

**Factors Influencing Environmental
Policies in Developing Countries**

Celso R. Roque
Science Research Foundation,
University of the Philippines
Manila, Philippines

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ENVIRONMENTALISM IN THE THIRD WORLD: THE HISTORICAL CONTEXT OF CURRENT POLICY

Like all political movements, environmentalism emerged from the rhetoric of crisis. During the 1950s and the 1960s, the environmental tragedy in Minamata, Japan, the "Torrey Canyon" disaster, and a host of pollution episodes in the industrialized countries heightened public awareness of and sympathy for the environmental cause.

Starting with the early works of evangelists such as Rachel Carson, Rene Dubos and Barry Commoner, environmentalism has become an established, ideology, engulfing the world of politics with great speed. In just two decades, the environmental movement has evolved from badly organized activism to a significant political force, examples being the "Die Grunen" (The Greens) of the Federal Republic of Germany.

From the apolitical or conservative environmental lobby in the US to the aggressively pacifist Greenpeace and the radical Marxist factions of the Green Party environmental lobbies shared a willingness to engage in power politics in the pursuit of their goals.

Environmentalism in Western societies has inspired structural reforms in government bureaucracies at all levels. Along with such structural changes, new legislation related to environmental concerns has become part of Western political reality. Environmentalism itself has changed. Its idiom is no longer couched in apocalyptic terms like environmental collapse and depletion of natural resources. In the West it is now largely concerned with potential and primarily invisible problems such as risk assessment and management of potential risks such as damage from toxic pollutants.¹ The environmental movement has matured and has adopted a more rigorous scientific attitude to environmental problems. More significantly, the concerns of the environmental movement are becoming increasingly global. Whales, the tropical forests, antarctic mammals, the ozone layer, or the atmospheric testing of nuclear weapons are some of the issues and causes for world environmentalism.

During the last two years, surveys to identify important environmental issues have been undertaken by the Swedish Academy of Sciences, the United States Environmental Protection Agency, the French Government, the US Conservation Foundation, the University of Michigan, and the Congressional Clearing House for the Future. In addition to local problems, these exercises also covered issues of the global commons and the environmental problems of developing countries.

The acceptance by most countries of the environmental movement was marked by the United Nations Conference on the Human Environment in Stockholm in 1972. However, as early as 1971, two regional meetings

in the Asia-Pacific region had been convened by Economic and Social Commission for Asia and the Pacific (ESCAP). The first seminar dealt with environment and development, the second, with the ecological implications of rural and urban population growth. These seminars can be regarded as the genesis of formal consideration of environmental concern within the ESCAP region. Following the Stockholm Conference, an intergovernmental meeting was held in Bangkok in 1973; this meeting adopted the Asian Plan of Action for the Human Environment. From these modest beginnings, Western-bred environmentalism spread with startling speed to the developing countries of Asia. In response, there was a flurry of new environmental legislation in many of its countries. By the late 1970s, environmentalism in most of the developing countries of Asia and the Pacific was transformed into official policy, codified in law, and enshrined in government institutions.

In recognition of the fact that environmental problems do not stop at national boundaries, three regional meetings at the ministerial level were convened in the early 1980s. They were largely inspired and orchestrated by the United Nations Environment Programme (UNEP).

In early 1981, Afghanistan, Bangladesh, Islamic Republic of Iran, Maldives, Pakistan and Sri Lanka adopted the Colombo Declaration. The declaration was a joint commitment to sustainable development. Two months later, the Manila Declaration of the ASEAN Ministers of the Environment was proclaimed in more or less the same spirit. In March 1982, 19 Pacific nations signed the Rarotonga Declaration. These declarations are expressions of commitment to sustainable use of natural resources and are strikingly similar in form and substance. They, too, were stimulated by international agencies, and not prompted by regional needs and conviction.

Third World environmentalism has been influenced by other external sources such as the aid agencies and financial institutions. Since 1976, United States Aid for International Development (USAID) has been required by the US Government to prepare environmental impact statements for its loans and grants. In effect, the sphere of the US National Environmental Protection Act (NEPA) has been enlarged to include areas outside the territorial boundaries of the US. Since 1979, a similar directive has been observed by the Export-Import Bank. The Asian Development Bank has actively been extending assistance and loans for environmental projects in developing member countries (DMCs). This international aspect of environmentalism is summed up by Matthews and Carpenter:²

In some cases, institutions dominated by industrialized countries have taken the responsibility for conducting assessments of projects supported in developing countries. This is being done with an often disconcerting blend of management concerns, missionary

zeal skepticism and reluctance. Even some multinational corporations are encouraging better environmental assessments and decision-making in developing countries, partially to avoid later problems caused by a shift in ground rules when public concern ultimately increase.

While international agencies direct most of their attention toward the policy-level of national and regional bureaucracies, the aid and financial agencies work at the operational level through projects. The logic of the former is that increasing policy level awareness of the environmental issues and the forming of appropriate national policies are the most important strategic steps. In terms of substantive impact, the project approach of aid and financial agencies is considered more significant and useful.

It was quickly recognized that to ensure implementation, national environmental policy would have to be formulated at the highest levels of government. Any such policy would have to bind an entire government machinery. The case of the Philippines illustrates this point. The environmental policy is formally embodied in Presidential Decree No. 1951 and the National Environmental Protection Council was established in 1977, with the President of the Philippines as the chairperson. Another example is Sri Lanka, where a Central Environmental Agency was established at the initiative of the Prime Minister. The 1974 Constitution of Thailand devoted eight of its 238 articles to the maintenance of environmental integrity, while in Vanuatu and Papua New Guinea, the respective constitutions contain provisions for the sustainable use of natural resources. Other countries in the region have also incorporated the environment in their constitutions.

ESCAP noted the continuing formation of high-level environmental agencies in the region. In the People's Republic of China, the State Council established an Environmental Protection Office, while in the Republic of Korea, there is the Environment Administration, which is the central agency dealing with policies and control of pollution. In Malaysia, environmental matters are dealt with by the Ministry of Science and Technology, and in Thailand, the National Environmental Board is under the jurisdiction of the Ministry of Science, Technology and Energy. In Indonesia, there is a Ministry of Population and Environment.

In the Pacific Islands, the institutionalization of environmental concerns is still in the formative stages. Papua New Guinea (PNG) has a Ministry of Environment and Conservation while there is an Environmental Protection Board in the Trust Territory of the Pacific Islands.

Most of these agencies do not have much authority especially those agencies whose mandate is rather broad. Such agencies have insufficient clout to influence the course of actual decision-making. They are underfunded

and inadequately staffed and have little influence in formulating important development projects. As a result, there is a large gap in the enforcement and implementation of environmental policies.

An ESCAP survey revealed that most legislation in the Asia-Pacific region is sectoral and that coverage of environmental legislation has great variation. Environmental laws are almost non-existent in the Pacific Islands, Maldives, and Brunei though fairly complete in countries such as Philippines, India and Sri Lanka.³

There are important historical factors in the evolution of environmental policies in the Asia-Pacific region. The forces that shaped the first initiatives have lasting effects on the way policies will be developed in the future. In the developing countries of the Asia-Pacific region, environmentalism arose primarily from the environmental movement of the West. While local environmental problems provided some stimuli, they played a minor role in the formation of the initial policies. The main channels for the transfer of ideology have been the international development agencies, the international aid and lending agencies, and local Western-oriented elites.

Most of the environmental laws have been based on Western models, the laws being drafted to legal systems which are themselves legacies of the colonial past. The critical implementation gap is one indication of inappropriate ideology transfer; environmentalism has to be tailored to fit the Third World context. Solutions to the problems of poverty, unemployment, the dual economy, high population growth rates, unfulfilled basic needs, and the other woes of underdevelopment must somehow be included in determining the direction and focus of environmentalism.

The high-level approach — involving the highest political authority in the development of national environmental policy — has proved to be a strategic mistake. Political power has a short attention span while the illusion grows that high-level support automatically implies operational influence over the bureaucracy.

THE EVOLUTION OF ENVIRONMENTAL POLICIES

Environmentalism has grown out of the existing contradictions between economic production and the regenerative capacities of natural systems. These are characterized by the emergence of environmental problems and the loss of environmental values. The result is a confrontation between environmental advocates and affected parties, and the vested interests of industry. How these conflicts are resolved depend on complex factors in the existing social and political order: a new policy emerges, embodying national character, the interests of political leaders, the activism of pressure

groups, historical traditions, aesthetic values, national scientific competence, national development priorities, etc. There is no universally valid calculus of conflict resolution — every society and every culture must seek its own path to a compromise between the conflicting interests of its constituents and the constraints imposed by local ecosystems. Imported solutions based solely on alien perceptions are often ineffective, inappropriate and expensive.

Figure 1 is useful in understanding the evolution of policies. It represents a system's view of the environmental policy cycle. In addition, it illustrates a framework for the analysis of the various factors influencing environmental policies.

The policy cycle comprises three systems: the human ecosystem, the policy system and the implementation system. The human ecosystem, because of its complexity and inherent contradictions, is in a state of tension — the results are environmental problems. The policy system is principally a mechanism for conflict resolution. It generates policy instruments which are the operational guidelines that define the actions of the implementation system. The policy system includes the legislative and judicial system policy councils, and other national mechanisms which help to resolve conflicts and generate new policies. The implementation system is composed of the mission or sectoral agencies of government.

