

[E/ESCAP] DP/EDRS/15



UN LIBRARY

AIIG 9 1979

UN/SA COLLECTION

ENVIRONMENT AND DEVELOPMENT

REGIONAL SEMINAR ON ALTERNATIVE PATTERNS OF DEVELOPMENT
AND LIFE-STYLES IN ASIA AND THE PACIFIC

CAP/DP/EDRS/15
ENGLISH

14-18 August 1979
Bangkok

United Nations
Economic and Social Commission
for Asia and the Pacific
(ESCAP)

United Nations
Environment Programme
(UNEP)

"Not only additional constraints but also new development possibilities are at the heart of environmental considerations"

ECONOMIC AND SOCIAL COMMISSION FOR
ASIA AND THE PACIFIC

UNITED NATIONS ENVIRONMENT PROGRAMME

Symbol number: DP/EDRS/15

Distribution: Limited

9 July 1979

ORIGINAL : ENGLISH

ENVIRONMENT AND DEVELOPMENT:
REGIONAL SEMINAR ON ALTERNATIVE PATTERNS OF DEVELOPMENT
AND LIFE-STYLES IN ASIA AND THE PACIFIC

METHODOLOGICAL/INSTITUTIONAL PAPER

ENVIRONMENT AND DEVELOPMENT PLANNING
IN THAILAND

BY

KASEM SNIDVONGS

This paper was prepared by Kasem Snidvongs, Secretary-General, National Environment Board, Thailand. The views expressed in it are those of the author and do not necessarily reflect those of the United Nations or the Government of Thailand.

ABSTRACT

This paper reviews some of the major environmental constraints on the traditional growth-oriented approach to development in Thailand and traces the emergence of environmental consideration in development planning. The latest Plan (Fourth Plan, 1977-1981) is the first to recognize the importance of environmental concern, although it contains no projects in specific pursuit of this concern.

The 1970s have been marked by the passing of the National Environmental Quality Act of 1975, whose provisions were strengthened by a subsequent Act in 1978. The former Act established the National Environment Board (NEB) which has since grown steadily in scope and influence. The NEB now works quite closely with a number of government agencies, albeit mainly on an ad hoc basis. The 1978 Act requires that an environmental impact study be prepared for, and prior to the implementation of, all major projects, and the NEB has prepared a detailed manual of guidelines for such studies; however in practice, the execution of these studies is not automatic and must be individually requested by the NEB.

The NEB has also drawn up a "critical list" of planning priorities which encompass four environmentally and ecologically sensitive zones in Thailand, considerations of rural development at the village and community level, and the problem of forest and wildlife protection.

Ideally, a full integration of environmental and other development objectives is desirable leading to a comprehensive multi-objective planning system, and a closer relationship between NEB and the NESDB (main planning body) is being developed. However, the present approach cannot at this stage be fully comprehensive, due to such factors as inadequate monitoring and a lack of trained personnel. The problem of acquiring expertise is being tackled on a big scale at the national level and offers considerable scope for collaboration among developing countries of the region.

Contents

	<u>Page</u>
I. Introduction	1
II. Role of environment in national development	1
III. Environmental problems and development objectives	10
IV. Environmental law	13
V. Administrative aspects	14
VI. Current NEB approach to environmental protection	24
VII. Conclusions	39

Annexes

I. Environmental law in Thailand applicable to specific types of environmental resources (to 1978)	41
II. National Environmental Quality Act of 1978	52
III. Appropriate budget allowances for EIS studies and reports for projects in Thailand	60
IV. A comment on environmental plans and programmes in Thailand ..	64

I. INTRODUCTION

The role of the environment in the national development process has markedly increased during the past few years. The introduction of environmental concepts into development planning has obviously made the already complicated task of development planning even more complex. Development planners refer to this additional problem as a part of the total complex of "multiple objective" planning. While integration has become a key word for modern development planning, planners invariably find themselves without proper or even workable tools to cope with the emerging situation.

This paper will attempt to review pertinent factors which have, over the years, resulted in the present situation as it relates to the problem of incorporating environmental protection measures into the over-all development planning process in Thailand. Environmental problems will be evaluated with respect to traditional development objectives in Thailand. Current practices in environmental protection as well as the need for a new conceptual framework will be discussed. Needless to say, all of the analyses are based on the Thai situation and thus may not be applicable to the other developing countries in this region.

II. ROLE OF ENVIRONMENT IN NATIONAL DEVELOPMENT

A. EMERGENCE OF ENVIRONMENTAL ISSUES

In order to understand the Thai situation, it is necessary to look at key factors which link traditional development objectives with emerging environmental issues. Traditionally, planners viewed the development process as primarily growth-oriented. In order to achieve increased production such planning provided that all available resources would be mobilized and assumed that management systems must be modernized in such a way as to maximize the production growth rate. Throughout the 1960s, this approach was implicitly adopted by the Thai Government. Growth measured in terms of increases in aggregate production was maintained at a satisfactory rate of more than 7 per cent during this period.

But despite the impressive growth record of the 1960s, voices of discontent developed and became increasingly loud toward the end of the decade. Distribution of income and economic stability emerged as the two most important problems by the early 1970s. At the same time more and more people

/began

began to realize that it was necessary to conceptualize growth in a somewhat different manner, taking into account other factors and particularly income distribution. In addition to this emerging concept, it was realized that the growth process would in itself be difficult to maintain due to the importance of environmental factors. During the early 1970s, however, these environmental factors had been looked at as additional constraints to growth, and it was not until the mid-1970s that people began to realize that attention to environment must, in fact, be an integral part of the development process in order to achieve an over-all optimal benefit-cost balance in terms of benefits to the country's entire population. Some of the most important environmental parameters are discussed in the following sections.

1. Population

The rapid population growth rate of over 3 per cent per annum during the 1960s resulted in an increase in the total population from 24.8 million in 1959 to 34.5 million in 1969. The pressures emerging from this high population growth, however, were hardly noticed because abundant resources were available. In 1965 two former secretaries-general of the national planning organization (the National Economic and Social Development Board) stated:

"... in Thailand there is a special problem confronting development planners, the absence of a sense of urgency for accelerating economic development through concerted public efforts. Comparative stability, the relative abundance of critical economic resources, and a high degree of social and economic mobility all tend to minimize the pressure for planned allocation of economic resources."^{1/}

The consequences of rapid population growth substantially built up during the early 1970s. Such consequences can be expressed in many ways. All, however, have damaging effects on growth and/or income distribution. Major indicators, such as the man-land ratio, level of government expenditure on primary education, unemployment rate, and requirement for public social facilities clearly demonstrate the seriousness of the problem. The emerging situation indicated there would be very little room for continued economic expansion in Thailand without effectively tackling this problem in one way or another. In the field of agriculture for example, Thailand had come to a point where continued high agriculture growth could no longer be achieved

/through

^{1/} Prayad Buranasiri and Snoh Unakul, "Obstacles to effective planning in the Thai planning experience", The Philippines Economic Journal, vol. IV, August 1965.

through simply expanding cultivable land areas. Because of the population factor alone, it became clear that development strategies would need to be revised.

2. Resources

Closely related to population pressure are various issues connected with resources depletion and deterioration. In addition to the problem of over-utilization, as in the case of agricultural land mentioned above, improper use of various resources has resulted in a decline in their quality. There is much evidence to suggest, for example, that soil erosion is becoming a serious problem in many areas of the country. Depletion in forest resources has already resulted in severe flooding in many parts of the low-land fertile areas.

It is easy to see that Thailand has come to a point where achieving increases in productivity will be much more difficult because of depletions in basic resources. This, of course, represents a drastic variation from the traditional assumption of a continuing supply of readily available resources for supporting development. Many other cases can be cited as examples of emerging resources problems. Suffice to say, however, that at present no government can make a realistic evaluation of development potentials without giving due emphasis to resources protection and conservation. The traditional concept of emphasizing money investment, therefore, has to be changed.

3. Urbanization and industrialization

The adverse consequences of economic development have been recognized as an increasingly important factor affecting continuing development in Thailand as well as in other developing countries. Although industrialization is vital to the development process, lack of careful consideration of the resulting adverse impacts on environment has become a subject of growing discontent. All kinds of pollution are now widely regarded as social problems which, of course, represents part of the over-all development picture. The rapid industrialization which has occurred in and around Bangkok clearly illustrates this phenomenon of changing a previously agreeable environment into a "concrete jungle".

/Urbanization

Urbanization requires many types of investment in both economic and social infrastructure in order that an acceptable standard of living can be maintained. This of course introduces a direct conflict between urban and rural development and the resulting social tension has become increasingly difficult to avoid. The population of the Bangkok metropolis has increased by 1.6 million during the past decade. Despite all of the problems associated with big cities, the difference in money income between Bangkok and much of the rest of the country still attracts large numbers of people into Bangkok from the rural areas. It is therefore easy to see that the problems are likely to get worse if no realistic attention is paid to this newly emerging aspect of the development problem.

B. FROM THE SECOND TO THE FOURTH PLAN

Since environmental problems have accumulated over a number of years, it is useful to trace the record of the Government's interest in this important issue. A good index of the Government's interest in environmental problems can be found in the five-year development plans prepared by the National Economic and Social Development Board (NESDB) for the five-year periods beginning in 1962. There have been four such plans, for 1962-1966, 1967-1971, 1972-1976 and 1977-1981. A summary of provisions for environmental problems included in the Second, Third and Fourth Plans is given in table 1.

For purposes of the present review, a detailed examination of two of these plans, the Second Plan (1967-1971)^{2/} and the present or Fourth Plan (1977-1981),^{3/} is valuable in that the Second Plan illustrated Government thinking in the late 1960s (preceding the "Environmental Era" of the 1970s), while the Fourth Plan was published one year after establishment of the National Environment Board (NEB) in October 1975.

1. Second Plan

The policy of the Second Plan (1967-1971) is clearly shown (i) in the "Introduction Remarks" in the statement: "The basic objective of these projects is to accelerate improvement in the standards of living of the people ...", and in the statement that the Plan "must be regarded as the national

/Table 1.

2/ National Economic and Social Development Board, The Second National Economic and Social Development Plan (1967-1971), Bangkok.

3/ National Economic and Social Development Board, The Fourth National Economic and Social Development Plan (1977-1981), Bangkok.

