design specific physical improvement facilities in the case of water pollution abatement. For air quality, the absence of adequate data is more acute. Neither the most critical sources of pollution nor the extent of pollution can even be identified with the available air quality data. This emphasizes the critical need for monitoring equipment.

A marked improvement in the present institutional set-up is in the adjudication of pollution cases. A body within the DENR, the Pollution Adjudication Board (PAB), was formed to decide on pollution cases. In the present system, the DENR regional offices will determine if any firm or establishment within their jurisdiction has violated pollution control laws. These cases are elevated to the PAB for decisions. Because decisions are made by a collegial body, there is less tendency for decisionmaking to be influenced by political pressures. Although the process of adjudication was streamlined, delays still occur because the transmission of communications between regions and PAB takes considerable time. Delays can also be attributed to inability of regions to respond immediately to monitor pollution complaints due to lack of vehicles and/or equipment.

Policy Instruments Other Than Direct Controls

There are measures or instruments available other than "command and control" measures for environmental pollution control. Direct government investment on environmental services such as solid waste treatment and disposal are among such measures. The use of economic/market instruments such as taxes, subsidies, and effluent charges is another.

Direct Government Investment in Environmental Services. Government investments are important components of present and future environmental programs. These expenditures can provide a variety of environmental services; for instance, solid waste disposal, flood control, sewerage treatment, and so on. Government investments are included as essential elements in environmental policy for the following reasons: the public-goods nature of environmental services and the large financial outlay required for most efficient scale of operations of pollution control facilities.

Public goods are typically not exchanged in the marketplace because no one can be excluded from consuming them. There is no incentive for a private enterprise to go into the business of cleaning up air or rivers because once the air or river is cleaned up, the enterprise cannot charge people for breathing the purified air or using the clean river water. For this reason, government provides many public goods.

There are measures or instruments available for environmental pollution control other than "command-and-control." Direct government investment on environmental services such as solid waste treatment and disposal are among such measures. The use of economic/market instruments such as taxes, subsidies and effluent charges is another.

Most facilities that provide environmental services (such as solid waste disposal, waste treatment plants, and so on) require more financial resources than what the private sector can provide. It may therefore be necessary in these instances, to use the tax and borrowing capacity of the government to raise funds.

Taxes, Subsidies, and Effluent Charges. One broad range of instruments which the government has failed to consider in environmental policy is the use of fiscal measures or, as it is more popularly referred to in the literature, economic instruments such as taxes, subsidies and effluent charges which are designed to encourage the behavior of individuals and firms towards improved environmental quality. Fiscal measures are a powerful tool of the government to stabilize the economy, for instance, in reducing unemployment or inflation or sometimes as a means of redistributing income. In like manner, these measures can be used to allocate environmental resources efficiently. The usual price system mechanism of efficient allocation does not hold true for public goods such as environmental resources.

The use of fiscal measures or economic instruments is based on the basic premise that our scarce and valuable environmental resources should be provided at an appropriate price. The common behavior of individuals and firms assumes a zero price tag on these resources because these can be used by anyone without payment for the privilege, for example, breathing clean air or disposing wastewater into an "estero." The use of economic instruments will change relative prices with the end in view of internalizing the externalities underlying environmental problems and change behavior of individuals and firms so that they take full account of the social costs and benefits of their activities.

Among the various kinds of taxation, effluent charges are the specific form which has the most relevant application to environmental quality. A tax per unit of effluent discharge will give a positive price to the use of air and water as waste repositories, and thereby limits the unrestricted use of such "free" resources. On

the other hand, individuals and firms are forced to regard the effluent charge as another cost of doing business. Profit-maximizing behavior on their part will compel them to look for least-cost solutions. This may entail paying the charge, installation of pollution-control devices, reduction in output, or a combination of these actions.

An alternative to the use of effluent charges is the use of subsidies per unit reduction in emissions. In principle, both instruments would result in the same outcome of inducing firms and individuals to take full account of the costs and benefits of their activities. There are differences, however, in terms of allocation of property rights between the government and private sector over the use of environmental resources and in terms of distribution of costs.

Undoubtedly, both economic instruments and direct regulatory controls have their advantages and disadvantages. The choice of the appropriate policy instrument need not be a selection of one instrument over the other. It could be a combination of both. The overall objective of these policy strategies are the same. What needs to be answered is which policy instrument or mix of these instruments is a more effective means of achieving the common goal of improving environmental quality. The following considerations have to be evaluated in making a choice:

(1) Effectiveness - How effective is the approach in achieving its objective?

(2) Efficiency - Does the approach achieve its results with low cost to society?

(3) Information requirements - What technical information needs are required? Are they difficult to obtain?

(4) Enforcement requirements - What are the enforcement problems associated with each approach? What institutional setup is needed to enforce effectively the policy instrument adopted?

(5) Equity - Which segments of society will benefit? Who will carry the burden of additional costs?

(6) Political acceptability - Will the legislators and general public support the approach to environmental policy?