The topmost box in Figure 1 is labelled Human Ecosystem. This is imagined as being composed of three subsystems: the Production, the Natural and the Social system. Obviously, this is a very complicated system, with vast amounts of interaction and feedback. Here the Human Ecosystem will be viewed simply as a generator of environmental issues and conflicts. The natural system depicts the totality of the physical and biological environments of a given country. The productive system represents agriculture, industry and all other activities related to the production of goods and services that utilize environmental resources. The social system represents the organization allocating resources, delineating roles, and controlling flows and feedbacks. To clarify the concept of Human Ecosystem, indicators will be specified for each subsystem. The Natural System is characterized by the following:

- hydrology
- meteorology and climatology
- geography and topography
- geology

The Production System includes those activities that damage the Natural System. These include:

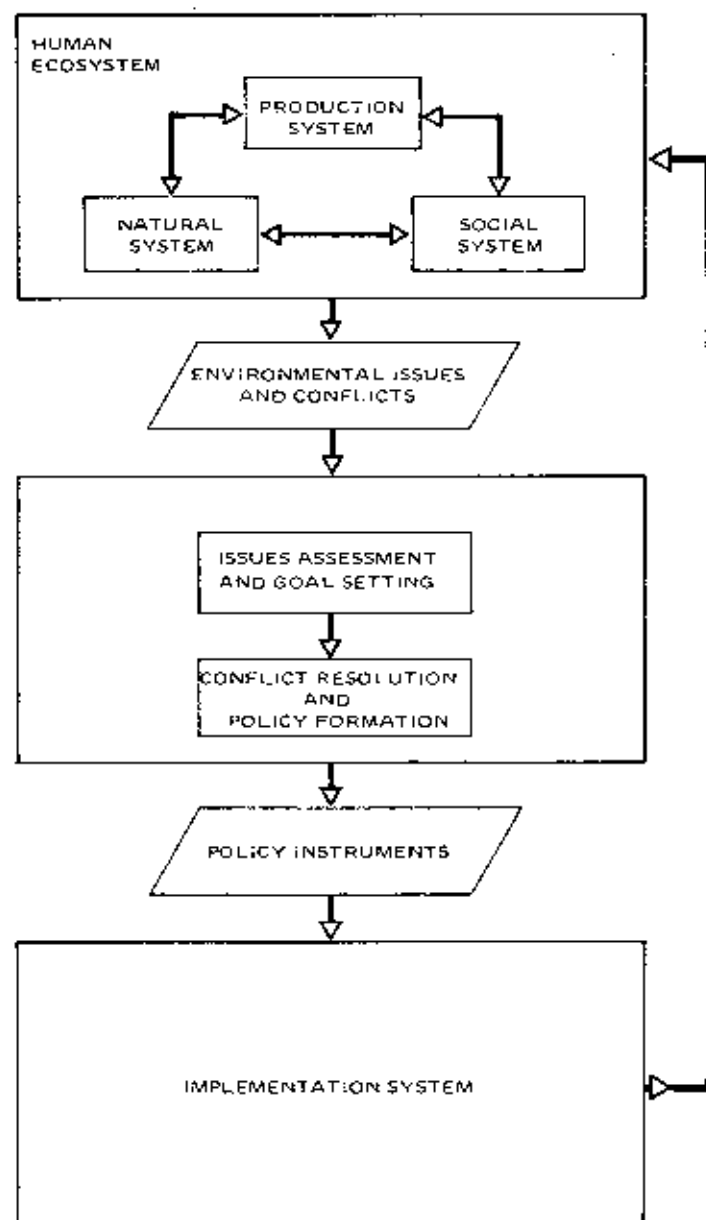


Fig. 1. *Systems View of the Environmental Policy Cycle*

- extraction, processing and transport of raw materials
- disposal of wastes
- agriculture
- generation of power
- construction of infrastructure
- patterns of consumption
- patterns of recreation

The most difficult to describe is the Social System. This is characterized in terms of human and social conditions.

In terms of human conditions, the following indicators may be used:

- size, distribution and growth rate of population
- density and mobility of population
- mortality and life expectancy rates
- sanitary conditions
- disease and health
- fulfillment of basic needs
- patterns of land use

The indicators of social conditions include:

- levels and distribution of income
- unemployment levels
- literary and educational levels
- stage of development
- ethnic and age composition
- social cohesiveness
- ideological and intellectual activism (presence of advocacy groups)
- patterns of communications
- scientific resources

In the policy system, issues, assessment and goal-setting are characterized by:

- policy objectives and goals
- historical traditions
- aesthetic values
- religious beliefs and motivations
- national goals and priorities
- openness to foreign values

In conflict resolution and policy formulation, the important considerations are:

- national philosophy of intervention
- legal and administrative traditions

- agenda of national issues
- dispute settlement machinery
- interests of political leaders
- activism of pressure groups
- influence of international agencies
- influence by aid agency

The implementation system may be characterized by:

- complexity of implementing structures
- inter-agency conflicts
- inter-agency coordination and communication
- allocation of authority
- surveillance and monitoring programs
- timing of implementation

The factors affecting environmental policies are those listed above; the dominant factors varying over time, in different situations and contexts. For the sake of simplicity, these factors are classified under three categories: dialectic, normative and operational (Figure 2). The dialectic factors arise out of the interaction between the various components of the human ecosystem. The character of environmental problems, the role of pressure groups, the prevailing socioeconomic conditions, and sociocultural patterns are but a few.

Normative factors refer to the operation of the policy system. The ultimate character of a policy is determined by social values and political process. The relative political clout and moral persuasions of contending parties are important in determining policy outcomes.

The effectiveness of policies in guiding the actual behavior of the human ecosystem is determined by the implementation system. The relevant factors are those affecting the operation of the bureaucracy. They not only shape the character of policy but also determine the ultimate empirical meaning of policy.

The approach dictated by the theoretical framework is essentially historical. If we are to learn about causes and effects, their origins and major determinants must be traced through the policy cycle. In the policy cycle approach, the ecological problem is the principal focus. The chain of causality goes through the institutional framework.

Developing countries exhibit similar systems characteristics and similar behavior of the policy cycle system. This is indicated by the presence of some widely shared general policy such as the sustainable use of natural resources. An analysis of the genesis of such a policy could yield some valuable insights into the factors that influence environmental policies. Developing countries share the same problems in realizing their policies. The implementation gap, for instance, is almost universal in the Third World.

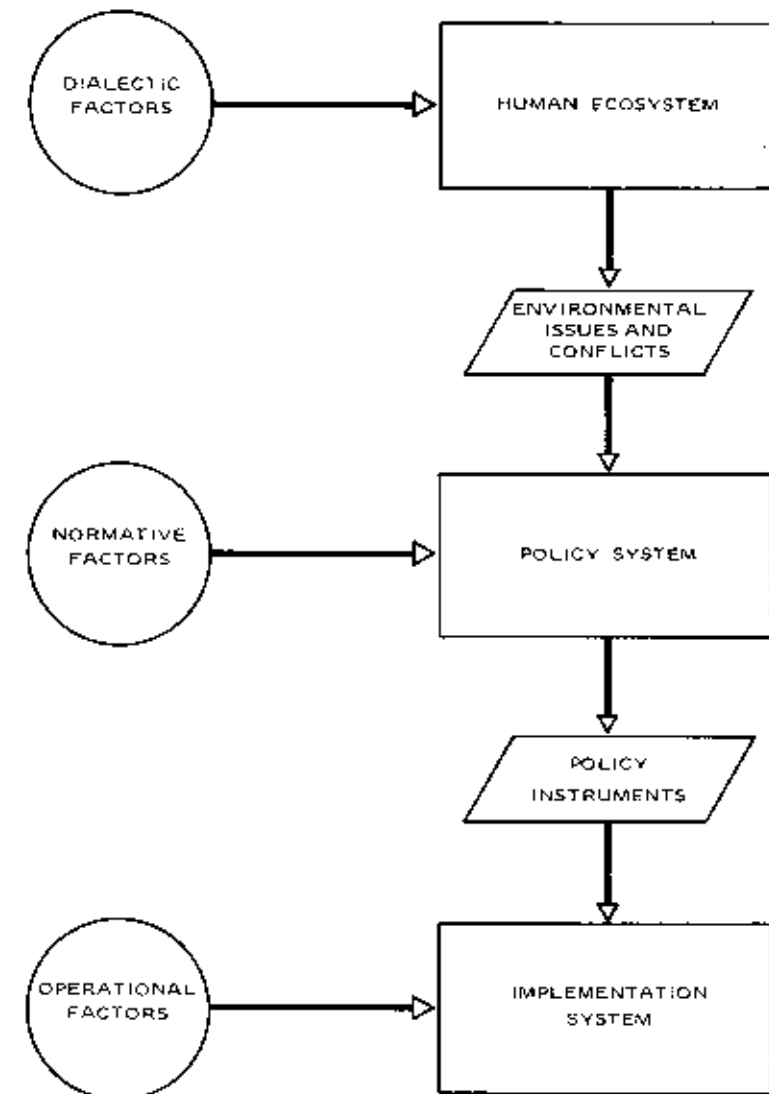


Fig. 2. Classification of Factors Influencing Environmental Policy

That there are some country-specific factors is obvious. They are best explored by looking at specific cases in typical countries of South Asia, Southeast Asia and Pacific Islands.

ENVIRONMENTAL DIALECTICS

The environmental conditions of the developing countries of Asia and the Pacific have worsened since the 1960s and are expected to continue to the end of the century.

Deforestation is perhaps the most serious environmental concern. The rates vary from 4.3 per cent in Nepal to 0.1 per cent in Papua New Guinea. From 1980 to 2000, the expected loss of forest cover is 19 per cent for South Asia, 11 per cent for Southeast Asia, and 5 per cent for the Pacific.

Air and water pollution in the region are also expected to increase by about five to tenfold because of predictable increases in motor traffic and industrial activity. The overall demand on natural resources will perhaps double by the year 2000. This grim portrait is a statement of the failure of public policy. In terms of the policy cycle system, the fault could lie in any one or all of the subsystems and their interconnections.

In the Human Ecosystem it is the adversarial process that calls attention to environmental problems and issues. The clash of interests over the issues fires public concern. However, the intensity of this is dependent on what could be called dialectic factors. The first factor is the character of the environmental problem itself:

- Directness — when the impact on human and social conditions is clear and readily visible, e.g. toxic substances;
- Salience — the prominence or relative importance of the environmental problem with respect to other national problems;
- Severity — the magnitude of the impact in terms of economic, social, and human costs;
- Immediacy — the time-scale of the impact; some impacts are immediately visible, others take a long time;
- Reversibility — the situation in which damages are physically reversible, e.g. replanting of denuded forests; and
- Controllability — the existence of know-how or technology that could be used in mitigating or reversing impacts.

The second dialectic factor is the way the problem is perceived by the principal actors. This is influenced by the benefits arising out of the activities generating the problems. Mass communications infrastructures and

the access of citizens to information are also important considerations.

The third and perhaps the most important factor is the presence of environmental non-governmental organizations (NGOs). Advocacy is the essence of the dialectic process and NGOs have a crucial role in the determination and evolution of policies.

The identification, evaluation and public debate of issues depends on the existence of a core of scientific expertise and scientific facilities. Such resources are significant in the adversarial processes as they provide factual information and the necessary rationalism.

Population growth and economic development further shape environmental, social and human conditions. These also create tension in the human ecosystem provoking new policy initiatives. The high population growth in the Third World, for example, puts severe pressure on natural resources. New policy directions in economic development, like the new emphasis on agriculture,⁴ often aggravate the conversion of forest lands and increase the pollution threat from agricultural chemicals.