Table 1. Summary of provisions for environmental protection in national five-year economic and social development plans

	Rating ^{a/}		
	Second Plan	Third Plan	Fourth Plan
Environmental protection	-	-	-
Environmental protection as a separate category	N	N	2
Conservation of natural resources	1	1	2
Agricultural development	-	-	-
On-farm irrigation improvements/land consolidation	1	2	4
Socio-economic improvements (tenure, credit, marketing, co-operatives)	3	3	3
Bangkok (and other cities)	-	-	-
Water supply	4	4	4
Sewerage and sanitation	1	1	1
Public housing	2	2	2
Occupational health	1	1	1
City planning	1	1	1
Cultural values	1	1	1
Family values	N	2	2
Groundwater development	N	2	2
Industrial pollution control	-	-	-
Manufacturing	N	1	1
Mining	N	N	1
Recreation/aesthetics/tourism	1	1	1
Rural communities	-	-	-
Water supply	2	2	2
Sanitation	1	1	1
Resettlement	2	3	3
Social welfare	2	2	2
Hilltribes	N	1	1
Rural public health	-	-	-
Medical care	3	4	4
Malaria control	2	2	2
Other communicable diseases	2	2	2
Nutrition	1	1	1
Water resources	-	-	-
Conservation planning	1	1	2
Pollution control	N	1	1
Watershed management	-	-	-
Forest protection/reforestation	2	2	3
Wildlife protection	N	1	1

Note: N = Not mentioned.

^{a/} Ratings from 1 to 4 express relative size of budget allocations in terms of magnitude of the problem from the environmental point of view. The figures may be compared both horizontally and/or vertically.

/determination

determination toward progressive economic development", and (ii) in the "Scope" of the Plan, which (page 1) again emphasizes "improved living standards", and (iii) in the "Objectives and Policies" of the Plan which (page 23), lists "Mobilization of human and natural resources for optimum utilization in expanding the productive capacity and national income of the country, so that the benefits of development can be shared equitably by all classes of people". There is, under "Objectives and Policy" (page 24), the statement "To use natural resources more efficiently and in harmony with the policy of conserving resources for future generations"; however, the detailed text includes little if any provision for implementing this concept.

As would be expected, there is no specific reference to environmental aspects per se in the entire Second Plan report, but some attention is given to important elements of environmental protection including initial efforts in forest protection and reforestation, concern with on-farm improvements and socio-economic institutions needed for assuring the success of irrigation projects, greater attention to human settlements planning, and attention to community facilities including physical infrastructure and public health and sanitation programmes. However, the main thrust of the Plan is to cope with the problem of accelerating population growth and urbanization, from an essentially economic point of view.

An especially interesting aspect of the Second Plan is the concept, relating to irrigation projects (page 94), which demonstrates the beginning of recognition that irrigation project planning, to be successful, must include more than mass delivery of water, i.e., must include on-farm distribution including associated needs for land consolidation. Especially illustrative is the statement that the on-farm improvements "should be undertaken by the farmers themselves"; recognition that this was not being done (due to lack of capital and know-how) led the Government to take responsibility for helping to solve these problems.

Another interesting aspect is the discussion of industry and mining (Chapter X), which is silent on the environmental pollution effects of industry and mining, despite the fact they are heavy contributors. Tin mining (page 121) is stated to be the most important mining activity in Thailand, but no hint is given of its "leading role" in gross destruction of environmental quality including excessive siltation of rivers, estuaries, and beaches, impairment of aquatic ecology and destruction of mangroves.

2. Fourth Plan

The Fourth Plan (1977-1981) does include, as would be expected, some initial attention to the need for environmental protection per se, by including this as a specific category in the list of subjects considered in Part III, Chapter I, namely "Development and Conservation of Critical Economic Resources and Environment". However, the "Introduction", Part I, Chapter I, which presents policies and objectives for the over-all Plan, does not explicitly mention environmental protection, nor is any mention made in the report of the existence of NEB and its role. Mention is made (page 170) of the Environmental Quality Act of 1975 (which established NEB), but it is stated that the Act "... does not authorize any specific agency to be responsible for the administration and control of environmental quality". While this is correct, it might have been stated that such is the case in practically all countries, that environmental protection operations are necessarily diffused among governmental operating agencies, but that NEB does have a key role in planning and co-ordination. No doubt these omissions are because the NEB was at that time just getting organized and hardly able to make a significant contribution to the preparation of the report. This issue will be discussed further in subsequent sections.

Despite the omissions noted above, Section 6 of Part III, Chapter I includes about four pages of discussion of environmental issues. Of equal interest is the fact that the remaining five sections of this same chapter, which deal with land use, forestry, water resources, energy and mineral resources, do include considerable attention to environmental protection even though these are not categorized as such. For example, the discussion of forestry notes the urgency of coming up with a much more realistic programme for forest protection, and the need for comprehensive water resources planning is emphasized, including attention to pollution abatement. However, the discussion on mining makes only general mention of environmental protection, by stating "Mining operations may pollute the environment and adversely affect marine fish resources" and "Measures to lessen and/or prevent such negative effects will be found to improve the situation". The "Investment Programme" (Part IV) does not appear to include any projects for implementing these concepts.

One reason for the seeming lack of attention in the Fourth Plan to integrating environmental issues into development planning is because the NEB contribution to the Plan preparation came at a time when the Plan document had been almost finalized. Also, there was insufficient time to give much consideration to planning specific measures for tackling the important environmental problems of the immediate future. Thus the environmental considerations of the Fourth Plan are not fully related to its over-all economic and social aspects. In general, however, it can be concluded that the Fourth Plan gives far more attention to environmental protection than any previous Plan. Examination of the projects included in the detailed listing for Investment Programmes (Part IV) shows substantial attention to environmental issues, especially:

- (i) Land use improvement measures (land classification, land ownership, land consolidation, land reform);
- (ii) Forestry (surveys, strengthening of protection laws, reforestation, watershed protection);
- (iii) Water resources (rehabilitation of fishing areas);
- (iv) Environmental development (industrial pollution surveys and control measures);
- (v) Fisheries (pollution abatement of marine fisheries);
- (vi) Agriculture (soil improvement, plant disease control, promotion of co-operatives and land settlements);
- (vii) Bangkok metropolitan area environmental improvements (water supply, traffic alleviation, sewerage and drainage, housing);
- (viii) Environmental infrastructure for rural communities (water supply, drainage, sewerage);
- (ix) Rural public health (sanitation, health services, disease prevention, nutrition);
- (x) Social welfare programmes (social insurance, hilltribe studies);
- (xi) Recreation (sports, zoos, parks);
- (xii) Cultural arts (preservation of structures, education).

In summary, the Fourth Plan, even though it handles environmental issues in a more-or-less piecemeal manner, nevertheless devotes marked attention to the subject. How much of this attention will materialize will

/depend

depend greatly on the capacity of the Government to developing adequate projects. As pointed out in the Fourth Plan, many of the aspirations of the Third Plan (especially those relating to environmental protection) did not materialize. Now, with the NEB shaping up, the record for the Fourth Plan should be considerably improved.

3. Summary of Second, Third and Fourth Plans

Table 1 presents a summarized interpretation of the Second, Third and Fourth Plans with respect to attention to selected subject areas which are generally regarded as sensitive indicators of environment including both natural and human resources. The table uses a rating system by which the magnitude of interest (as indicated by the budget allocation) for each of these "environmental parameters" is graded on a scale of from 1 to 4. Examination of the tabulation and of the explanatory notes in the Plans indicates the following:

- (i) The Fourth Plan is the first which recognizes the importance of environmental protection as a separate governmental field of endeavour;
- (ii) The budget allocations have been mainly concerned with human environmental resources, primarily with economic development, but also have shown increasing concern with quality-of-life values (socio-economics, social welfare, public health, etc.);
- (iii) Only recently has there been any serious concern with loss of natural resources (and even the current interest tends to place quite limited attention to such areas as protection of forest habitat and wildlife);
- (iv) There has been relatively little concern with control of environmental pollution, including water pollution, air pollution, solid wastes, toxicity, noise, etc.;
- (v) There is a marked absence of any programmes aimed at systematic monitoring, not only for evaluating the extent of degradation of natural resources due to pollution and other causes, but also of any systematic approaches to evaluating the impacts of the Government's activities on satisfying human needs i.e. for measuring the success of the human-related programmes in terms of meeting total or over-all needs (e.g., the settlement/resettlement programmes);
- (vi) There is no evidence of recognition that, if the implementing agencies of the Government are to include environmental protection in their routine work or project development, then their budgets must be increased sufficiently to allow for this.

III. ENVIRONMENTAL PROBLEMS AND DEVELOPMENT OBJECTIVES

A. RELATIONSHIP OF ENVIRONMENT TO OTHER ASPECTS OF DEVELOPMENT PLANNING

Having described the contents of the Second and Fourth Development Plans, it is pertinent to examine the relationship between environmental and other aspects of the Plan as seen through the current situation in Thailand. First, the environmental aspect has now been fully recognized as an integral part of the development process. Secondly, there is a very close relationship between environmental and resource problems. These two words can therefore be used interchangeably.^{4/} Thirdly, resources can be considered as both the stimulus as well as the constraint governing the production growth process. Plans, therefore, have to be designed to achieve both orderly utilization of resources and their proper conservation so the resources will be continually available to support development. Fourthly, because the resource aspects can be treated as a part of the multiple-objective system, it is much more difficult to strike an optimal balance in allocation of fiscal resources.

Within the framework discussed above, the relationship between resource and other major development objectives in the context of the Thai situation will be discussed in the sections below.

B. RESOURCES AND PRODUCTION GROWTH

The relationship between resources and production growth, is, of course, well known. As inputs to growth, planners formerly concentrated their attention on the problem of maximizing resource utilization. After realizing the limits of resource availability, however, the Fourth Plan begins to shift its emphasis from maximum utilization to proper utilization or "conservation". It is easy to see that the objectives of "growth" versus "conservation" interact and often conflict with each other. This certainly represents a new dimension in development planning in Thailand.

At present, the need for conserving vital resources such as land, water, forests etc. has become widely known. In practice, however, conservation represents an additional task for the public sector which has almost

/no

^{4/} The term environmental resource as used in this paper includes both the quality and quantity of the resource.

no experience in the subject. There is increasing concern that the Government has tilted towards production growth. This is clearly one of the new development issues which the Fifth Plan (1983-1987) will have to address.

Apart from the problem concerning conflict between growth and conservation, it is well known that distribution of growth has been far from even. As indicated above, growth in urban areas has attracted migration from poorer parts of the country and thus caused serious urban problems. Although the Fourth Plan advocated development of regional urban centres as a basic approach to deal with this problem, actual implementation of this approach lags far behind. As a result, a few cities have to shoulder very heavy burdens and thus require substantial money investment. Here again, another direct conflict in development objectives is difficult to avoid since more money for a few urban cities means less money available for developing other communities and rural areas.