Environmental Policy and Development Planning

The existing institutional setup cannot attend to more important aspects of pollution control especially pollution emanating from domestic households, non-point sources, and solid wastes. As an alternative, an independent and strong

environmental agency which can institute environmental policies and management programs in an integrated and coordinated manner has been recommended. However, unless such an agency is backed by adequate financial resources and technical manpower, it will suffer the same fate as the previous environmental administration structures. Despite policy pronouncements that environment is a priority, there is still a lack of political will in the pursuit of environmental objectives as evidenced by low budgetary allocations to environmental programs.

Integration of Environment and Economic Policies

The needed political will to pursue environmental quality objectives requires a fundamental change in the basis for decisions on growth and development. Decisionmakers must realize that the process of economic development in our country is dependent on sustaining the capacity of our environmental and natural resources to provide for future needs. This implies that growth objectives should be compatible with natural resource base limitations and waste assimilation carrying capacities of life-support systems (ecosystems). In the realm of policy formulation, this requires that there should be an integration of environmental with economic considerations in decisionmaking. This is after all a reflection of practical economic reality. For instance, minimizing production of waste through recycling or resource recovery or through just plain good housekeeping practices in the production process can result in substantial cost reductions for industrial firms.

Integration of economics and environment in policy formulation highlights the necessity of intersectoral coordination and linkages in decisionmaking. Inconsistencies in policies such as those regarding air quality and energy use, or that between air quality and transport policies will be avoided in such a framework of decisionmaking.

Acknowledging the interdependence between economics and environment would entail vital changes in the attitudes and procedures of both public and private sector enterprises. Thus, in the development of urban areas, optimal land-use allocations should be determined using environmental quality perspectives as an input along with other economic and social demands. Zoning and development decisions should not be governed by market forces alone. From this decisionmaking perspective, environmental regulation must go beyond the sectoral regulatory measures such as zoning ordinances, safety regulations and pollution control laws. The final step is to "build environmental objectives into taxation, prior approval procedures for investment and technology choice, foreign trade incentives, and all components of development policy" (WCED 1987).

In terms of institutional structure, this leads to the conclusion that ultimately, environmental management should be lodged in an institution responsible for development planning. At the present stage of environmental consciousness among

our policy makers, however, it is not the opportune time to make such a step. What is urgently needed is to strengthen, first, existing environmental institutions by putting in place the necessary facilities and building up the required manpower to implement our environmental management programs and regulatory measures. At the same time, coordinative efforts among the various sectors should be continued and intensified to realize the integration of environmental and economic factors in decisionmaking.

Towards Institutional Reforms: Decentralization

The decentralization process in the DENR involves the transfer not only of the regulatory functions but more importantly of the planning and decisionmaking functions to the regional offices. Decentralization has certain advantages. It permits maximum participation of the population in the decisionmaking processes regarding issues that concern them directly, thereby arriving at responsive decisions. Bureaucratic red-tape is minimized since it will no longer be necessary to go to the Central Office in Manila for appropriate actions. This will also decongest the central government of certain functions that are better done at the regions. A necessary complement to the decentralization process is the deployment of the greater bulk of financial and manpower resources of a department to regional operations. In the case of DENR, 85 percent of its resources is for regional operations.

A critical aspect of decentralization is the presence of a monitoring system that will serve as a check and balance to the operations of the regional offices. Experience has shown that decentralization often creates opportunities for graft and corruption unless transactions are closely monitored and verified in accordance with department guidelines and limitations.

A major problem encountered in decentralization is the lack of trained personnel in the environmental management sector to man the regional offices. The low salary scale for technical positions requiring expertise in engineering and natural sciences cannot attract qualified manpower. Engineers still opt to work for the private sector. In fact, rapid turn-over rate of technical personnel in EMB and regional offices are attributable to the unattractive salary scale in government.

In conclusion, decentralization is a positive development in environmental administration. It encourages participatory planning since it calls for the full involvement of regional staff as well as concerned citizenry in affected communities. Delivery of services is hastened in the process because the regional offices have better capability to attend and respond with dispatch to pollution complaints and other environmental issues. Decentralization, therefore, promotes accessibility and responsiveness.

With the promulgation of the Local Government Code of 1991, the process of decentralization takes a step further, through the transfer of functions, powers and responsibilities to local government units. As a result, the DENR shall devolve the implementation of specific programs, projects and activities, and the enforcement of environment-related laws, rules and regulations to cities, municipalities and provinces. Among these functions are the following:

(1) implementation of community-based forestry projects;

(2) management, protection, rehabilitation and maintenance of small watershed areas which are sources of local water supply;

(3) establishment, protection and maintenance of tree parks greenbelt, and other tourist attractions;

(4) implementation of solid waste disposal and other environmental management systems and services related to health and sanitation;

(5) abatement of noise and other forms of nuisance as defined by law;

(6) implementation of cease and desist orders issued by the pollution adjudication board; and

(7) apprehension and testing of smoke-belching vehicles.

The DENR, however, shall continue to provide LGUs technical assistance pertaining to the devolved functions. For 1992, DENR shall be transferring to concerned LGUs about 1,800 personnel and a total budget of 196.7 million pesos for the operation of the devolved functions.

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