In general, the character of Third World environmental problems rarely creates a sufficiently confrontational situation to capture national attention. Nearly all environmental problems lack the quality of salience to merit a strong public concern and commitment. Developing countries suffer from an overload of political and economic issues that divert public attention from environmental problems — problems usually perceived to be long-term and ultimately controllable by technology. The only exceptions to this are sensational environmental disasters like the Bhopal catastrophe in India and concern for the risks involved in nuclear power.

The case of forest denudation exemplifies the role of the distribution of benefits. Some of the major causes of deforestation are logging, shifting cultivation and fuel wood gathering. Logging is usually in the hands of the elite, while shifting cultivation and fuel wood gathering are activities of the very poor. Middle-class professionals generally are not affected directly by forest denudation. In this situation, advocacy of forest conservation could easily be seen as contrary to the interest of a broad spectrum of people. The severity of loss of forest cover has produced no significant debate. Some responses to these problems include the following:

- Use of sustainable yield principles, e.g. the social forestry approach in the Philippines;
- The establishment of an integrated watershed management program and a division of environmental management in the Ministry of Forestry in Nepal; and
- Reforestation of denuded areas and the planting of fast-growing species in Thailand.

The reforestation program in Nepal is getting technical assistance from ESCAP. New Zealand, Federal Republic of Germany and Japan are helping in the Philippine reforestation program. Though developing countries in Asia have an acute shortage of environmental expertise, the local experts are important actors in the adversarial process — in identifying real issues and in providing technical guidance in the national debate.

In industrialized countries, NGOs have become a well-established lobby and a serious political force with memberships into the hundreds of thousands. In the US, the combined total membership of the 11 largest organizations is about two million. The Conservation Foundation noted that "many of the existing environmental programs seem to base the resolution of conflicts on litigation and other adversarial methods".⁵ Contrary to the expectation that public attention will fade, the anti-environment policies of the first Reagan Administration in 1981 actually stimulated the growth of the NGOs. The Defenders of Wildlife has increased its membership by 50 per cent, Friends of the Earth by 38 per cent, and the National Audubon Society by 25 per cent.⁵

Even in the developing countries, over the last decade, there has been a sharp increase in the adversarial activity of environmental NGOs. This is in part due to the pace of industrial development and in part to greater awareness of the environment. The Chipko Andolan, India, the Sahabat Alam Malaysia, the Nuclear-Free Philippines and the Purari Action Group in PNG have demonstrated the degree of activism required to influence policy. The Chipko Movement in India has saved the forests of many villages by women who actually hugged trees when threatened by loggers. Sahabat Alam Malaysia and other Malaysian NGOs have mobilized public opinion to resist a hydroelectric project in a national park. The Purari Action Group has campaigned against a hydroelectric project in the Purari River. In the Philippines, the Nuclear-Free Philippines and other environmental NGOs have so far succeeded in delaying the opening of a nuclear power plant. In developing countries, the more than 250 prominent NGOs have been effective in promoting environmental awareness and in conducting educational campaigns. In contrast, NGOs in developing countries have not yet gained enough public support and financial strength to become an effective environmental lobby.

The region's NGOs are plagued by problems of funding, lack of expertise and internal management problems. Effective and implementable policies can emerge only if NGOs confront the coalition of government and vested interests with adequate political clout to complement their moral position.

The policy cycle framework shows that the persistence of environmental problems is due partly to the imbalance in environmental dialectics. The

dominance of the forces of unsound exploitation of environmental resources over the weak conservation-oriented advocates encourages unsustainable development of natural resources. The myths about reversibility of these problems and the belief about the possibility of a future technological fix, favor destructive practices. The shortage of financial resources for scientific research results in an inadequate information base for decision making. Choices about the use of natural systems are strongly influenced by political experience rather than by scientific data.

ENVIRONMENTAL POLICY AND THE CULTURE OF POVERTY

The societies of South Asia, Southeast Asia and the Pacific show great cultural variability. Beneath these bewildering sociocultural patterns, however, is a fabric of commonalities widely shared by developing countries — the social, political and cultural characteristics attributed by Gunnar Myrdal to "soft states".⁶ Two peculiarly Third World phenomena emerged during the decades of colonialism and underdevelopment: the culture of poverty and economic dualism. These and other factors are relevant to environmental policy and are the normative factors in the present policy-cycle framework. The questions that must be answered here relate to those that determine the nature of the problems and the policy instruments that can be used in solving them.

One feature of a soft state is the low level of social discipline, apparent in the general laxity of civic mores, the absence of strong loyalty to community and country, and corruption. Historically, the societies of the region were pluralistic, where the strongest loyalties were to families and groups. Loyalty to a larger social order, such as the national community as a whole, was non-existent or weak. Consequently, an abstract ecosystem would not only be difficult to comprehend, but would rarely evoke strong emotional commitment. Moreover, ecosystem loyalty far exceeds the bounds of traditional concepts of loyalty. Exceptions are to be found in some indigenous cultures such as the Kalingas in the Philippines who have strong ecological orientations expressed through traditional land use practices. In other areas, villages can be provoked into action by directly perceived environmental threats such as the erosion and flooding that led to the Chipko Movement in India, or the siltation of farm lands by mining operations in the Philippines. In general, there is little interest in environmental matters among the masses. This is clearly seen in the small memberships of environmental NGOs in the region. The Philippines, for example, with a population of 53 million attracts only about 150 to the Haribon Foundation, while Australia, with a population of 25 million can muster 11,000 for one of its conservation NGOs.

The social norms and values of environmental policies do not reflect the preferences of the masses in Third World societies. Here it is useful to heed the precaution of Myrdal: "The masses may be passive about policy decisions, but within this passivity there is often resistance to the carrying out of these policies."⁶

The traditional parochial attitudes of the masses is further reinforced by the culture of poverty. This "culture" constitutes the common social idiom that pervades the diverse societies of the region. Poverty is not only material deprivation but a complicated set of human conditions with psychological, physical, behavioral and cultural dimensions. From the policy perspective, the behavioral implications of the extremely low standards of living in the region are the more important considerations.

The low standard of health and the lack of education are the root causes of the inertia, lethargy and passivity of the impoverished masses and result in effective disarticulation of a large segment of the population. Exercises in "planning from the bottom", although attended by poor peasants who have been cajoled into participation, are mainly ceremonies to support the ideas of an educated elite. In planning sessions undertaken by the Ministry of Natural Resources of the Philippines, for example, peasants and community officials participate but the former are totally indifferent. Environmental policies in Asia mirror the values of the Western-oriented elites. Among the very poor, they hardly elicit sympathy. The policies are perceived as irrelevant and result in non-compliance.

One other characteristic of soft states mentioned by Myrdal is that governments require very little of their citizens. In fact, even if the government imposes civic obligations, the poor majority do not have the energy and the inclination to contribute. A classic example is Presidential Decree (PD) No. 1153 in the Philippines requiring all citizens ten years and older to plant five trees every month for five years to reforest the country. The law disintegrated under the weight of its own irrelevance in the culture of poverty.

Resistance to change is another characteristic of the poor. Policy initiatives predicated on radical changes in production processes and life styles of the rural population are doomed to failure because of the high risks involved. For the poor, experimentation is a high risk undertaking.

Irrationality and traditional thinking persist even among the educated bureaucracy. Many environmental regulations are not based on facts. Criteria for the proclamation of fish sanctuaries in the Philippines, for example, are highly questionable on scientific grounds.

Poverty breeds survival-mindedness among people. Their short-term logic is inconsistent with long-term ecological considerations. The proponents of sustainable use of natural resources must answer the difficult questions

of people living in a subsistence timeframe: sustainable for how long and for whom?

ENVIRONMENTAL POLICY AND THE POLITICAL ECONOMY

Another factor that influences environmental policy is socioeconomic dualism. In the idiom of economics, this dualism is recognized in the "modern, urban sector" and the "traditional, rural sector". In harsh economic terms, dualism means 20 per cent of the population owning about 80 per cent of a nation's wealth. In political terms, it means a monopoly of decision-making by the privileged few, in spite of claims to political democracy. In terms of social behavior, there is a Western-educated elite, with Western values and responses. It perpetuates a rigid inequality in society. In Asia and the Pacific, socioeconomic dualism is nearly universal.

One common historical experience that the developing countries have is colonialism. With the exception of Thailand, all developing countries of South Asia and Southeast Asia are ex-colonies. Even Thailand, which served as buffer between British, Burma and French Indochina, suffered a high-degree of colonial intervention. Among the effects of colonialism are socioeconomic dualism and Western-based legal and administrative traditions. Western-educated local elites were given high rank in the colonial governments and subsequently acquired skills in Western administrative systems. The elite class became the new colonizers, possessing skills, political authority and access to economic resources of their own country. The situation may be called "autocolonialism" and is often crucial to understanding the formulation and implementation of environmental policies.

It is not surprising then that Western-inspired environmentalism made rapid headway in the developing countries of Asia and the Pacific. The Colombo, Manila and Rarotonga Declarations reveal the workings of a Western logic modified to suit regional conditions. The sustainable use of natural resources is readily accepted because it is consistent with the long-term interests of the elite. The legitimate short-term survival needs of the marginal class are ignored. The present impotence of environmental policies and legislation is partly due to the cognitive gap between the government and the governed. The value premises of environmental laws do not reflect peoples' values.

Elegant and complete though the set of statutes in PNG and the Philippines are, most environmental units are helpless in the face of organized vested interests which include the governments. Environment-intensive projects are often outside the scope of the environmental units. The Bougainville mines in PNG and the Philippines' nuclear power plant are two outstanding examples.

Most of the environmental legislation in the region has not been translated into operational regulations. Jurisprudence in environmental issues is practically non-existent.² Loopholes are included deliberately to safeguard the interests of some sectors or interests. In the Environmental Impact Assessment system of the Philippines, a Minister may recommend an exception to the requirement for an EIA. The inclusion of this escape mechanism was at the insistence of the Minister of Energy and the Minister of Trade and Industry.

Environmental laws emerged not primarily out of perceived necessity but as a fashionable response to Western developments and partly due to the insistence of international development agencies. Environmental laws are futile unless they also induce changes in all social conditions and all socioeconomic approaches especially as there are no purely environmental or economic problems. What is needed is a policy menu that simultaneously addresses the interconnected problems of underdevelopment.