C. INCOME DISTRIBUTION

At Thailand's present stage of development, a large part of the population still lives in the subsistence agriculture sector. It is estimated that in 1975-1976 about a quarter of the total population still remained below the poverty level, with a large part of these people engaged in subsistence agriculture. Depletion of critical resources has directly caused a deterioration in the standard of living of this poor section of the population. Farmers have lost opportunities to provide themselves with protein food from fish in natural water resources which used to be in abundant supply. Opportunities to earn small amounts of cash from local natural resources, such as from handicrafts and selling charcoal, have been greatly reduced as population encroachment has steadily depleted forest resources. Most importantly, new families cannot find empty lands for new settlements and thus must either move into urban areas or elsewhere or be content with smaller and smaller pieces of farm land. In areas where land is available, such land is usually not suitable for agriculture, being plagued with serious soil erosion, low soil fertility, water shortages, or other problems. Many more examples like these can be cited. All these facts, however, point to the role which resources must play in maintaining a minimum acceptable standard of living for the very poor.

/With

With depletion and deterioration of natural resources in rural areas, the first major consequence is that these people are forced out of their subsistence sector. Since there are only a few alternatives open to them, it is natural that they will struggle to achieve the best possible short-run gain. This is evident in the rapid deterioration of the country's forest resources. The emerging situation certainly calls for the Government to exert major efforts in poverty eradication. Without the availability of sustained national resources, the Government is likely to face an increasingly difficult task in implementing and carrying out a successful poverty eradication programme.

Apart from the direct impact of resource depletion on the poor segment of the economy, the dwindling natural resources also have serious implications on the performance of all of the Government's functions. Since more people are likely to struggle to get whatever resources are left in the country, allocation of resources becomes much more complex. Serious doubt has been raised on the capability of the market mechanism to handle the increasingly complicated allocation system. This is precisely one of the major sources of social and political tension. While there appears to be no easy solution, it should be noted that the Government naturally tends to handle these major problems mostly on a piecemeal and often short-term basis. This is one of the dangerous trends which have emerged during the past few years. While there is no easy solution ahead, it is clear that the Government must focus much more effort on this problem.

D. OTHER DEVELOPMENT OBJECTIVES

The relationship between resources and other development objectives is not as clear as the two cases described above. In terms of economic stability, however, there is an increasingly evident trend that depletion of certain resources affects patterns of consumption and consequently consumption price levels. In the case of forest products, for example, the decrease in lumber production in recent years has pushed up prices of certain types of construction materials. Furthermore, timber has to be imported to meet the shortage, thus aggravating the balance of trade deficit. In terms of national security objectives, deterioration of resources puts pressure on the supply side, resulting in an increase in the degree of competition through both legal and illegal channels. As a consequence, political tension has risen particularly in rural areas where local resources have been seriously depleted or exhausted.

IV. ENVIRONMENTAL LAW

A. EVOLUTION OF ENVIRONMENTAL LAW IN THAILAND

Despite the fact that environmental resources have been increasingly recognized as playing a significant role in moving the country towards achieving development objectives as discussed above, serious attempts to tackle environmental problems in Thailand did not start until 1973. Several sections of the Constitution of October 1973 represent the first major law which dealt directly with protection of environmental resources.

The first formal recognition of environmental law as a category in itself came with the National Environmental Quality Act of 1975 (NEQA/1975). Pursuant to this Act the NEB was established within the Office of the Prime Minister, together with its executive arm, the ONEB (Office of the NEB). Previously the NESDB had established an Environmental Studies Unit within the NESDB structure which in October 1975 became the nucleus of the new ONEB. The role of the NEB, as set forth in Section 5 of the NEQA/1975, required the NEB to carry out various functions as described below in Section V of this presentation.

A more detailed discussion on environmental laws in Thailand, up to 1978, as related to various specific types of environmental resources, is presented in Annex 1. Annex 1 also includes a summary tabulation of these environmental laws.

Attention should be called also to a development of the past several years which has indicated the increasing importance given by the Government to environmental protection, by use of Article 27 of the Interim Constitution (effective to December 1978) to deal specifically with cases involving gross abuses of environmental resources. Article 27 (and similar articles in earlier constitutions) enabled the Prime Minister to take drastic action on virtually any important matter of interest to the nation, but no use was ever made of this power by earlier Governments for the specific purpose of environmental protection. The first Kriangsak Government utilized Article 27 in several such instances for handing out very serious penalties to persons found guilty of gross log poaching and of dynamiting of fishery and coral resources. However, the present Constitution, promulgated in December 1978, contains no such article.

/B.

B. NATIONAL ENVIRONMENTAL QUALITY ACT OF 1978

Experience in working with NEQA/1975 indicated the need for strengthening this legislation in order to furnish NEB with a more solid basis for its operations. Pursuant to recommendations developed by NEB, new legislation was enacted in December 1978, termed the National Environmental Quality Act of 1978 (NEQA/1978) which remedies serious gaps in the previous law. The new law provides (i) for strengthening of the environmental impact statement procedures, (ii) for development and application of environmental quality standards, and (iii) for handling of environmental emergencies. Details on the new legislation are given in Annex II.

The NEQA/1978 constitutes a major improvement in Thailand's legislative framework for environmental management. But further efforts will be required. An ESCAP meeting on the subject in early July 1978 called for increased attention to the legal and institutional aspects of a variety of environmental issues both at the national and international levels. Thailand had anticipated many of the meeting's recommendations through the work of NEB and its Environmental Law Committee - achievements which should be a source of national pride. Many other challenges lie ahead, however, and thus the work must continue at a diligent pace if the productivity of the country's resources and the health and well-being of the Thai people are to be maintained. The record to date suggests that there is good reason to be optimistic that the environmental law gap will be closed.

V. ADMINISTRATIVE ASPECTS

A. ENVIRONMENTAL INPUTS INTO DEVELOPMENT PLANNING

It is important to note that the term "environmental planning" has little meaning except as related to over-all development planning. While it is convenient to use the term "environmental planning" as a short title, what is really meant is proper consideration of the environmental issues in the total development planning process.

In the case of Thailand attention to environmental issues in development planning more or less got its start with establishment of the first national environmental committee in 1971. This attention gained impetus with establishment of an Environmental Division in NESDB in 1974.

/With

With establishment of NEB in October 1975, the Environmental Division of NESDB furnished the core group for the new NEB. The NESDB, however, has continued to maintain an environmental division, primarily to serve purposes of liaison with NEB, so that the views of NEB can be expeditiously taken into account in NESDB's evaluations of the over-all merits of proposed development projects.

The roles of both NESDB and NEB in environmental planning have been essentially as lead agencies i.e. the government has maintained the philosophy that the implementing agencies of the government should be responsible for incorporating environmental parameters into their regular operations, following policies and guidelines established by the lead agencies. Thus the government's approach to environmental protection is similar to that of most other countries both developing and developed.

B. FUNCTIONS OF NEB PURSUANT TO NEQA/1975

Since its establishment in October 1975, the key agency dealing with environmental problems is the National Environment Board (NEB). Section 5 of the NEQA/1975 required the NEB to:

(i) Submit policy and opinions concerning the enhancement and conservation of environmental quality to the cabinet;

(ii) Consider the implementation of policy in respect of the drawing out of projects or schemes concerning environmental quality;

(iii) Consider and give opinions on projects of government agencies, state enterprises and the private sector, which may have an adverse effect on environmental quality, to the cabinet or government agencies concerned, as the case may be;

(iv) Submit plans for the development, enhancement and conservation of environmental quality to the cabinet;

(v) Recommend standards of environmental quality, including measures to be adopted for inspection thereof, and recommend sanctions against violators to the cabinet;

(vi) Submit a report on the national situation regarding environmental quality to the cabinet at least once a year;

(vii) Co-ordinate work between government agencies, state enterprises and the private sector on matters concerning environmental quality;

/(viii)

(viii) Consider any other matter concerning environmental quality as the cabinet or the Prime Minister may request;

(ix) Perform other functions as may be designated by law to be those of the National Environment Board.

A provision of particular importance in NEQA/1975 is Section 6, which empowered the NEB to require government agencies, state enterprises, and other persons to submit documentary information on the environmental impact of proposed projects and plans. If the Board, after reviewing such material, was of the opinion that a project or plan may cause a serious adverse environmental effect, it could recommend remedial measures to the cabinet. This provision was intended to provide the necessary legislative basis for implementation of an effective national environmental impact assessment programme.

The Act also established, in Section 12, an Office of the National Environment Board (ONEB) with a mandate to carry out the activities entrusted to it by the Board. Notable among the Office's other responsibilities was the duty to "supervise" government agencies, state enterprises, and private sector organizations to ensure their compliance with environmental quality standards. The ONEB was also authorized to receive for consideration "the petition of any person who has been aggrieved or damaged by an act which has an adverse effect on environmental quality". The ONEB was generally required to study existing environmental conditions and recommend programmes for their improvement, and "to promote and encourage the study of environmental quality at every level of education".

Six advisory committees were established at the time of the creation of the National Environment Board, namely those on land use, water quality, air and noise, population and human settlements, education and public relations, and nature and art conservation. A seventh committee, addressed to environmental law, was established in May 1976. These committees initiated issues related to their terms of references and also served to screen any proposals before submitting views to the cabinet through NEB.

/C.

C. STRENGTHENING OF NEB FUNCTIONS
PURSUANT TO NEQA/1978

The experience of NEB in working with NEQA/1975 indicated a number of deficiencies in this Act, mainly in not including sufficient specific provisions to enable implementation of its basic concepts and principles. The NEQA/1978 included provisions which should remedy these deficiencies, particularly in the subjects of environmental assessment, environmental standards, and environmental emergencies.

(a) Environmental impact assessment. In what represents the culmination of more than two years of effort by NEB, the NEQA/1978 requires the preparation of an environmental impact study prior to the approval of any major project, whether in the public or private sector. Any Government agency proposing to undertake a major public works project - a dam or highway, for example - must prepare a study of the project's likely environmental effects and proposed environmental protection measures and submit it to the NEB for review. The NEB's approval of the study is required prior to implementation of the project. The study is also to be made available for public inspection.

Proponents of projects in the private sector requiring government approval - new factories, for example - are under the same obligation. No licence is to be issued for such a project until an environmental impact study, prepared by the project's sponsor, had been approved by NEB.

Actually, the requirement represents less of a departure from past policy than may be thought. The original 1975 Act authorized NEB to require an environmental impact study in connexion with any project and, whenever serious harm was threatened, to recommend remedial measures to the cabinet. Unfortunately, because the legislation did not authorize NEB to issue regulations, there was no effective way to establish the environmental impact study requirement as a routine, government-wide obligation. Each study had to be requested individually by the Board, and the effectiveness of the device was thus heavily dependent on the extent to which the NEB staff was able to stay abreast of the plans of other agencies. Because of uninformed agency fears that a request from NEB for an environmental impact study might impede efficient project implementation, the NEB staff found that timely information about proposed projects was not often forthcoming, particularly in the early period of NEB operations.

NEB has enjoyed increasing co-operation from other government agencies during the past year. With the new legislation, NEB now has the power to prescribe regulations, and environmental impact studies are mandatory for all projects specified in a list to be issued by the Board. The studies will be reviewed, at least at the outset, by a special expert panel assembled by NEB for the purpose. At the same time, training programmes are underway to strengthen the NEB staff capability in environmental impact assessment technology.