ENVIRONMENTAL POLICY AND THE IMPLEMENTATION GAP

Environmentalism is now official policy in the developing countries of Asia and the Pacific. Whether its effects in the development process have been salutary or not is impossible to determine empirically. However, all measurable indicators show deterioration of environmental quality.³

The most critical component of the policy cycle is the implementation system. This is where policies become action. It is at this stage, where resources are mobilized, that resource use conflicts must be resolved. The factors affecting the implementation system ultimately affect policy. Consistent failure in implementation threatens to erode the credibility not only of the policies but the environmentalists as well.

The implementation system is analyzed in terms of processes, structures and resources ("resources" denotes financial resources, facilities and personnel). In Figure 1, the subsystems for implementation are not indicated since the exact structure will be different for each country. Only that section of government machinery that takes environmental policy instruments (laws, presidential proclamations, etc.) as inputs and transforms them into operational guidelines of the human ecosystem, has been defined. Five general patterns are discernible.⁷ These are the following:

- No specified environmental units — mission agencies manage ecosystems;
- Central environmental unit — this could be an inter-agency committee with staff; it may formulate policies, advise government, implement EIAs and administer pollution regulations;

- Environmental units within mission agencies;
- Environmental units in central economic planning department; and
- Regional superagencies.

Perhaps the greatest difficulty in the implementation process is in the operationalization of policies and key concepts especially when there is a fragmented bureaucracy with conflicting mandates and interests. For the general public, a policy becomes reality in terms of forms that must be filled, various documents that must be submitted, and technical requirements that must be met before an individual can gain access to government services or natural resources. The end result may not conform to the original intent. India's State of the Environment Report for 1982 complained that, "... interpretation by the administrative machinery implementing the legislation is often not in conformity with the intent and purpose of the law".

Some countries such as the Philippines, have enshrined the right to a healthy environment as a fundamental human right. However, serious problems of definition, interpretation and enforcement diminish the meaning and efficacy of these statutes.

Timing is the other factor relevant to the implementation process. There are two aspects: the delay in the arrival of environmentalism in the region, and delays inherent in bureaucracy. The environmental problems are already acute and it seems that no less than draconian measures could decelerate desertification, soil erosion, deforestation and water pollution. The magnitude of investments needed to reverse these trends is huge and disproportionate to "more pressing" social needs.

The second is the inertia of cumbersome and ineffective bureaucracy. An illustrative example is the implementation of the Philippine Environmental Code (PD No. 1152) which, beginning in 1977, provided for tax incentives for the importation and installation of pollution control equipment for a five-year period. However, the implementation rules and regulations only came out in 1981.

In explaining the implementation gap in terms of administrative structures and resources devoted to implementation, it is useful to employ systems analysis terminology. The management, development, utilization and maintenance of the human ecosystem are undertaken by multiple government agencies. Thus, the bureaucracy may be considered a system with structures and processes that affect the functioning of the human ecosystem. The problem of identifying organizational factors could be approached by scanning the known characteristics of systems and relating them to the known features of bureaucracies.⁸ In Table 1, for each relevant general systems characteristics, the corresponding organizational factors or variables of the

implementation system are listed. A clarification of the meaning of the various factors is conveyed in Appendix 1, which further translates the organizational factors into rank order indicators.

Theoretically, all of these factors, in varying degrees, will affect the performance of the entire system. In accordance with their significance, the most important factors are the following:

- Political clout of environmental agencies
- Resources allocated to environmental activities
- Organizational effectiveness of environmental agencies
- Administrative environmental controls
- Concentration of authority

Table 1: Systems Characteristics and Organizational Factors

Systems Characteristics	Organizational Factors
Control	1. Concentration of authority 2. Administrative environmental controls
Reciprocal dependence	3. Political clout of environmental agencies 4. Organizational effectiveness of environmental agencies
Allocation of inputs	5. Resources allocated to environmental agencies
Interdependence	6. Hierarchical integration of implementing agencies 7. Inter-agency coordination/communication
Pathology/health	8. Frequency of policy and jurisdictional conflicts
Maintenance/feedback	9. Policy compliance mechanisms
Crossfeed	10. Environmental monitoring capabilities
Memory/learning	11. Experience in dealing with pollution and ecological episodes
Dynamics	12. Stability of environmental agencies

Political clout in developing countries is indicated by an individual's position in the hierarchy, the magnitude of power given to him, and how he exercises the power. The individual's rank (director, minister, prime minister) is a major indicator. In PNG, for instance, the principal environmental advocate is the Minister for Environment and Conservation; in the Philippines, the Executive Director of the National Environmental Protection Council; and, in India, the newly created Department of Environment is under the direct charge of the Prime Minister. It must be noted, however, that in countries with federal governments, environment and natural resources are under state authorities, for example, in India and Malaysia. Here the national government authority is principally the coordinating mechanism. In fact the Center of Science and Environment in India, speculates that the Department of Environment (DOE) is likely to become yet another government department peacefully coexisting with other public and private agencies.⁹ Thus, DOE could, by executing the specific policy function assigned to it, restrict itself to small packages to benign programs and activities.

Environmental units often are inadequately funded or staffed for the tasks assigned. They are not consulted at the inception of development planning or natural resources management when decisions regarding the design of projects and the determination of soundness in terms of conservation and environmental quality are often made.

Councils of high-level officials may have some clout, but seldom meet because the council members are busy; instead lower-level designers may attend. Such councils are prone to expediency, in which the environmental transgressions of each agency are overlooked by mutual consent. Such councils can advise, but are not an efficient means of operating programs. However, the councils do appear to be effective in guiding the implementation of EIA regulations, especially in reviewing reports.

Systems derive their energy from the allocation of material or information inputs. The crucial operational factor in the implementation system is the size of resources allocated to it — money and professional services. Here, a comparison between developing and developed countries is most instructive. Table 2 shows the environmental expenditure of India, Indonesia, PNG, Philippines, Singapore and US. While the definitions of environmental expenditures vary from one country to another, the difference of about two orders of magnitude of environmental expenditures as fraction of GNP is significant. The relative expenditure of the US is much higher than that of developing countries. It may be taken as a measure of the actual commitment to environmental values and is more meaningful than official pronouncements.

Factor of resource allocation is also reflected in the mobilization of environmental professionals in the service of the government. While actual numbers are not available, it may be surmised that the relevant figures for developing countries are order of smaller magnitude. The conclusion is that not many resources are devoted to environmental activities in developing countries and that the formulation of policy should take this into account. This is a serious fault in the implementation system.

The organizational effectiveness of the environmental agencies may also be judged by the impact of the organization on public behavior. The way in which environmental resources are regulated and the public awareness of the agency's work are indicators of organizational effectiveness. The high

Table 2: Ratio of Expenditure in Environmental Administration to GNP For Some Selected Countries

Country	Ratio of Environmental Adm. Expenditure to GNP
India	0.0122 ^a
Indonesia	0.381 ^b
Papua New Guinea	0.836 ^c
Singapore	1.087 ^d
Philippines	0.005 ^e
United States (pollution control only)	2.00 ^f

a Based on 1982 figures at current market prices.

b Based on environmental expenditure for fiscal year 1982-83 over GNP for 1982.

c Based on environmental expenditure for 1985 over GNP of 1983.

d Based on environmental expenditure for fiscal year 1983-84 over GNP figure for 1983.

e Based on NEPC and NPCC budget over GNP for 1983.

f Average for 1975-84.

degree of pollution in many Asian cities clearly betrays inefficiency of the past environmental regulatory agencies. Though the public has been suffering increasingly from the consequences of environmental deterioration, sanctions have been few. The finding in India's State of Environment

Report is typical: as of 1981, out of the hundred odd prosecutions launched after the enactment of the Central Prevention of Water Pollution Act of 1974, only a few of the offenders were penalized.⁹ In the Philippines, despite the fact that water pollution control law has been in effect since 1968, most of the principal streams in the Metro Manila area remain heavily polluted.

The fourth significant factor is administrative environmental control, in particular, EIA requirements, land use planning regulations, and ambient or effluent quality standards. These controls exist in most of the developing countries of Asia in various forms and combinations. This is a positive development but it may be noted that most of these controls are replicas of Western models. While there is nothing wrong with copying, it must be recognized that modifications are required for such controls to be effective in developing countries. Among other things, these procedures assume the existence of an adequate level of scientific and site-specific technical knowledge; land use regulations are sensitive to cultural values and geographic locations; pollution standards should, strictly, be based on locally determined dose-response relationships.

Concentration of authority spells to the existence of agencies with overlapping functions. It is very common to find this condition in many countries in Asia. Although duplication may generate creative tension, it may also provoke serious inter-agency conflicts in policymaking and jurisdiction.

Mechanisms for conflict resolution have been established in some countries. In the Philippines, a number of inter-agency committees and task forces were created. The Coastal Zone Management Committee and the Task Force on Toxic and Hazardous Substances are two examples. In Malaysia, the Federal-State Liaison Committee was formed to deal with jurisdictional conflicts. In Thailand, potential conflicts are minimized by referring all decisions of the National Environment Board to the Cabinet.

The analysis of all these operational factors using the policy cycle perspective leads to a precise explanation of the implementation gap: a mismatch between the requirements of the policy instruments and the capabilities of the implementation system.

TOWARDS A PRAGMATIC POLICY FRAMEWORK: RECAPITULATION AND CONCLUSIONS

"Environment" is a very extensive concept; in principle it is interactive with a very large range of human activities. The search for factors influencing environmental policies could have innumerable possibilities. One way

is to adopt the policy cycle framework. The policy cycle is assumed to be an open system, subject to the causal influences of external factors; it is further hypothesized that the factors affecting the components of the system ultimately influence policies.

In the developing countries of Asia, the instruments of environmental policy are nearly always patterned after Western models. Thus, historical factors continue to influence the operation of the policy cycle. The most important of these are the following:

- The apparent conviction of elites and high political leadership of the merits of environmentalism.
- The dominantly Western valuation of policymaking structures.
- Top-to-bottom tradition in policy formulation with almost no grassroots participation.

The second most important factors are those affecting the human ecosystem which are referred to as dialectic factors. These are the following:

- Environmental problems in the developing countries lack directness and salience compared with the other problems of underdevelopment.
- Imbalance in the dialectics because of the weakness of environmental advocates (NGOs).
- Failure to promote scientific environmental debates because of the lack of environmental expertise in developing countries.

The dominant influences in the policy system are social values and political processes. These play the crucial part in the forging of policy instruments. These factors, referred to as normative factors, include the following:

- Low levels of social discipline (laxity in civic mores, lack of loyalty to community and ecosystem functioning).
- Non-participation and disarticulation of the masses.
- Short-term survival logic of the poor majority.
- Social inertia and irrationality.
- Colonial, legal and administrative traditions.
- Socioeconomic dualism.