As a practical matter, most of the environmental impact studies are likely to be done by private consultants, at least at the outset. Recognizing the natural incentive in such circumstances for a consultant to minimize the negative features of a project whose sponsor is paying his fee, the NEB will establish a roster of approved consulting firms. Unwarranted bias in favour of a project would be grounds for disqualification, a fact which should help to ensure a reasonable degree of objectivity in environmental impact evaluations.

(b) Environmental standards. Pollution standards for industrial waste water have been in effect since 1970, when they were issued by the Ministry of Industry under the Factories Act of 1969. The standards are in the form of uniform effluent limits, and apply generally to all industrial dischargers in the country. However, the standards appear to have been based on the pollution control goals of more highly industrialized countries, and are considered by many to be too strict for practical application to much of Thailand's industrial sector. Although NEB and the Ministry of Industry officials have met several times to discuss the adoption of more suitable standards, the 1970 limitations remain in effect today. Enforcement, many observers have noted, tends to be sporadic.

The only industrial air pollution standard, issued by the Ministry of Industry in 1971, calls for factory smoke to be released "through a chimney having suitable height", and prohibits smoke from being blacker than a prescribed level. The regulations do not prescribe limits for the emission of invisible noxious gases.

Similarly, although the police occasionally ticket vehicles found to be disgoring excessive amounts of "black smoke", there are no guidelines

/prescribing

prescribing limits for the poisonous invisible components of motor vehicle exhaust - carbon monoxide, sulphur and nitric oxides, and lead, for example.

A second amendment in the NEQA/1978 is intended to remedy these deficiencies by authorizing the NEB to promulgate basic environmental standards for the country. These standards would serve as a guide to those agencies of the government which currently have principal pollution control authority in specific sectors of the environment.

In the case of "point-source" pollution - waste from factories and municipal waste water discharges - NEB will establish basic stream quality standards throughout the nation. The standards will differ from stream to stream, depending on volume, flow, beneficial uses, and so forth. Once the standards were established, it would be the responsibility of the appropriate enforcement agencies - the Ministries of Industry and Public Health, for example - to formulate effluent limitations for particular dischargers which facilitate achievement of NEB's stream quality targets.

NEB will also issue ambient air quality standards and work closely with enforcement agencies - principally the Police Department - to develop appropriate enforcement machinery. Requirements calling for emission control devices on new cars might be promulgated, and regular testing of vehicle exhaust might be prescribed as part of the implementation effort.

(c) Environmental emergencies. The third amendment gives the Prime Minister authority to take any action deemed necessary to respond to an "environmental emergency". Such an emergency might arise, for example, in the case of a damaged tanker spilling oil into Thai coastal waters, or where meteorological conditions cause air pollution concentrations in municipalities to build up to levels which medical authorities regard as dangerous to health. ("Air pollution alerts" are well known by city dwellers in many other countries.) The Prime Minister, under the new provision, is authorized to take control of ships, to issue constraints for certain categories of motor vehicle use, or to take other emergency measures in order to correct the situation.

As evident from the above, the NEB is primarily in a role of advising, leading, and co-ordinating on matters of environmental protection, to "see to it" that the implementing agencies of

/the

the Government do provide for proper attention to environmental protection in planning, building and operating development projects. Within this context, the NEB can submit any views or ideas concerning environmental protection to the cabinet. Upon the cabinet's approval, the implementing Ministries or other implementing agencies of the Government carry out all necessary activities. As previously noted, there are numerous laws dealing either directly or indirectly with environmental problems, which are administered by responsible government agencies specified by each law. The NEB co-ordinates and monitors the performances of these agencies on activities related to environment.

D. ORGANIZATION OF THE OFFICE OF THE NEB

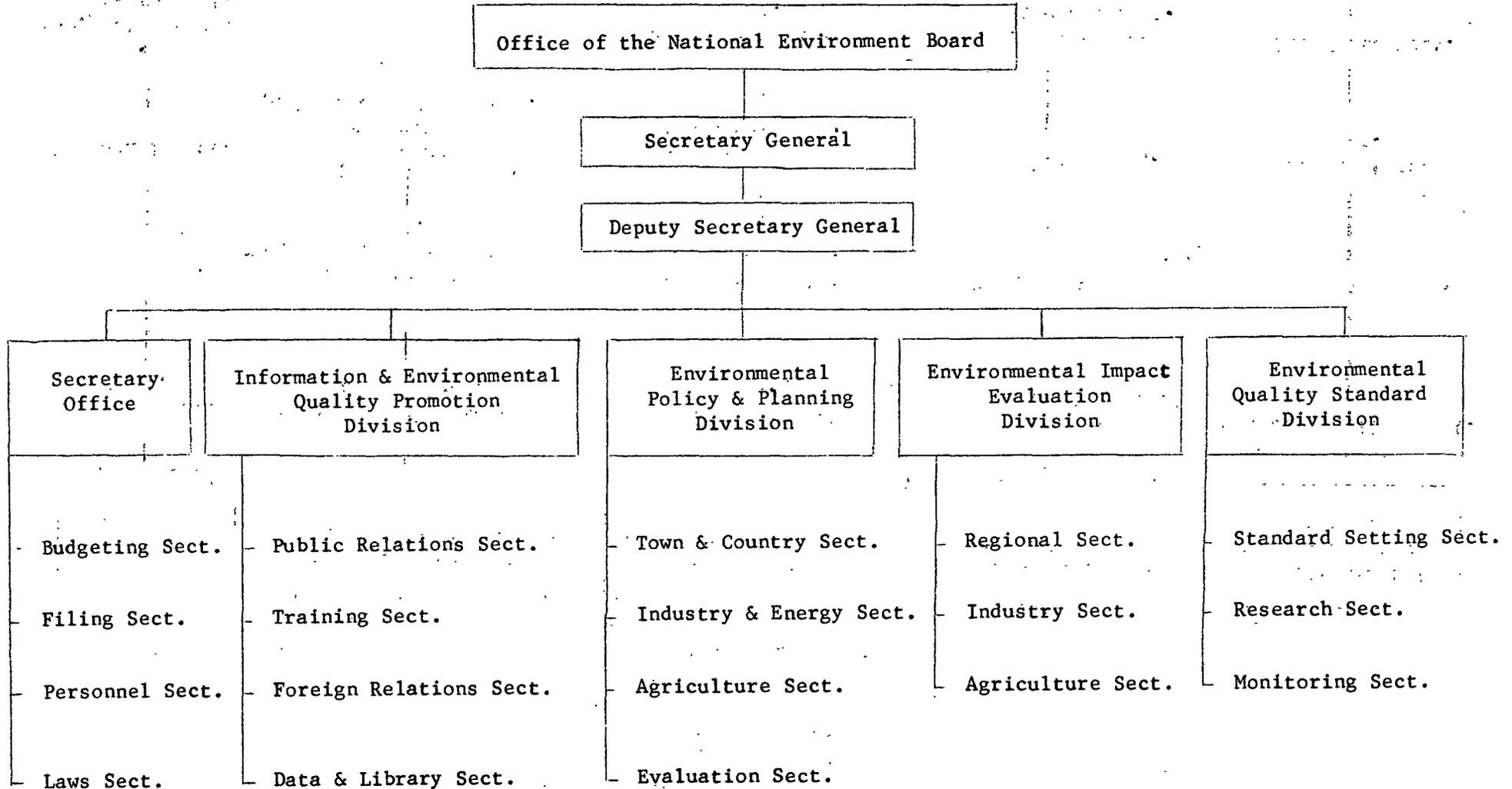
As officially established in 1975, the Office of the NEB (ONEB) was organized to comprise four operating divisions in addition to the Office of the Secretary, as shown in figure 1. While this organization served effectively to meet NEB's initial needs, actual experience has shown that the work of environmental protection is considerably more complex than initially envisioned. Accordingly the original divisional structure, while still maintained, has undergone modifications within the divisions themselves, as shown in figure 2. This was done primarily to establish distinct sections or units for each important environmental subject area. This has also served to expedite the development of linkage relationships with other Governmental agencies.

It is anticipated that some of the more important sections or units within the existing divisional structure will sooner or later be reestablished as separate divisions in themselves.

/Figure 1.

Figure 1.

ORGANIZATION CHART



/Figure 2.

Figure 2.

ORGANIZATION CHART

Office of the National Environment Board

Secretary General

Deputy Secretary General

Secretary Office

Information & Environmental Quality Promotion Division

Environmental Policy & Planning Division

Environmental Impact Evaluation Division

Environmental Quality Standard Division

Correspondence Sect.

Environmental Education & Training Sect.

Human Settlements Sect.

Impact Assessment Techniques & Integration Sect.

Water Quality Sect.

Finance Sect.

Foreign Relations & Environmental Information Sect.

Natural & Water Resources Sect.

Transportation & Communications Sect.

Air & Noise Sect.

Personnel Sect.

Public Relations & Environmental Quality Promotion Sect.

Industry & Mineral Resources Sect.

Agriculture Sect.

Toxic Substance Sect.

Law, Petitions & Complaints Sect.

Policy & Evaluation Sect.

Power & Water Resources Development Sect.

Solid Waste Sect.

Aerial Photography & Remote Sensing Technology Sect.

Industry Sect.

Research & Laboratory Sect.

Community Services

E. LINKAGE BETWEEN NEB AND IMPLEMENTING AGENCIES

The linkage between the NEB and other central staff organization, notably the planning organization (NESDB) and the Budget Bureau, is being worked out at present. Nevertheless, since the need for close co-ordination between the NESDB and the NEB is clearly understandable, the present practice was designed to facilitate progress toward this objective. Administratively, the Secretary-General of the NESDB is an ex-officio member of the board of NEB. Furthermore, representatives of the NESDB are normally included in almost all of the committees and working groups established by the NEB. As noted earlier, a small environmental staff has been retained within NESDB to act as the contact point with the NEB. Through this staff, the NESDB expects to co-ordinate all activities which are based on criteria other than environment to give due consideration to the environmental aspects.

On a more substantive level, the Fourth National Plan incorporates inputs from NEB in a chapter called "Development of Conservation of Critical Economic Resources and Environment". The draft environmental plan provided by the NEB was submitted to the NESDB's committee for approval prior to its inclusion in the national development plan. The Secretary-General of the NEB, however, is not a member of the NESDB committee.

The relationships between NEB and other governmental agencies are being developed on an ad hoc basis. The NEB makes contacts with many Government units through its numerous committees and working groups. All decisions involving other Government units must be referred to the Cabinet for consideration. What is particularly lacking at present is the role of the NEB in budgetary allocation. At present, there is no formal way through which the NEB can contribute to budgetary decisions. The present system, however, allows NEB to raise the issues directly to the Cabinet. An alternative approach would be to work together with the NESDB in screening development projects prior to the submission to the Cabinet. This issue is further discussed in the next section.