The most important considerations are those relating to the implementation system, the most critical operational factors being:

- Difficulties in the operationalization of key concepts and policies.
- Ill-timing of implementation.
- Lack of political clout of environmental agencies.
- Lack of resources in environmental agencies.
- Organizational ineffectiveness.
- Weak enforcement of regulatory controls.
- Dispersion of authority over many agencies.

The interplay of these factors leads to the following conclusions:

- Some factors with impact on policy have roots deep in the colonial history of the developing countries. These will be extremely difficult to change in a culture of poverty and socioeconomic dualism.
- The factors interact in very complex ways. The inherent dismal characteristics of underdevelopment are reflected in environmental policy formulation and implementation.
- The implementation gap is primarily due to procedural and structural weaknesses of bureaucracy rooted in social and cultural attitudes. There is a cognitive dissonance between the values of the ruling elite and the poor. Consequently, the policy cycle has not functioned efficiently in the developing countries of Asia.

BASIC ASSUMPTIONS

The problem of environmental policy formulation and implementation are entangled with a host of other social, economic, and political problems of underdevelopment. Perhaps the big push recommended by Myrdal⁶ on the more modest "critical minimum effort" suggested by Leibenstein¹⁰ could be deployed to break the cycle of underdevelopment and environmental decay. The rationale behind these proposals is that incremental, gradual change is as difficult as a "great leap forward". Radical social engineering has not so far succeeded in the developing countries of Asia.

Instead of a big push, a strategy of initiating a positive feedback loop may be attempted. The idea is that such initiatives will release some latent social energy to transform stubborn attitudes and institutions into a self-reinforcing dynamics for change. A properly functioning policy cycle provides the dynamics mechanisms by which policies evolve such that they are successive approximations to the correct ones, the ultimate measure of correctness being the resolution of conflicts.

The search for a pragmatic policy framework must start with the reconceptualization of the environment problem. It must be realized that there are no purely environmental policies in developing countries, for example the share of agriculture and natural resources in the gross domestic products (Appendices 2 and 3) and the relatively large percentage of the population engaged in these primary sectors. In the case of pollution, the very high population densities in Asian cities with meager public sanitation facilities render the policy on effluent standards much more socially complicated. Whereas industrial pollution in the West is an isolated technical problem, in the developing countries of Asia it must be related to the problems of the huge domestic discharges, congestion and employment. An isolated, technical approach could lead to unenforceable policies. Moreover, the environment does not enjoy any special precedence over other issues in the developing countries. Thus, Environmental Policy must be considered as only one key sector in an expanded policy menu that involves the more pressing problems of development. In this way, environmental issues could share the salience of other issues and environmental policy could be interpreted as an integral part of development policy — there is no real need to invent new terms such as "ecodevelopment".

RECOMMENDATIONS

The following are intended to strengthen the policy cycle:

- The identification and consolidation of environmental and development issues must be institutionalized with active participation from the grassroots and from NGOs.

This must be preceded by a monitoring system that goes much beyond the technical measurements of environmental and socioeconomic indicators. Views from below should be solicited and while this is difficult, it is not impossible. The Center for Research and Communications of the Philippines, for instance, undertook a survey among the masses to determine how many agencies in the region employ a significant number of policy analysts and to gauge their standards.

Since the situation in developing countries calls for the consideration of an expanded policy menu, an interdisciplinary team of analysts is required. Professional groups involving prominent university personnel or other professionals should be linked in the principal environmental agency. The group could be shaped to suit the institutions of the concerned country. Earlier strategies involving the placing of environmentalists within economic planning agencies have not succeeded. Economic planning agencies have

been around for a long time and their thinking and action deviate little from tradition.

There are sophisticated policy tools within the reach of developing countries. Preliminary workshops to determine broad policy thrusts could make use of the techniques discussed by Holling.¹¹ At an early stage of policy formulation, qualitative or semi-qualitative simulation models could be used. These could be implemented using microcomputers and would be very suitable for workshop demonstrations.

Interdisciplinary policy studies, definitely the ideal to pursue, are very difficult in practice, many efforts having degenerated into multi-disciplinary chaos. One way out of this is the use of integrating methodology. Systems dynamic modelling provides a framework, wherein various disciplinary contributions could be focussed on a single set of coordinated objectives. The works of the Club of Rome, the International Institute for Applied Systems Analysis (IIASA), the University of Bradford, UK, and many others are prototypes for modest national policy models (Appendix 4 shows various models around the world used for global policy analysis). These techniques could certainly be used for the expanded policy menu that are recommended here. Using only microcomputers and available dynamic modelling software like Micro-dynamo, Professional Dynamo, or LAMBDA, models for the policy sectors could be constructed for policy analysis (Figure 3). The feasibility of this approach for the analysis of irrigation policies has already been demonstrated.¹² Berwick has discussed the feasibility of the use of systems dynamics modelling in development planning.¹³

Each country could develop models for policy decisions. While models cannot totally reflect reality, their use along with traditional analysis would elevate policy studies from baseless impressionism to something close to the scientific domain.

- The principal environmental agency should place more emphasis on monitoring, policy analysis and coordinating roles rather than regulation. It should enhance its advocacy role rather than act as an environmental apologist for the government. The idea is to strengthen the dialectic process by assisting the very weak private-sector advocates in developing countries.

The records of implementation for most of the countries in the region show the impotence of the environmental agencies vis-a-vis the mission agencies. The regulation of industry, agriculture and public health are better left to the long standing mission agencies. But the implementation of the EIA process, which is primarily a coordination mechanism, should remain with the environmental agency.

		ECOSYSTEMS					
		Forests	Uplands	Croplands	Coastal	Urban	Marine
POLICY FIELDS	TECHNOLOGY						
	PRODUCTION						
	POLLUTION						
	RESOURCES						
	POPULATION						

Fig. 3. *An Expanded Policy Menu*
— *The Policy Matrix*

- To improve implementation, there should be clear, unambiguous articulation of policy. Policy statements are conceptual abstractions that acquire meaning and reality through institutions and individuals that allocate resources. In many developing countries, policies are mere statements of idealistic intentions without influence on the day-to-day operations, whose main source of energy and direction is the power of vested interests. A policy must pass through several bureaucratic changes before it becomes action. Ambiguity results in arbitrary interpretations by corrupting forces in an unimaginative, tradition-bound bureaucracy.

A policy agenda should contain its own seeds of implementation. The operationalization of policy occurs at five levels (Figure 4). The first is the policy statement, the second identification of the tasks implied by the policy statement. This could be done by a brainstorming session of a multidisciplinary panel. Each of the tasks is then implementable through various approaches — the third level. The fourth level is the design of various systems or a modification of existing systems in the implementation agency. In some cases, a system may be further broken down to subsystems, the last level in the process. All policy instruments must be rendered in this form before being presented for implementation.

Figure 5 summarizes the various recommendations into a policy framework. The basic idea is the policy cycle. However, the framework also specifies the institutions and tools that could be used in the formulation and implementation of policy.

CAPSULE CASE STUDIES

Despite clever definitions, concepts remain hazy abstractions unless somehow connected to real life. Thus, clarification of the basic ideas about factors affecting environmental policy is best achieved through the examination of capsule case studies. The chosen cases are viewed from a policy perspective; the fundamental policy, either implicit or explicit, is assumed to be mirrored by the events. In some instances, the courses of action, either taken or planned, are interpreted to be illustrative of the policy framework.

The Bhopal disaster has been chosen not only because of the extensive current literature on the subject but because it represents an important class of environmental issues in the region. It involves the question of industrial or technology policy in a crowded urban locale, which is a typical situation in the rapidly industrializing regions of Asia.

The Integrated Environmental Plan of Palawan (Philippines) is instructive in the sense of being an example of the planning approach to policy

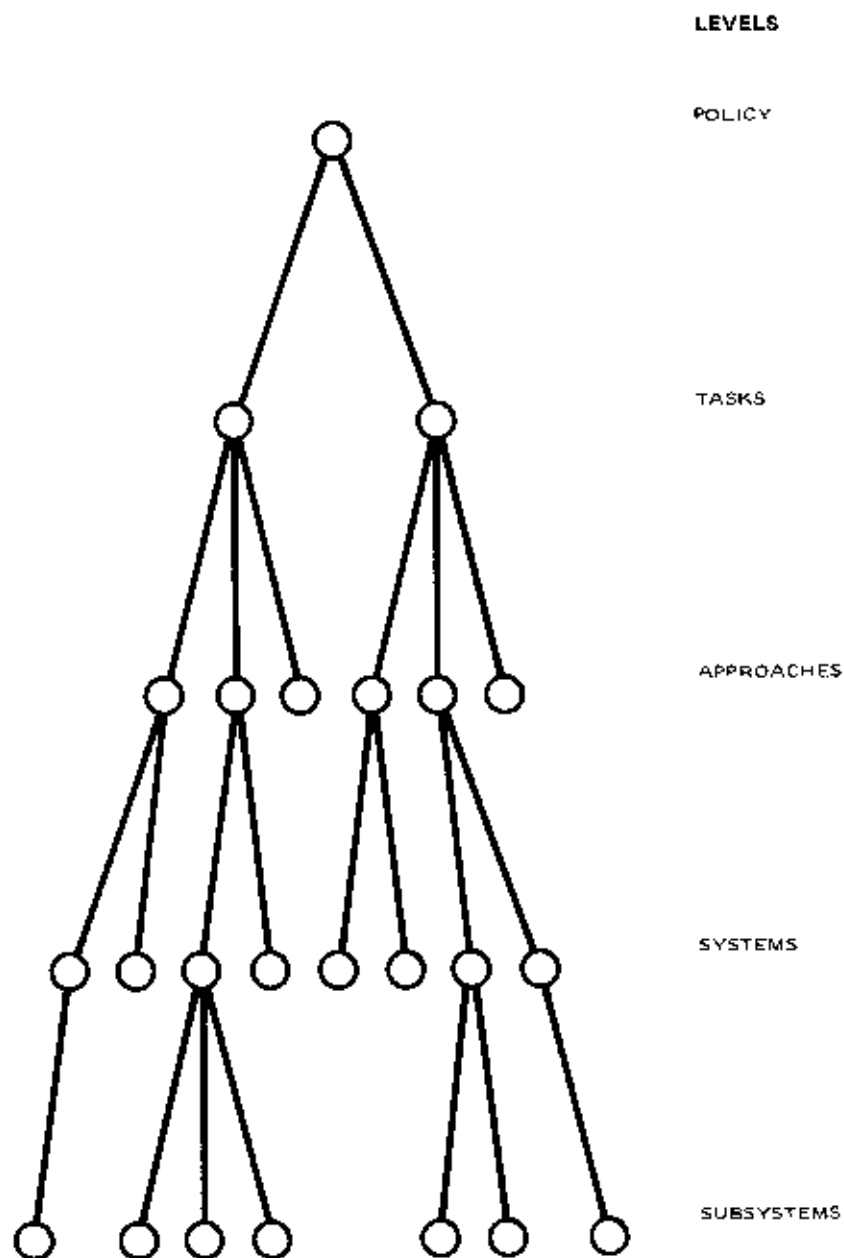


Fig. 4. Operationalisation of Policies

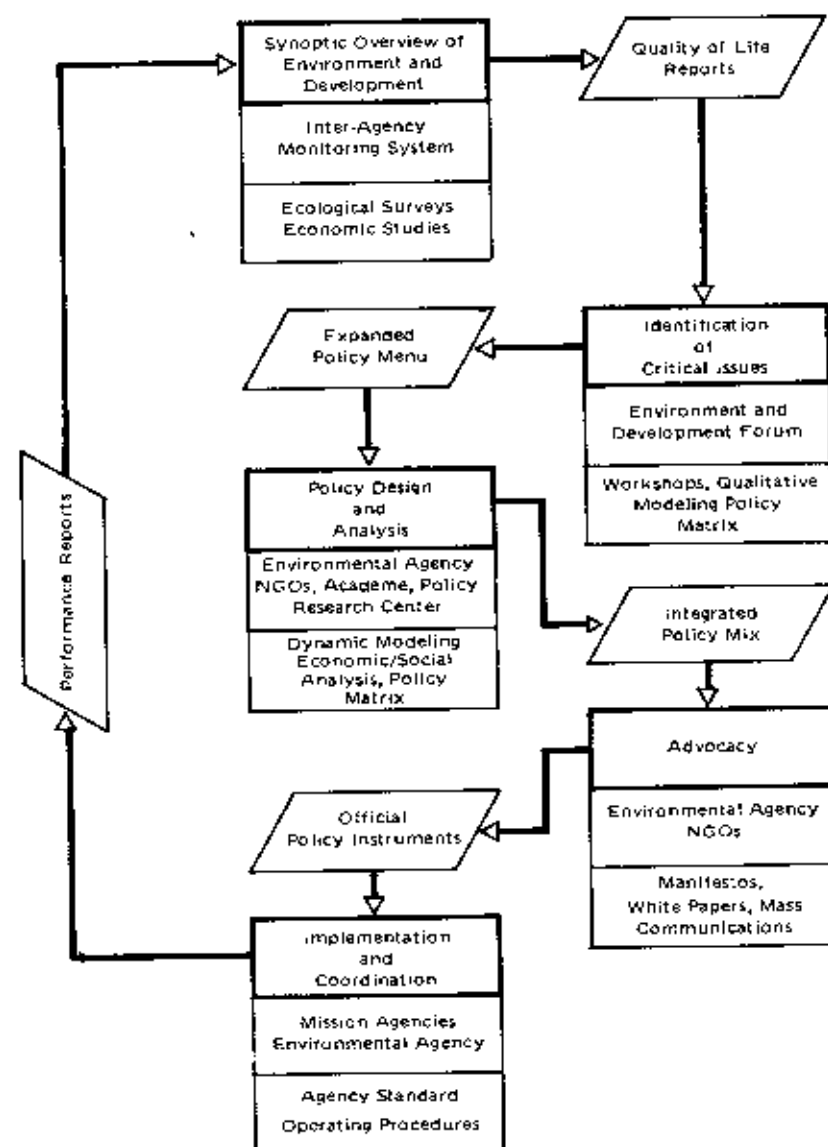


Fig. 5. A Policy Framework

implementation. Furthermore, it is focussed on natural resources development in a highly underdeveloped area and represents the synthesis of rural development policies.

Bhopal: A Policy Disaster

On the evening of 2 December 1984, at the Bhopal plant of the Union Carbide of India, Ltd. (UCIL) in Madhya Pradesh, a series of theoretically improbable events took place, resulting in the release of the lethal gas methyl isocyanate (MIC). The deadly gas spread to the slums of Bhopal, killing and injuring thousands of people. Estimates vary, but immediate deaths totalled 2,000-5,000. About 200,000 people were exposed, with 50,000 to 60,000 suffering ill effects. It was by consensus, the worst industrial accident in history.

The general causal model for hazard, developed by the Center for Technology, Environment and Development,¹⁴ is a useful framework for analyzing the incident in terms of a policy perspective. This model is reproduced in Figure 6, with the causal chain pictured in stages. Each stage presents an opportunity for intervention by adopting measures to abort the evolution of the hazard. These measures could be interpreted to be the result of policy initiatives or their absence.

In the first three stages, resulting in the choice of technology for producing carbaryl pesticide with MIC, it is obvious that the other "soft" alternatives like the use of biological pest control or the expansion of croplands were discarded. This could have been due to any or all of the following:

- An expanded policy menu with other alternatives like increasing croplands, use of biological pest control, or population control was not explored;
- Decision-makers favored a technology fix reflecting the influence of Western valuations on the policymaking structures; and
- The environmental advocates were not involved in the decision — the dialectic factors were at play.

The real reasons for it may never be known, but the above has degree of plausibility. There is of course the possibility that the company influenced the decision. Connivance between authorities and transnationals have been reported in India.¹⁵ This phenomenon is covered by the normative factor, diplomatically called "low level of social discipline", and covering the concept of corruption. Moreover, there is a strong pesticide lobby in India and elsewhere.¹⁶

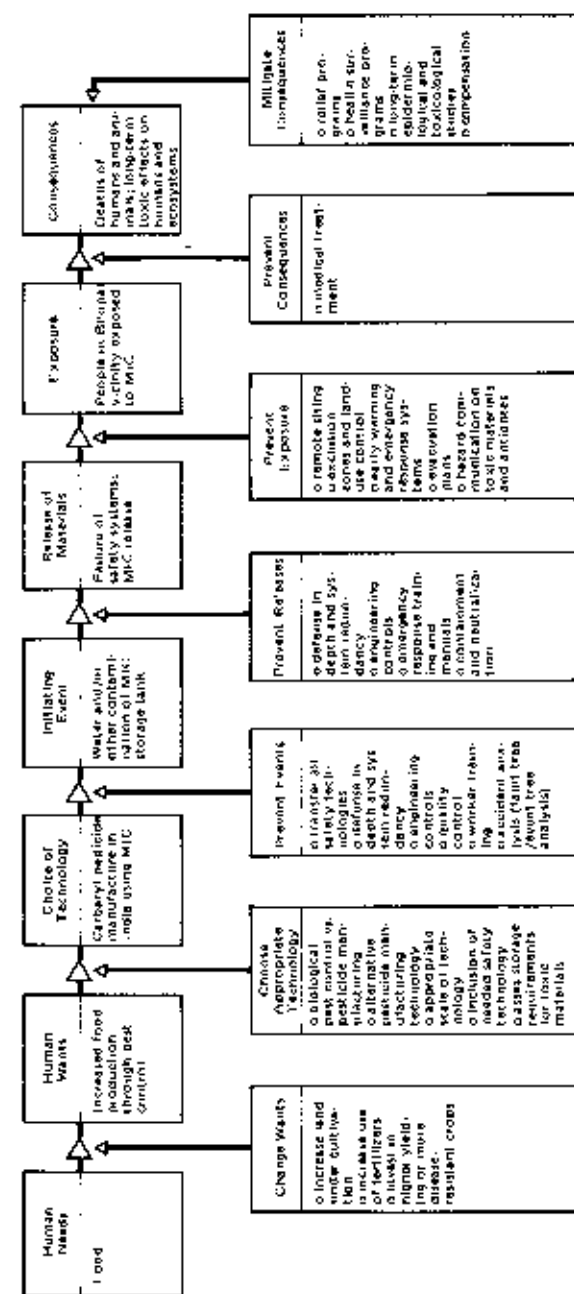


Fig. 6. Causal Structure of Hazard: Application to the Bhopal Accident

SOURCE: Clark University Center for Technology, Environment, and Development

There is ample evidence of the organizational ineffectiveness (operational factor) of the regulatory agencies of Madhya Pradesh. The process in Bhopal involved large-scale, long-term storage of MIC — a process prohibited in European countries. France forbids the domestic manufacture of MIC; in fact, the Union Carbide factory in Berziers, southern France, which was modelled after the Bhopal plant, was transferred second hand from a plant in Danbury, US. Canada having refused siting it on Canadian territory.¹⁷ How can the regulatory agencies of India — a country with the third largest pool of scientific and technical expertise — have overlooked these decisions.

As early as 1981, there was already a leakage of MIC killing one worker.¹⁷ An inquiry was made, but the report was never read by the labor department until the Bhopal disaster.¹⁴ Three other incidents occurred between 1981 and 1984. In one, the emergency siren was even sounded. All these were probably ignored or went officially unnoticed, since Madhya Pradesh employs only 15 factory inspectors for its 8,000 factories. Organizational ineffectiveness of the regulatory agencies and the apathy in a culture of poverty turned out to be a deadly combination.

The culture of poverty is also reflected in the inadequate maintenance of equipment and other infrastructures in developing countries. Repairs take much longer than they should because of the non-availability of spare parts. Technicians lack experience and proper training and are not encouraged to pursue the excellence of their craft. These factors could partially account for the occurrence of the statistically improbable series of events at Bhopal. Some of the engineering designs and decisions were questionable, the more immediate causes of the accident appear to be poor maintenance and operator errors.

That such was the case is proven by a diagnosis of what went wrong in the Bhopal plant.¹⁴ First, the refrigeration system which was supposed to cool the liquid MIC in case of an accidental reaction was not operative at that time. No official reason was given for this. Second, in the event of an accidental leak, the operator was supposed to divert the leak to a spare tank, an operation lasting only three minutes. The valves were not opened during the confusing moments of the accident. Third, the vent gas scrubber which was intended to detoxify the released gas by spraying it with caustic soda was also not operational because of previous operator errors. Fourth, the flare tower which was supposed to burn escaping gases was under maintenance because of corrosion. And lastly, the water curtain intended to surround the leak with a curtain of water 15 meters high was not properly designed.