With respect to technical assistance on environmental matters from international assistance agencies, NEB works closely with DTEC (Department of Technical and Economic Co-operation), the government agency responsible for administration of funds received from these agencies. By mutual agreement between DTEC and NEB, all requests to DTEC for international technical

/assistance

assistance from other government agencies are referred to NEB for evaluation. This has proven to be an effective way for ensuring that all such assistance is planned and implemented within a co-ordinated framework of policy developed by NEB. The object is to utilize this limited assistance to achieve a maximum of training in environmental technology distributed throughout the government and especially in the major implementing agencies.

VI. CURRENT NEB APPROACH TO ENVIRONMENTAL PROTECTION

A. CURRENT NEB ACTION PROGRAMME

NEB's current approach for achieving a realistic measure of environmental protection combines both immediate- or short-term measures. These include the use of Environmental Impact Statement (EIS) reports as the primary method for handling immediate projects on a case-by-case basis, and longer-term measures, primarily by development of master environmental plans for selected areas or sectors and by establishment of appropriate standards of environmental quality.

It is important to note here that virtually all of the environmental protection measures being undertaken by NEB are complex operations and of a nature which would be difficult to implement even if staff with environmental experience were available to NEB and to the implementing agencies of the government. Actually such experienced staff are very limited in supply in Thailand, and hence NEB's approach for its first few years is to focus on use of the EIS mechanics as the most effective interim measure while the shortcomings of inexperience are overcome.

This in no way implies lack of recognition of environmental-cum-economic planning i.e. the development of optimal land use plans for the various regions of the country, as the best solution to protecting environment in Thailand in the long run. It simply recognizes that, with our best efforts, effective long-range planning is likely to be a drawn-out process. Meanwhile the EIS approach, as shown by experience elsewhere can be a very effective tool in itself. The experience of the decade of the 1970s in the developed countries has shown clearly the continuing need for the EIS approach even in areas or regions which have presumably been "well planned". The NEB philosophy, therefore, is based on a continuing steady application of both approaches.

1. Environmental impact assessment

Because the NEB has been established only recently, it has not yet been possible for the ONEB to involve itself with all activities related to environment. The NEB approach, therefore, has had to be selective, based on the system of national priorities as indicated in the National Development Plan. In the field of appraising new development projects, for example, the NEB has decided to start off with dam and reservoir projects. As previously noted, NEB's most powerful tool for achieving environmental protection at this time is the EIS system. Even in the absence of any comprehensive planning and even without the establishment of environmental quality standards, it is expected this project-by-project approach should enable NEB to impose reasonable minimum protection measures. Also, it is expected that this project-by-project approach will be very valuable in training of the staff of NEB and of the implementing agencies in fundamental concepts of environmental protection. Thus the EIS exercises should serve to hammer out many basic concepts useful in developing the other NEB environmental protection measures including regional planning and establishment of environmental quality standards.

The NEB approach to implementing a national EIS system is based on use of the "Manual of NEB Guidelines for Preparation of Environmental Impact Statements"^{5/}, issued by NEB for use by the implementing agencies. This includes (i) "general guidelines for preparation of EIS reports" which are applicable to all types of development projects, (ii) "supplemental guidelines", with a different set of guidelines prepared for each main category of projects (dam/reservoirs, highways, harbours, industries, etc.), (iii) "initial environmental examination guidelines" for screening of a proposed project to determine whether an EIS will be needed, and (iv) a "format for preparing terms of reference for preparation of environmental impact statements for proposed projects", to be used by the implementing agencies for issuing to consulting firms or other groups interested in preparing proposals for carrying out specific EIS study projects.

The first issue of the NEB manual was published in April 1979. It is planned to update these guidelines periodically as experience is gained in actual project management in Thailand.

/The

^{5/} National Environment Board, Manual of NEB Guidelines for Preparation of Environmental Impact Evaluations (Bangkok, April 1979).

The NEB guidelines are based primarily on two United States publications (with modifications considered appropriate for Thailand), namely (i) the latest guidelines issued by the Council of Environmental Quality (CEQ) of the United States of America,^{6/} which is the lead agency in that country for formulating such guidelines, and (ii) a publication of the United States Corps of Engineers/Battelle^{7/} which develops a methodology for applying the CEQ concepts into EIS practice.

An important aspect in the use of the EIS approach in a developing country like Thailand is to utilize EIS procedures which are appropriate for the local situation. It is hardly realistic to expect to carry out environmental analyses to the degree comparable to EIS studies in the developed countries. The experience in EIS work in Thailand to date indicates that an EIS study appropriate for conditions here can be carried out for a fraction of the usual EIS costs for similar projects in the developed countries. Details are given in annex III.

2. Comprehensive environmental planning

It is recognized that planning on a regional basis is essential to achieve consistency and efficiency in environmental management. Hence NEB has initiated a programme leading to the development of environmental management plans for selected areas considered most sensitive with respect to environmental degradation. This has the objective of establishing guidelines and/or constraints to be applicable to continuing area development including necessary controls of existing development. As previously noted, our use of the term "environmental planning" is not meant to imply preparation of a plan outside the context of, or different from, a proper over-all economic and socio-economic development plan for a particular region or sector of the country. What is meant is to ensure adequate attention to all important environmental issues in the preparation of such plans i.e. the preparation of a land use plan which both supports development and protects environment on a mutually-related basis. From NEB point of view, it is incumbent upon NEB to take the lead, if necessary, in sponsoring such planning for all environmentally sensitive regions or resources in the country.

/The

^{6/} Council of Environmental Quality, "Preparation of environmental impact statements: Guidelines, Appendix C, Environmental quality", Ninth Report of the Council of Environmental Quality (Washington, D.C., December 1978).

^{7/} Battelle Pacific, Environment Assessment Manual: Colombia River and Tributaries, prepared for Corps of Engineers, May 1974.

The key planning projects on NEB's "critical list", now in various stages of early development, include the following:

(i) Songkhla Lake basin: Songkhla Lake in southern Thailand, one of south-east Asia's largest lakes, still retains much of its pristine qualities (including extensive wildlife sanctuaries and beautiful beach zones), but the lake basin is entering the S-curve phase of development including harbour, irrigation, industrial estates and other projects as well as extensive urbanization. The initial NEB effort here is focused on establishing a sound programme for continuing assessment and monitoring of the lake limnology and water quality to determine changes due to development. This is a co-operative venture between NEB, the Department of Fisheries, and the Prince of Songkhla University. Supplementary activities include assessment of pollution loadings now generated in the basin. The ultimate objective is preparation of a comprehensive plan for continuing basin-wide development which incorporates adequate protection of water quality, similar to that being completed this year for Laguna de Bay in the Philippines with UNDP/WHO sponsorship.

(ii) Pattaya beach resort: Pattaya, located on the east coast of the upper Gulf of Thailand, about two hours' drive from Bangkok, is currently Thailand's primary international beach resort and an important foreign exchange earner. However, because of the rapidity of the growth of the Pattaya resort, all in the past decade, the entire array of usual pollution problems needs systematic attention. NEB's approach here includes monitoring of sea water quality, evaluation of waste loadings (including industrial as well as community wastes, and solid as well as liquid wastes), evaluation of the feasibility of establishing special controls (for example, prohibition of dynamite fishing, to save precious coral reefs) and other measures, all to be inputs for preparation of an area-wide plan of development control which maximizes tourist potentials without loss of essential environmental values.^{8/} This planning, as well as that at Phuket, is being co-ordinated with the planning activities of the Tourist Authority of Thailand

/(iii)

^{8/} National Environmental Board, Environmental Guidelines for Coastal Zone Management in Thailand, 30 November 1975.

(iii) Inner Gulf zone: this zone, which might be termed the future Bangkok megalopolis, comprises the present Bangkok metropolitan area plus all of the lands adjacent to the seacoast in the vicinity, which seem destined to expand relentlessly into a huge complex, all draining to the uppermost part of the Upper Gulf of Thailand (the "Inner Gulf") via four major river systems. These include the Chao Phraya River, which flows through Bangkok and which, in the dry season, becomes nearly septic in the course of this passage, and the Mae Klong River, which drains an extensive industrial zone in the vicinity of Kanchanaburi including some two dozen cane sugar mills and other heavy industries. The existing pollution has already seriously affected the extensive mudflats of the Inner Gulf, which represent Thailand's most important fisheries reproduction zone, both for shellfish (shrimp and clams) and for finfish; however, the present level of pollution is only the beginning. Solving this problem is NEB's biggest challenge and will require a comprehensive analysis of pollution loadings and effects on the affected water resources - the local klongs, the rivers, and the sea waters.

NEB's initial efforts have been limited to monitoring of river and sea water quality (including marine pollution surveys in the Inner Gulf), carried out in co-operation with Chulalongkorn University and the National Research Council, to making initial estimates of the magnitudes of present and future pollution loadings and to preliminary modelling of water quality in the Mae Klong River.^{9/} The problem of sanitation-cum-flooding in Bangkok, bad as it is (the area is not yet sewerred and depends on use of individual disposal systems located in tight clayey soils) is only part of this problem. The ultimate objective is preparation by the government of the optimal comprehensive land use plan for the entire Inner Gulf/Bangkok megalopolis zone, and it is expected that the inputs being furnished by NEB will be of great importance in the ultimate plan formulation.

(iv) Phuket: while not yet a major international beach resort, Phuket has all the natural resources (beautiful tropical beaches, off-shore islands, coral beds, and spectacular scenic areas reminiscent of Rio de Janeiro) to become Thailand's leading beach for international tourism, only provided suitable controls can be established for protecting the natural resources from silt discharges from tin mining (the area's major industry /for

^{9/} National Environmental Board, Environmental Guidelines for Coastal Zone Management in Thailand: Inner Gulf Zone, 31 May 1976; and Dhira Phanthumvanit, Reliability Analysis for Environmental Planning: A Case Study of the Mae Klong River (National Environment Board, July 1976).

for many decades) and from new urban growth including harbour projects and associated industries. While the land tin mining operations are gradually petering out, they are leaving behind extensive areas barren of surface cover so that silt run-off, which has already spoiled much of the beach zone at the south of Phuket, is likely to continue indefinitely unless corrected. Moreover, off-shore mining is building up, to replace on-shore mining, and poses a different array of hazards including silting up of beach areas, off-shore discolorations and complete (if perhaps temporary) destruction of bottom ecology. Promiscuous housing and motel projects along the beaches are also a problem. The NEB's present effort here is aimed at obtaining a quantified picture of these problems, to serve as a basis for preparing a plan of action including both short and long term measures.^{10/}

(v) Rural development: NEB's efforts relating to protecting community or village environments in the rural areas is only beginning, but is recognized as important because of the large populations involved. The greatest problem area has been in northeast Thailand, where the Mekong Committee has carried out extensive studies and projects over the past two decades with emphasis on irrigation development and associated improvement of village community infrastructure.^{11/} A working liaison between the Committee's Secretariat and NEB is being developed so that their joint efforts may be co-ordinated to maximum advantage. One of the projects now under preparation by NEB is for developing appropriate (affordable) methods for improving village infrastructure for submittal to UNEP for consideration as a regional demonstration for south-east Asia. Other related projects are those now being proposed by both USAID and IBRD for improving the welfare of hilltribe populations living in the uplands of northern Thailand. NEB's objective here will be in assuring that these projects and similar development throughout the country, include provision for minimum needed attention to environmental protection including socio-economic and quality of life aspects as well as protection of forests and wildlife.