The fact that so many were killed and injured is clearly a case of policy failure. India has no industrial location policy. In the late 1960s the Indian

government promoted the policy of siting new industries in less developed states. Madhya Pradesh even offered incentives to attract industries. This is quite understandable, because in almost all developing countries, the development issues inevitably overwhelm the environmental issues (this will continue to be the case as long as the inherent unity of the two are not understood and appreciated). Again, in this instance, salience was the primary factor that influenced policy. This view is further reinforced by the fact that no one contested the location of the plant, which was only two miles from the center of Bhopal. The Bhopal Master Plan of 1975 classified the plant as general and not obnoxious and consented to its location, although 16 other plants were relocated.

One wonders what would have happened if there had been an active environmental lobby in Bhopal and given a chance to scrutinize the Master Plan. Although there are quite a few environmentalists in India, they do not have the strength and resources of equivalent groups in developed countries. In this connection, the importance of the principle of the right to know should be emphasized. India and most developing countries, do not provide for public participation in development decisions. In the case of Bhopal, there was no environmental impact assessment in the choice of location. Subsequent changes in the manufacturing processes, such as the long-term storage of MIC, were unknown to the Government and the public.

In Bhopal, an extended policy menu should have revealed the dire need for population policy initiatives. In developing countries, a phenomenon often observed is the aggregation of squatter colonies around industrial facilities despite inherent dangers. Industries are powerful demographic magnets and should be considered in locational decisions. In Bhopal, the population increased by 75 per cent between 1961 and 1981 and the squatters in government lands around the plant were given legal status before the last elections (of the symptoms of "softness" Myrdal alluded to in reference to the development of Asian countries). The manifestation of the short-term survival logic so prevalent in a culture of poverty is also involved. Even if there are explicit urban zoning policies in Bhopal, the implicit operational policies in the real world are mostly determined by the dialectic, normative and operational factors.

The monitoring process referred to in the policy framework is relevant to the last stages of the evolution of a hazard depicted in Figure 6. Important lessons could be learned by many developing countries if studies were made for the long-term consequences of the accident. A full analysis of the incident and its widespread disclosure is in order.

On the first anniversary of the disaster — December 1985 — there were the usual demonstrations, placards and the burning of effigies. Meanwhile in a factory near Delhi, 30 tons of toxic sulfur trioxide was accidentally leaked into the atmosphere, killing one individual.¹⁸

The Palawan Integrated Environment Plan: The Quest for An Ideal

The commitment of the Philippines to environmentalism is expressed in no uncertain terms. Presidential Decree No. 1121 is solely devoted to the enunciation of an environmental policy and the creation of a central mechanism for this is the National Environmental Protection Council.

Beyond this rather general policy is a development policy and approach reflected in the creation of the National Council on Integrated Area Development Project (NACIAD), chaired by the Prime Minister. The NACIAD is supervising five projects in various stages of implementation; the Palawan Integrated Area Development Project (PIADP) is one of them. There are six main components to PIADP:

- Agricultural Development;
- Transport Development;
- Health Facilities and Services;
- Land Classification and Titling;
- Environmental and Project Benefit Monitoring and Evaluation; and
- Project Management.

The Integrated Environmental Plan (IEP) is a project in PIADP administered by the Executive Director of the Project. Integrated area development is requested as a promising new approach to development, especially when environmental considerations are included. Put in another way, PIADP is intended to put the idea of sustainable development in practice.

The analytical perspective used here is the investigation of how policies are institutionalized and operationalized. NACIAD, PIADP and the IEP will be analyzed in terms of their functions and niched in government hierarchy. Thus, the organizational and operational factors will be illustrated by the exercise. Conversely, the IEP will be scrutinized from the angle of operationalizing the concept of sustainable development in the real world.

One of the most abused words in Philippine bureaucracy is "coordination". Its actual meaning is now closer to "duplication" or "overlapping". Many agencies of recent vintage have been established with a principal function being, among many others, "to coordinate". The Ministry of Human Settlements is the most outstanding example. In the pursuit of providing the eleven basic needs, the Ministry of Human Settlements must coordinate the work of almost the entire government machinery (since changed under the Aquino Presidency). The National Environmental Protection Council is supposed to coordinate environmental activities. As "environmental" is a very comprehensive concept, the National Environment Protection

Agency must coordinate most of the line agencies. There are also the river basin authorities under the National Economic and Development Authority responsible for development planning in the larger river basins in the Philippines. There are also regional development councils and provincial development projects.

In view of this situation one would wish for yet one more coordinating agency: a coordinator of coordinators. The proliferation of agencies is a negative example of the concentration of authority — a factor that vitally affects the efficiencies of government agencies. Rational planning becomes impossible in a situation in which these innumerable agencies undertake individual projects. Planning is useful only when it is centralized and complemented by strong authority.

One other indicator of power and influence is the budgetary outlay for NACIAD. The operating budget is one of the lowest in the Philippine Government. The IEP, which represents a scientifically respectable undertaking, is funded by the European Economic Community.

To achieve sustainable development, PIADP is preparing a Strategic Environmental Plan. The objectives of this exercise are:

- To establish a sound socioeconomic balance between resource exploitation and environmental protection;
- To define short-term and medium-term measures for environmental protection and rehabilitation, especially in environmentally critical parts of the Island;
- To provide guidelines for effective long-term planning regulatory environmental control;
- To integrate the implementation of short-term, medium-term and long-term planning through the coordinated participation of all relevant agencies.

Within this plan is IEP, whose objectives are:

- To assess the existing environmental situation in Palawan;
- To recommend measures for consideration and inclusion in the detailed planning and implementation of other PIADP components;
- To identify short-term and medium-term actions to counter adverse development effects, prevent further degradation and rehabilitate damaged areas;
- To recommend a long-term environmental regulation plan for mainland Palawan; and

- In Phase II, to undertake further studies and monitoring activities on the basis of Phase I findings, including recommendations regarding environmental evaluation and regulation in other developing parts of the Philippines.

The IEP was executed by two European firms in association with a Filipino firm.

This capsule case study is not intended for a thorough analysis of the IEP. Its only objective is to provide comparisons with the recommended policy framework (Figure 6).

The IEP presents an impressive overview of the Palawan environment which was obtained by expensive and sophisticated methods of satellite remote sensing, aerial photography and field surveys. The presentation of the environmental parameters is excellent and valuable to environmentalists. However, from the point of view of development, this has to be complemented by a more thorough economic and sociological surveys. These, in fact, are more useful to the political leaders and the people. While there is an item on the human factor, this is mainly demographic and does not portray the human and social conditions. There are many intriguing questions to be considered in an island endowed with so much pristine beauty:

- What is the desired level of development?
- How do people value the natural beauty of Palawan?
- What do they think about being displaced from ancestral lands?
- How strong is community cohesion?
- What is the employment status?
- Do they want factories?
- How do they value the historic and archaeologic heritage of Palawan?
- What kind of personal development do they aspire for?
- Development for whom?

Admittedly, it is difficult to discover the answers to some of these questions. Would it not have been better to use the funds spent for sophisticated surveys for this purpose? The quality of life reports indicated in Figure 6 are intended to contain answers to these questions — an essential input to the identification of critical issues. This important shortcoming is echoed through the various stages of the planning process and recommendations. There are implicit values in the recommended strategies which may not reflect the

values of the people of Palawan — perhaps those of the foreign consultants. The Report "Palawan — a Strategic Environmental Plan" indicates that no public participation in the early stages of the planning exercise.

The planning concept of ecological zones and subzones is very good and consistent with the policy matrix of framework in Figure 6. It is doubtful, however, whether the analysis used contained an explicit discussion of assumed social values. In the present framework, dynamic modeling, economic and social analysis are required to express implicit value assumptions.

The overall recommendations of the IEP are inevitably biased toward environmental conservation and developmental efficiency. They are not expressed in terms of pragmatic policy instruments that contain operational aspects to deal with the realities of the Philippine bureaucracy. To be of value, a strategic plan should not only contain recommendations with operational details but an advocacy plan.

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Appendix 1

1. Concentration of Authority

1.1 *Concentration of authority for environmental management*

- 1 = no explicit environmental unit at national level
- 2 = environmental unit within larger Ministry/distributed among three or more mission agencies
- 3 = central or high-level environmental agency/incorporated in economic planning unit

1.2 *Concentration of functional authority for policy formulation, regulation, and enforcement*

- 1 = authority shared by more than three agencies
- 2 = authority shared by three agencies
- 3 = authority is shared by one or two agencies

2. Administrative Environmental Control

2.1 *EIS/EIA requirements*

- 1 = no requirements
- 2 = partly or at discretion of officials
- 3 = required by law with corresponding sanctions

2.2 *Land-use planning regulations*

- 1 = no regulations, low level of land use planning
- 2 = only in some areas and localities

2.3 *Ambient/effluent quality standards*

- 1 = none or very few standards
- 2 = only in one or two environmental media
- 3 = almost complete set of standards

2.4 *Formal requirements for hearings with affected publics*

- 1 = no formal requirements
- 2 = partly, only rare occasions
- 3 = required by law with sanctions

2.5 *Mandated project review*

- 1 = not required
- 2 = sometimes, upon request, not mandatory
- 3 = required by statutes

Appendix 1 (continued)

3. Political Clout of Environmental-Advocate Agencies

3.1 *Rank of principal advocate*

- 1 = lower than Bureau Chief
- 2 = Bureau Chief or equivalent
- 3 = Minister or higher

3.2 *Memberships of principal environmental advocate in high-level planning councils or other equivalent groups*

- 1 = not a member of any such groupings
- 2 = member in a few groupings
- 3 = member in almost all important councils or groupings

3.3 *Affirmative actions undertaken by environmental agencies*

- 1 = There has been no occasion when the agencies were able to call for a restart/suspension/cancellation of an environmentally critical project
- 2 = very few occasions
- 3 = in almost all occasions

4. Organizational Effectiveness of Environmental Agencies

4.1 *Organizational impact*

- 1 = public not aware of agencies' work
- 2 = public/elite/sovereigns are only vaguely aware
- 3 = public/elites/sovereigns are very aware of agencies' work

4.2 *Regulatory impacts*

- 1 = less than 10% of clients comply with agency decisions
- 2 = less than 75% comply
- 3 = more than 75% comply with agency decisions

5. Resources Allocated to Environmental Activities

5.1 *Budget level for environmental activities*

- 1 = less than 10% of the reference level*
- 2 = about 50% of the reference level
- 3 = 90%-100% of the reference level

* Reference level = percent of GNP spent by (US, Sweden, W. Germany) for environmental activities.