/(vi)

^{10/} National Environment Board, Environmental Guidelines for Coastal Zone Management in Thailand: Zone of Phuket, 31 January 1976.

^{11/} Mekong Committee, Pa Mong Optimization and Downstream Effects Study, 1976.

(vi) Forest and wildlife protection: the Mekong Committee, in its work in northeast Thailand, again has fortunately made considerable progress in evaluating these problems and in formulating proposals for practicable solutions.^{12/} Increasing population pressures will make it increasingly difficult to preserve forest habitats (which are being depreciated at an unprecedented rate), and the best hope for salvaging some of these natural areas appears to be in establishing a more extensive system of national reserves and parks with better financial support for ensuring effective operation of these reserves so they will achieve their potentials for protecting forest habitat and wildlife. To this end work is now under way, in co-operation with the IUCN for preparing Thailand's first comprehensive wildlife conservation plan. In some instances it may be feasible to incorporate the financing of forest/wildlife reserves into the budgets of dam/reservoir projects (which serve to accelerate the rate of destruction, and hence might well be concerned with forest protection as an integral part of project planning). Especially encouraging are the evaluations made under Mekong auspices on the Nam Pong dam/reservoir project, a multi-purpose project in the northeast completed a decade ago. These include (a) a critical post-mortem analysis (sponsored by the National Energy Administration) of the environmental impacts of the project since its completion, believed to be the first such study yet made in developing countries, which points up the need for a much broader and more systematic approach in the planning of dam/reservoirs,^{13/} and (b) an ongoing systematic evaluation (sponsored by the Ford Foundation) of all of the natural resources in the Nam Pong basin and their likely future status under conditions of continuing development.^{14/}

3. Environmental quality standards

Another NEB approach to guiding developing is in establishing appropriate minimum standards of environmental quality, which will be useful in assisting the Thai Government in formulating basic policies for achieving both economic development and environmental protection. This work, being carried out by NEB's Division of Environmental Quality Standards, will strive to fix minimum standards which are realistic both in economic costs and in maintaining a minimum decent quality of life.

/The

^{12/} Ibid., and J.A. McNeely, Draft Report on Wildlife and National Parks in the Lower Mekong Basin (Mekong Secretariat, 7 November 1975).

^{13/} National Energy Administration/Mekong Committee, Study of Environmental Impact of Nam Pong Project, January 1978.

^{14/} Mekong Committee, Nam Pong Environmental Research Project (MKG/R. 158) (Bangkok, May 1977).

The establishment of water quality standards for all waterways in the country, for example, will furnish the basis for rational planning of further development including industrial development, both for the location of new industries and for required levels of waste treatment. The water quality standards will be tailored for each significant waterway in the country, such as a particular river reach or estuarine or marine zone, so that full utilization can be made of the waste absorbing capabilities of the receiving waters without impairment of essential water quality. Similarly, appropriate water quality standards will be established for each of Thailand's beach resort areas having potentials for international tourism, to ensure that the beach environment meets the minimum quality levels needed for sustained international tourism. Also, establishment of appropriate air quality standards for urbanizing zones like Bangkok can do much to guide government thinking on how to manage the ever-increasing traffic congestion problem.

4. Additional environmental protection measures

(a) Regional research centres. NEB recognizes essentially four distinct regions in Thailand: the central basin, the north-east, the north, and the south, each representing a distinct environmental complex. To develop efficient environmental protection measures will require implementation of regional research and development centres, one for each of the three regions outside the Bangkok/Central basin region. It is NEB's long-range plan to encourage the establishment of environmental research institutes at the key universities in the three regions - Prince of Songkhla in the south, Khon Kaen in the north-east, and Chiangmai in the north, in order to mobilize local resources and interests to work on local problems to the extent possible. Also, it is hoped to develop these research centres to work in close collaboration with governmental laboratories throughout the country e.g. the Marine Research Laboratory of the Department of Fisheries at Phuket.

In addition to the regional institutes, NEB is building its own central laboratory facility at Bangkok, which is expected to work closely with the Bangkok complex of universities and other research agencies such as ASRCT. The water quality section of this laboratory, for example, will take the lead nationally in identifying the most applicable parameters and procedures for sampling, storage, and analysis, for establishing a national computerized system for data storage and retrieval, for developing

/applications

applications of mathematical modelling of aquatic ecology, and for certifying commercial and public laboratories for meeting minimum quality assurance levels.

(b) Public education. Still another essential aspect of the NEB action programme is a vigorous public education/relations effort designed to increase public awareness of the importance of environmental protection. This is especially important in a developing country like Thailand because the kind of widespread public support for environmental protection such as found in developed countries hardly exists; instead most of the leadership has thus far been "from the top down". There is, however, some solid public support, and the aim of the programme is to build on this using a variety of approaches, and especially through the incorporation of instruction on environmentalism in state schools. Thus the Ministry of Education has arranged, beginning in the 1978 school year, for the incorporation of courses on environment as an integral part of the primary and secondary public school curricula.

In addition to the approach to the general public, the programme also recognizes the need for continuing to influence government and professional leaders, and certain aspects of the programme are intended for this specific purpose. For example, NEB has been instrumental in sponsoring an array of national seminars and workshops, and in sponsoring participation in similar international meetings, aimed at enhancing the environmental sensitivities and capabilities of key staff throughout the Government.

Other features of the NEB programme include a Journal of the NEB, to be issued semi-annually (the first issue was published in October 1978) and an NEB Newsletter to be issued every 4 to 5 months. The newsletter would be of the type used by many organizations in the industrialized countries, which give a good coverage of ongoing professional and technical activities, while the Journal would feature special activities worthy of being highlighted.

5. Status of over-all programme

While NEB would appear to be facing a huge complex of problems in order to achieve the desired minimum levels of environmental protection in Thailand, and to accomplish this within a relatively short-time frame, on a limited budget, and with limited initial experience, analysis of the situation indicates that a meaningful job can be done. The emphasis must be on (i) training, to gain necessary expertise in the many areas of speciality involved, not only in NEB but throughout the Thai government and in the private sector, (ii) taking maximum advantage of information developed in other countries, such as the Environmental Protection Agency of the United States of America and the international assistance agencies, and (iii) focusing the available limited resources on the most pressing problem areas both for the short- and long-term. NEB, after three and a half years of growing through organizational pains, appears headed in the appropriate direction.

B. CURRENT ISSUES AND PROSPECTS

Having described current practices and approaches related to environmental issues, the following section deals with current issues and prospects of environmental planning in Thailand. At this point, it is necessary to emphasize that environmental protection is no easy task for a country at Thailand's stage of development. First, the technology of environmental protection is very complex, embracing as it does an integration of virtually the entire array of academic disciplines including all of the physical and social sciences and engineering. Second, environmental protection, unlike most government programmes, is part and parcel of virtually all government operations. This requires a very sophisticated level of co-ordinative efforts which is extremely difficult to provide in the context of a developing country. Finally, environmental protection is a new field of technology and of government, having been developed mainly over the past decade.

Because all these difficulties associated with environmental protection are likely to remain for a long time to come, it appears reasonable to discuss only issues which have immediate impact as well as some operational significance. These issues will be divided into conceptual and administrative issues.

1. Conceptual issues

The most important fact which needs to be stated at the outset is that the concepts and philosophy of environmental protection have been developed and evolved primarily in the industrialized countries, where the standard of living has been advanced to levels where the public has the wherewithal to devote sizable political efforts to supporting government action on environmental protection. In the developing countries, including Thailand, the overriding concern of the Government and people is economic development and sharing of the economic gains throughout all sectors of the population. The public support for environmental protection, while significant, is still relatively small compared to developed nations. Keeping this point in mind, it appears justifiable that the future course of development project planning in Thailand in the foreseeable future will need to include detailed studies of environmental impact, not only to assure proper attention to each project as it effects environment but also in order to maintain or increase the level of public awareness on these issues.

A priori, those who are already aware of the importance of environmental problems and development objectives as described in section III, will want to emphasize the complete integration of environmental and other development objectives. Although it has been widely accepted that plan integration is necessary in a multiple-objectives planning system, the question in Thailand at present is the level of integration to be targeted and how to achieve it. It is very clear that complete integration is not possible at this stage due to a lack of knowledge on various environmental impacts. Furthermore, environmental impact studies are costly and time consuming and there is little technology which can be applied for some types of activities.

The most realistic approach for tackling environmental problems appears to be in solving the numerous existing serious environmental problems. As previously described, Thailand is faced with a number of critical resources problems which need urgent attention. The question of how best to deal with the current situation is, of course, a key issue. In order to contribute to the solution of existing environmental problems, a great deal of coordination and technological know-how is required. This is precisely one of the major challenges facing the NEB in the immediate future.

/In

In addition to solving existing environmental problems, attention to the longer-range issues is also an important task. Screening of projects from the point of view of environmental protection is certainly a step in the right direction. In this regard, it is inappropriate to separate the environment from other costs and benefits of a proposed project. A new technique of project appraisal incorporating environmental factors expressed in monetary terms is required. Since the technology for doing this is limited at present, efforts are required to develop a new system of project appraisal which considers all significant benefits and costs relating to public welfare, so that an optimal benefit/cost relationship will be attained in choosing from various project alternatives. Also, much improvement is needed in the preparation and application of standards of environmental quality. While the NEB work on standards is encouraging, this type of work has not yet progressed fast enough to permit the implementing agencies to use such standards for guiding project design to assure necessary environmental protection.

2. Administrative issues

The weakest spot in the present administrative system would seem to be related to the monitoring of adverse environmental effects and implementation of necessary environmental protection measures. Thus a key objective of NEB policy is in establishing appropriate monitoring systems. These, however, will take some time to develop and such programmes need to be limited initially to selected high-priority areas.

A more difficult problem concerns the implementation stage of environmental protection measures. Since there is no formal system of contact between the NEB and the Budget Bureau, the NEB is not in a position to exert its influence in terms of budgetary allocation. A possible approach to solving this problem is to jointly appraise certain government projects together with the planning agency (NEEDS) which has already been given responsibility for advising the Budget Bureau on financial allocation for public development projects. Furthermore, there are many reasons supporting the idea that public development projects should be appraised only once instead of many times according to different criteria. In this respect, an agreement between NEEDS and NEB on methods for project evaluation and appraisal is required and is in process of development.

C. TRAINING IN ENVIRONMENTAL TECHNOLOGY

While the goals expressed above are believed to be realistic and attainable by NEB over the period of the next several years, this expectation is based on the assumption that NEB and the key implementing agencies of the Thai Government will have the necessary staff capabilities. While all of these agencies including NEB have ample professional staff with good academic backgrounds, they have little experience in applying this knowledge to real-life problems i.e. they lack the know-how which can come only from on-the-job experience working with individuals skilled in the various aspects of environmental protection technology (including institutional as well as engineering, scientific, economic, and socio-economic aspects). Hence the first essential feature of NEB's programme for the next 5 years is provision of a sizable group of technical expert advisers in the various disciplines of environmental technology, who will work hand-in-hand with their counterparts-to-be, both in NEB and in the implementing agencies, with emphasis on actual case studies. The second aspect is for on-the-job training of a sizable group of Thai Government personnel (again, from both NEB and the implementing agencies) through assignments with agencies in the developed countries which have ongoing environmental protection programmes. Again the emphasis will be on case studies.

The "package assistance" programme described above was initiated early in 1979 when the first group of expert advisers arrived, to work on such subjects as environmental impact assessment, industrial waste pollution control, air pollution control, tin mining silt discharge pollution control, development of measures for protection of aquatic biology including fisheries, and on comprehensive basin-wide water quality/pollution control planning. At the same time the first group of trainees will begin their assignments abroad, two in environmental impact assessment and one in water quality laboratory technology including quality assurance.

The over-all five-year programme includes a total of approximately 202 man-months of expert adviser time, on-the-job training for 45 individuals (half with NEB and half with the implementing agencies), plus specialized academic training for some 18 individuals (11 at the doctorate level).

/This

This programme is believed to be the first such mass approach to solving the problem of inexperience in the emerging environmental protection agencies in the developing countries. It should promise to be a demonstration of great interest to all the developing countries.

D. DISSEMINATION OF INFORMATION

The NEB recognizes of course the continuing need for a vigorous programme for mass dissemination of information on problems of environmental protection, including as the targets not only the public in general but also the Thai Government and in particular the agencies with direct responsibilities for project implementation.

As noted earlier, an entire division of NEB is devoted to this objective. The over-all programme includes presentation of programmes using all of the mass media, working with schools to incorporate environmental subject matter into the regular teaching programme, and the use of a variety of professional type publications. One such approach is the NEB's Journal of Environment, the first issue of which was published in September 1978.

An important aspect of the public information programme is to develop social and civic consciousness on the essence of critical environmental problems, and on how the new environmental legislation and control programmes to be initiated under NEB leadership can expect to get on top of these problems provided adequate public support is forthcoming. An example is in the continuing use of firewood as the primary source of fuel in rural areas. The worsening world-wide energy problem will likely mean that dependence on the use of firewood will be as important in the future as in the past, but meeting the growing volume of demand will require reforestation programmes on a systematic scale wherein the wood is made available without unnecessary losses of forest habitat and wildlife.

E. REGIONAL CO-OPERATION

Still another facet of NEB's over-all programme is participation in the broad picture on environmental protection now emerging throughout most of south-east Asia wherein new environmental protection agencies have become established in most countries within the past few years: in Thailand in 1975, in the Philippines (the National Environmental Protection Council)

in 1977, and in Indonesia (the Ministry of Development Supervision and Environment) in 1978. All of these agencies are struggling with much the same problems and in much the same settings, hence the potential for them to work together on common problems appears very promising.

Examples of problem areas of common interest to many of the south-east Asian countries are in such subjects as (i) developing appropriate standards of environmental quality, (ii) developing practicable measures for ensuring some minimum level of protection of forest habitat and wildlife, (iii) co-ordination of water quality monitoring programmes (including laboratory and field operations), similar to the "Chief Hydrologists Programme" operated by the Mekong Committee over the past decade for the Lower Mekong Basin countries, (iv) establishment of a common water quality data computerised storage and retrieval system, (v) establishing a pool of information on consulting expertise on environmental specialities available in the region, (vi) development of technology for control of environmental damages from strip mining and for vegetative resurfacing of mined areas, and (vii) development of appropriate treatment technologies for certain industrial wastes such as those from the sugar cane and palm oil industries.

In addition to working with ESCAP, the best potential for achieving effective co-operation on a regional basis would appear to be through ASEAN. It is hoped that significant progress in this direction can be made in 1979. For example, a promising start could be made on water quality monitoring technology (items (iii) and (iv) above), to take advantage of the experience already gained in Indonesia (in its water quality programme at the Bandung Institute of Hydraulic Engineering) and in the Philippines (in the Laguna de Bay comprehensive water quality planning project). Thus this experience could be put to use to enable countries such as Thailand, where similar operations are in an earlier stage of development, to achieve the most efficient progress. Another example is in the field of wildlife protection (item (ii)), where the experience of the Thai Government working with the Mekong Committee in north-east Thailand, in utilizing concepts of parks and reserves suited to south-east Asian socio-economic constraints, should have wide application in the region.

VII. CONCLUSIONS

A. TOWARDS A NATIONAL ENVIRONMENT PLAN

At its present stage of economic development, Thailand is well aware of its environmental problems. It is, however, a very difficult task to translate environmental concepts which originated in Western industrialized countries into a meaningful set of actions to fit in with the Thai situation. Nevertheless, the establishment of the NEB in 1975 represents a significant first big step forward. While it is generally recognized that environmental constraints must play a key role in achieving national development objectives, there are many problems, both conceptual and administrative, which have prevented the country from implementing as yet any meaningful comprehensive environmental programmes.

The accomplishments thus far represent a piecemeal approach, but are most valuable in indicating the most effective routes for NEB action over the next several years for the progressive development of a meaningful national environmental plan. With the new National Environmental Quality Act of 1978, NEB can move ahead on the salient elements of such planning including (i) identification of the critical environmental issues in the country, including delineation and quantification of all precious natural resources endangered by development, (ii) formulation of realistic and attainable environmental quality standards for the purpose of guiding continuing development planning, (iii) taking the lead in sponsoring preparation of comprehensive development plans for environmentally sensitive areas, such as the Songkhla Lake basin, Khao Yai National Park, and the emerging Inner Gulf/Bangkok megalopolis zone, (iv) sponsoring the preparation of national plans for protection of critical environmental resources including wildlife, forest habitat, beaches and other recreational assets, and fishery reproduction zones, and (v) using the environmental assessment mechanics to check the environmental propriety of new development projects.

B. THE FIFTH PLAN

A real measure of NEB's over-all progress will be in the extent to which critical environmental issues are recognized in the Fifth Plan. Hopefully the Fifth Plan will incorporate, as an integral feature, Thailand's first national environment plan, meaning that all significant environmental parameters will be reflected in the formulation of all aspects of the

/Fifth

Fifth Plan. This will require that allocations of funds do more than provide for expansion of development activities. The allocations must include sufficient extra funds both to expand the conventional approach to planning of these activities to achieve socio-economic cum environmental planning, and to allow for the sizeable extra costs of modifying development activities to accommodate the essential environmental protection features.

While these concepts are new in Thailand, it may be pointed out that they are still somewhat new even in the developed countries where they were invented and deemed essential for achieving the goal of both using and protecting the environment. Hence it must be expected that implementing these concepts will be difficult and painful here, as everywhere, but we agree it is essential to the future of our country. With three and a half years of experience, NEB is now in a position, we believe, to begin exercising its intended role in helping to shape the planning for the entire future development of the country.

/Annex I

Annex I

ENVIRONMENTAL LAW IN THAILAND APPLICABLE
TO SPECIFIC TYPES OF ENVIRONMENTAL RESOURCES (TO 1978)^{1/}

1. Pollution control

Authority for pollution control is currently found in two Acts: the Public Health Act, 1941 (B.E. 2484), and the Factories Act, 1969 (B.E. 2512).^{2/} The Public Health Act empowers local authorities to regulate activities which have a potential impact on public health and welfare. In addition to provisions addressed at particular activities and enterprises (garbage and refuse disposal, the selling of food, the maintenance of public lavatories etc.), the Act also authorizes local authorities to reduce "nuisances" (Sections 19-30). The definitions of "nuisance" in Section 19 are keyed to "danger to health or safety". Nevertheless, it seems clear that these provisions furnish ample authority for local governments to establish, in co-operation with the Ministry of Health, enforceable standards and obligations with respect to air, water, and noise pollution. The Ministry of Health has issued recommendations as to standards, particularly for water quality, and local governments to take action in response to serious violations. But these efforts are confined to particularly egregious cases only, and no ongoing system of "residuals management" has been established under the Public Health Act.

Pursuant to the Factories Act, the Ministry of Industry is empowered to consider the discharge of pollutants in the implementation of its factory licensing function. The Ministry is authorized to order modifications in factory facilities and to suspend or revoke licences in the event of "nuisances" or improper drainage (Factories Act, 1969 (B.E. 2512), Section 36(4), as amended by Factories Act (No. 2), 1975 (B.E. 2518), Section 9). The Ministry of Industry issued water quality standards pursuant to this legislation in 1970, but they have not been enforced systematically. Again, there is not any routine administrative mechanism for the enforcement of pollution control requirements.

/2.

^{1/} See also J.N. Shane "Environmental law in Thailand", UNEP/ESCAP Task Force on Human Environment (Bangkok, ESCAP, 1977) (mimeo.).

^{2/} The Penal Code enacted in 1908 (B.E. 2451) and amended in 1956 (B.E. 2499), lists a number of "environmental" offenses, particularly related to water pollution (Section 237 and 375) and noise pollution (Section 370). Other offences are set forth in the Act for the Cleanliness and Orderliness of the Country, 1960 (B.E. 2503). These provisions have been enforced only sporadically, and in any event do not constitute a basis for the ongoing regulatory system that will be essential to a truly effective environmental management regime. No recommendations are made regarding these provisions.

2. Land use control

A legislative topic of increasing importance within the developing countries of south-east Asia is land use planning and regulation. This is particularly true in Thailand, where haphazard siting of residential developments, new industrial complexes, and public works facilities has produced serious conflicts and has interfered with the maximum utilization of available resources.

It was in response to these problems that Thailand enacted its City Planning Act, 1975 (B.E. 2518). The Act establishes an interagency City Planning Committee, calls for the designation by Royal Decree of areas for which comprehensive plans must be formulated, prescribes comprehensive plans to be formulated, prescribes a comprehensive planning procedure (including public hearings and review), and establishes enforcement procedures and penalties.