Appendix 1 (continued)

5.2 *Number of professionals engaged in environmental activities*

- 1 = less than 10% of the reference level**
- 2 = about 50% of the reference level
- 3 = 90-100% of the reference level

6. *Hierarchical Integration of Implementing Agencies*6.1 *Delineation of jurisdictional authority among national, regional and local agencies*

- 1 = no clear demarcation of jurisdiction
- 2 = partly delineated, with some overlaps
- 3 = clear, unambiguous delineation of jurisdiction

6.2 *Vertical delineation of authority between ministries, bureaus, commissions, and lower level agencies*

- 1 = no clear delineation of authority among various levels
- 2 = partly, with some overlaps
- 3 = clear, unambiguous delineation of authority

7. *Inter-Agency Coordination/Communication*7.1 *Coordinative committees in environmental matters*

- 1 = no committees
- 2 = some, but other activities not covered
- 3 = sufficient number of committees to cover all important aspects

7.2 *Inter-agency environmental protection programs*

- 1 = none, no coordinated inter-agency program
- 2 = some, but they don't cover important aspects
- 3 = adequate number of inter-agency programs covering almost all important aspects of the environment

7.3 *Common budget process for environment-related agencies*

- 1 = none, separate budget process
- 2 = partly common during some stages of budget preparation
- 3 = completely coordinated budget process

Appendix 1 (continued)

8. *Frequency of Conflicts*8.1 *Frequency of jurisdictional conflicts among management agencies over environmentally significant projects*

- 1 = no significant jurisdictional conflicts/less 10% of projects
- 2 = 10%-25% raise conflicts
- 3 = more than 25% raise conflicts

8.2 *Frequency of jurisdictional conflicts regarding policy formulation and enforcement*

- 1 = no significant jurisdictional conflicts
- 2 = conflicts between two agencies
- 3 = conflicts involving three or more agencies

8.3 *Frequency of conflicts over natural resource use*

- 1 = no significant conflicts/less than 10% of projects
- 2 = 10%-25% of projects
- 3 = more than 25% of projects

9. *Policy Compliance Mechanisms*

(These are mechanisms to insure that policy objectives are being accomplished including system for rewards, incentives and sanctions.)

9.1 *Adequacy of surveillance/feedback mechanisms*

- 1 = non-existent
- 2 = existing but inadequate
- 3 = adequate mechanisms

9.2 *Adequacy of rewards and sanctions mechanisms*

- 1 = non-existent
- 2 = existing but inadequate
- 3 = adequate mechanisms

9.3 *Frequency of use of sanctions*

- 1 = never
- 2 = occasionally
- 3 = frequently

** Reference level = % of the total professionals engaged in environmental activities in (US, Sweden, W. Germany)

Appendix I (continued)

10. Articulation of Environmental Policy

10.1 *Clarity of constitutional mandates*

- 1 = no constitutional mandate
- 2 = vague constitutional provisions
- 3 = clear, unambiguous constitutional provisions

10.2 *Environmental components in national development (economic) plan*

- 1 = no environmental component
- 2 = pro-forma environmental component or vaguely formulated
- 3 = detailed description of the environmental component/separate environmental protection plan

10.3 *Comprehensiveness of environmental legislation*

- 1 = none or very few environmental legislations
- 2 = some but incomplete coverage
- 3 = complete or almost complete coverage

10.4 *Comprehensiveness of agency rules/regulations*

- 1 = none or very few
- 2 = some but inadequate
- 3 = adequate coverage

11. Environmental Monitoring Capabilities

11.1 *Frequency of ecological surveys*

- 1 = none or insignificant number
- 2 = occasionally, but inadequate
- 3 = continuing, sufficient for management and decision making

11.2 *Land-use mapping*

- 1 = none or insignificant number
- 2 = partial/infrequent/inadequate
- 3 = complete/regular/adequate for planning and management

11.3 *Environmental status report*

- 1 = none
- 2 = irregular/infrequent
- 3 = regular, once a year

Appendix I (continued)

12. Experience in dealing with pollution and/or ecological episodes

- 1 = none
- 2 = few
- 3 = sufficient number to affect the public, decision makers, etc.

13. Stability of Environmental Agencies

13.1 *Frequency of changes in leadership of environmental agencies*

- 1 = no change during the last ten years (or since the establishment if less than ten years)
- 2 = one change during the last ten years (or since the establishment)
- 3 = more than one change during the last ten years (or since the establishment)

13.2 *Frequency of changes in the organization structures of the environmental agencies*

- 1 = no change in the organizational structure during the last ten years (or since the establishment, if less than ten years)
- 2 = one change during the last ten years (or since the establishment, if less than ten years)
- 3 = more than one change during the last ten years (or since the establishment, if less than ten years)

4.16

Appendix 2

Share of Natural Resource Sector in GNP

DMC	Year	Currency	Share of Natural Resources Sectors ^a in GNP
Afghanistan	—	afghanis	—
Bangladesh	1984	taka	0.553
Bhutan	—	ngultrums	—
Burma	1983	kyats	0.501
Cambodia	—	—	—
China, Taipei	1984	New Taiwan dollars	0.071
Cook Islands	—	New Zealand dollars	—
Fiji	—	Fiji dollars	—
Hong Kong	1983	Hong Kong dollars	—
India	1982	rupees	0.320
Indonesia	1983	rupiahs	0.478
Kiribati	1978	Australian dollars	0.548
Korea, Republic of	1983	won	0.157
Lao PDR	—	kips	—
Malaysia ^b	1984	ringgit	0.280
Maldives ^c	1983	Maldivian rupees	0.347
Nepal	1983	Nepalese rupees	0.519
Pakistan	1984	Pakistan rupees	0.211
Papua New Guinea	—	kinas	—
Philippines	1984	pesos	0.279
Singapore	1983	Singapore dollar	0.014
Solomon Islands	—	Solomon Island dollars	—
Sri Lanka	1983	Sri Lanka rupees	0.275
Thailand	1984	bahr	0.227
Tonga	1983	Tongan pa'anga	0.404
Vanuatu	—	—	—
Viet Nam, Socialist Republic of	—	dong	—
Western Samoa	—	talar pa'anga	—

^a Data are on calendar-year basis and were obtained from UN monthly bulletin statistics.

^b At constant 1970 prices.

^c At constant 1982 prices.

^d Natural resources sectors include agriculture and mining.

Appendix 3

Share of Agriculture in Real GDP^a
(per cent)

DMC	Year			
	1970	1975	1980	1983
Afghanistan	...	...	68.7	...
Bangladesh	...	54.6	49.4	49.4
Bhutan	...	...	...	...
Burma	38.3	36.3	37.2	37.8
Cambodia	...	...	...	...
China, Taipei	17.7	12.0	8.4	7.2
Cook Islands	22.0	...	...	...
Fiji ^b	26.8	19.9	22.5	20.8
Hong Kong	...	...	...	...
India ^c	47.4	45.4	40.4	...
Indonesia	...	36.8	30.7	29.9
Kiribati	...	...	...	...
Korea, Republic of	28.9	23.9	14.2	13.8
Lao PDR	...	...	...	...
Malaysia	...	27.7	23.8	22.0
Maldives	...	...	34.4	28.4
Nepal	...	69.7	58.8	59.0
Pakistan ^c	39.0	33.2	31.2	28.8
Papua New Guinea	...	...	...	...
Philippines	28.8	26.6	25.6	24.8
Singapore	2.3	1.6	1.2	0.9
Solomon Islands	...	...	...	...
Sri Lanka	35.6 ^d	28.0	26.5	26.8
Thailand	...	30.5	24.8	23.7
Tonga ^d	...	50.1	47.6	51.1
Vanuatu	...	...	...	...
Viet Nam Socialist Republic of Western Samoa	...	...	...	...

^a Unless otherwise indicated, GDP data are at constant market prices with varying base year from country to country.

^b Includes mining.

^c GDP data are at factor cost.

^d Includes electricity.

... Data not available at cut off date.

Source: Key Indicators of Developing Member Countries of ADB (Manila, April 1985)

Appendix 4
World Models

Name of Model	Project Location	Focus of Investigation
World 2 World 3	Massachusetts Institute of Technology	Interaction of growth with physical limits
WIM (World Integrated Model)	Case Western Reserve University, Cleveland and Technical University, Hannover, West Germany	Interaction of population, economics and trade; regional differences
Latin American World Model	Fundacion Bariloche, Rio Negro, Argentina	Alleviation of poverty, maximization of life expectancy
MOIRA (Model of International Relations in Agriculture)	Free University, Amsterdam and Agricultural University, Wageningen, The Netherlands	Impact of world trade and government protectionism on world hunger
SARUM (Systems Analysis Research Unit Model)	Department of the Environment, London	Effect of resource constraints on economic growth, role of market
FUGI (Future of Global Interdependence)	Engineering Research Institute, Tokyo University	Economic forecasting, industrialization of poor countries
United Nations World Model	New York University and Brandeis University	Impact of resources and environment on economic development
GLOBUS (Generating Long-Term Options by Using Simulation)	Wissenschaftszentrum, Berlin	International relations, trade and conflict
SIMIGDP (System for Modeling Global Development Processes)	All-Union Institute for Systems Studies, Moscow	Impact of social structure on economic development
Basic Needs Model	International Labor Organization, Geneva	National vs. international policies for meeting basic human needs
Regional World IV	Aid Association for Lutherans, Appleton, Wisconsin	Role of values and social relationship in solving world problems

Appendix 4 (continued)

Name of Model	Project Location	Focus of Investigation
Interfutures	Organization for Economic Cooperation	Implications of world development for OECD domestic and foreign policies
Global 2000	US Council of Environmental Quality, Washington, D.C.	Structure of US government's global model
AREAM (Australian Resources and Environmental Model)	Griffith University Queensland, Australia	Impact of world developments on Australian resources and environment
IIASA Global Energy Model	International Institute for Applied Systems Analysis, Laxenburg, Austria	Long-term options for global energy supply
FAP Model (Food and Agriculture Program Model)	International Institute for Applied Systems Analysis	World food production and trade system
AIM	U.N. Institute for Training and Research (UNITAR), New York	North-South relations, equitable distribution mechanisms
(No Model name)	Institute of Economics and Industrial Engineering, Novosibirsk, USSR	World financial balance with rising energy prices
GBSM80 (Global Biosphere System of Models)	Computer Center of the USSR Academy of Sciences, Moscow	Interactions between human activities and the biosphere
Integrated System of World Models	University of Bradford, UK	General forecasting and policy analysis