Implementation of the City Planning Act is still under way. Public hearings on proposed comprehensive plans have been held in Songkhla, Phuket, Hat Yai, Samut Prakan, Nonthaburi, Lampun, Lampang, Chiangmai, and Phitsanuloke. Notwithstanding early apprehension on the part of government officials that citizens would not be sufficiently interested in comprehensive planning to participate in these hearings, attendance has been surprisingly high. The Act is being implemented, and the hearings are being conducted, by the Department of the City Planning within the Ministry of Interior. The legislation promises to contribute significantly to the soundness of future land use decisions at all levels of government.

A subsidiary topic is the aesthetic regulation of construction. This is a subject that will be dealt with under regulations to be issued pursuant to Section 45 of the City Planning Act. At the present time, however, the Control of Construction of Buildings Act, 1936 (B.E. 2479), might also be used to regulate the architectural quality of new construction. The Act prohibits the construction of any building without a permit in writing from the local authority (Section 6). In applying for such a permit, the builder "must submit a plan and design of the buildings to be constructed together with specifications to the local authority" (Section 8). Finally, the local authority has the power to issue an order in writing "requiring the applicant to modify the plan, design or specifications submitted to him, provided that such modifications will be in compliance with the Ministerial Regulation

or Municipal Ordinance and for any of the following purposes: ... (4) for architectural purposes" (Section 10). The local authority has the power to order the removal or alternation of any building or part of a building constructed contrary to the terms of the written permit (Section 11 bis). At present, however, no ministerial regulations have been issued for the purpose of establishing a procedure for reviewing the aesthetic quality of architectural plans.

The Act for the Cleanliness and Orderliness of the Country, 1960 (B.E. 2503), authorizes local authorities to order modifications in, or destruction of; buildings that are "in an objectionably and irreparably dilapidated condition" (Section 12). The Act does not, however, set forth any procedure for reviewing the architectural quality of proposed new buildings.

In addition to legislative authority relating to land use decisions, the Thai Government has occasionally issued ad hoc rulings addressed specifically to the location of industrial facilities. The Ministry of Industry, for example, announced in 1976 that new factories would not henceforth be permitted to locate within Bangkok. The ban was later lifted.

3. Forest conservation

Possibly the most serious threat to Thailand's environmental integrity is deforestation. The problem is attributable to a number of causes: shifting cultivation by large numbers of landless people who must clear wooded slopes in order to grow crops; commercial exploitation of timber resources; ambitious government resettlement schemes. The result has been extensive watershed destruction, soil loss, and unprecedented flooding in many parts of the country. Siltation is clogging irrigation schemes and reducing the effective life of hydroelectric projects and reservoirs.

Thailand has enacted ample legislation for the proper management of its forest resources. The Forest Act, 1941 (B.E. 2484), and the National Forest Reserves Act, 1964 (B.E. 2507), are the two principal statutes, and establish a sound framework within which forest conservation policy can be implemented.

Other legislation addresses the forest destruction problem indirectly. The Social Justice Land Reform Act, 1953 (B.E. 2496), and the

/Land

Land for Livelihood Act, 1968 (B.E. 2511), are examples of legislation which is designed to stabilize heretofore landless and/or nomadic groups and thereby to reduce forest destruction at the hands of those who simply have nowhere else to go.

There is room for improvement in Thailand's forestry legislation. It would be particularly enhanced by the addition of a "multiple use, sustained yield" approach - the establishment of a policy for comprehensive management of the country's forest resources. But the existing legislation contains sufficient authority to mount a de facto multiple-use programme at the present time. Indeed, any shortcomings in Thailand's current forest management programme appear to be more a function of enforcement resources and inadequate interagency co-ordination than of any deficiency in the current statutory framework. In this respect, Thailand appears to share two problems which afflict many of the countries in the region: a shortage of enforcement manpower and poor co-operation among agencies.

The Thai Government recently singled out deforestation as one of its most urgent concerns. Accordingly, it has established an intensified programme of forest protection restoration. Hopefully this increased attention will begin to reverse the past patterns of destruction.

4. Wildlife conservation

The rapidly dwindling forests of Thailand once teemed with wildlife. Today, however, the wildlife population has sharply diminished, and many species appear to be destined for extinction.

Thailand's wildlife conservation programme is administered by the Royal Forestry Department within the Ministry of Agriculture and Co-operatives. The programme is conducted pursuant to the Wild Animals Reservation and Protection Act, 1960 (B.E. 2503), and Announcement No. 228 of the Revolutionary Party, 1972 (B.E. 2515). The legislation protects wildlife habitat, protects wildlife directly, and regulates markets for wildlife sanctuaries. It establishes lists of protected species, and prohibits the possession of, or trading in, the flesh and other by-products of protected animals.

Like deforestation, wildlife destruction is a problem uniquely resistant to wholly legal remedies. For example, when the Wild Animals Reservation and Protection Act was passed in 1960, it included penalties which,

/for

for Thailand, were surprisingly severe. The punishment for killing a protected animal, for example, was a fine of up to \$US 500 and/or up to a year's imprisonment. In response to the continued diminution in Thailand's wild-life population, however, the maximum penalties were doubled in 1972. Still the problem persists, and the Royal Forest Department's Wildlife Management Section has therefore proposed further amendments of the legislation.

The current statute leaves room for improvement, to be sure, but the real need would appear to be for a more credible enforcement effort. Unless financial and manpower resources are allocated to the problem at a more adequate level, truly effective wildlife management will remain an elusive goal.

5: Regulation of agricultural chemicals

The need for increased agricultural productivity in order to feed Thailand's growing population has encouraged a concomitant surge in the use of pesticides and fertilizers. The emission into the environment of copious quantities of chemical compounds, some of which are persistent and have already accumulated in dangerous concentrations, is now recognized as one of the most serious threats to the well-being of the developing world.

The importation, manufacture, sale, storage, and price of fertilizers and pesticides are regulated to varying degrees in Thailand. With respect to fertilizers, the regulatory objectives appear to be exclusively confined to the assurance of adequate supply, price stability, proper labelling and product quality. Pesticides are regulated in a similar fashion, although health and safety are additional legislative objectives (Poisonous Substances Act, 1967 (B.E. 2510)).

But existing statutes do not provide for the regulation of fertilizer or pesticide use, particularly as related to environmental impact. Similarly, the law does not now call for the systematic monitoring of the cumulative environmental effects of fertilizers and pesticides. Finally, there does not appear to be any procedure for evaluating, prior to approval, the short- and long-term impact of agricultural chemicals on the soil, on water quality, of flora and fauna etc.

6. Marine pollution

An environmental problem of increasing concern to Thailand and other nations in south-east Asia is marine pollution, particularly by oil. Because oil pollution often results from activities which take place beyond the national jurisdiction of any country, a number of international conventions have been established in order to deal with the problem in an effective way. The International Convention on Prevention of Pollution of the Sea by Oil, 1954, establishes fundamental obligations and rules of conduct designed to minimize oil pollution on the high seas. The International Convention on Civil Liability for Oil Pollution Damage, 1969, establishes a "strict liability" regime for oil pollution damage. The International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969, authorizes party nations to "intervene" on a high seas where an oil pollution emergency threatens their shorelines without incurring the risk of a damage suit. Finally, the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971, will when it takes effect, create a pool of money from which party nations will be able to obtain compensation for harm attributable to oil spills.

Thailand is not yet a party to any of these conventions. As a result, it is not yet in an effective position to recover damages or to take other actions with respect to oil pollution casualties on the high seas except through long and uncertain admiralty proceedings.

Thailand is in the process, however, of rectifying this serious deficiency in its legislative framework for environmental protection. An Oil Spill Contingency Plan has been drafted and is currently being implemented. Legislation is being drafted which will, when enacted, constitute Thailand's ratification of a number of international conventions mentioned above. These actions should enhance significantly Thailand's ability to manage its marine environment.

Thailand, however, will not be able to solve all of its marine pollution problems alone. The Gulf of Thailand was recognized at a recent International Workshop on Marine Pollution in East Asian Waters (Penang, April 1976) as being one of the seas within the region which warrant the

/establishment

establishment of some transnational arrangement for controlling pollution from all sources. It is to be hoped that negotiations toward the establishment of such a regime will commence in the near future.

7. Environmental impact assessment

As indicated earlier, the Enhancement and Conservation of National Environmental Quality Act, 1975 (B.E. 2518), authorizes the National Environment Board to compel the production of information about the environmental impact of any project, whether in the public or private sector. This provision contains the rudiments of a bona fide environmental impact assessment procedure. The obstacle to date, however, has been the Board's lack of authority to issue regulations. Without the issuance of regulations, the flow of information to the Board cannot be routinized, but must be pursued on an ad hoc, project-by-project basis.

This difficulty notwithstanding, the NEB does frequently perform environmental impact analyses at the request of agencies proposing projects likely to have an impact on environmental quality. These opportunities have provided the Office of NEB with invaluable experience in environmental impact assessment techniques, and it would be well if the Government were able to take fuller advantage of this capability. However, until regulations are issued establishing a routine flow of environmental impact information, or unless another act is passed dealing exclusively with the question of environmental impact assessment, there is little prospect that the frequency of environmental impact assessment will increase measurably in the near future.

8. Environmental considerations in "non-environmental" legislation

Even without an umbrella environmental impact assessment requirement, the environmental sensitivity of government agencies would be enhanced by the inclusion of provisions requiring the consideration of environmental factors in the various laws which govern the planning of infrastructure development projects. Such provisions might be included in laws governing mineral rights, fisheries, factory licensing, residential construction, public works projects, new settlements, and so forth.

Unfortunately, routine consideration of environmental factors is not currently a part of any project planning process within Thailand. For

/example

example, the Mineral Act, 1967 (B.E. 2510) empowers the administering agency to attach conditions to leases and licences permitting mining activities to take place. But the legislation does not set forth a clear statement of national policy articulating the importance of maintaining environmental quality at the same time that the mineral resources are being exploited. Requirements relating to the protection of streams, the security of waste disposal sites, and the restoration of sites upon the termination of mining operations should be included explicitly in the legislation and not merely left to administrative discretion.

Similarly, new industrial facilities are subject to licensing requirements under the Factories Act, 1969 (B.E. 2512), and the Factories Act (No. 2), 1975 (B.E. 2518). But this legislation does not call specifically for an evaluation of the likely environmental impact of a new factory prior to its approval. A comprehensive assessment should be required in such circumstances covering, in addition to predicted waste loadings, the project's compatibility with adjacent land uses, its traffic generation potential, its impact on residential patterns, the probable need for new transport facilities, and so on. Licences should carry conditions requiring any steps or practices deemed to be in the interest of environmental quality.

At present the Ministry of Industry employs a single set of effluent standards for use for any and all industries regardless of the capabilities of the receiving waters (to which the waste effluents are discharged) for absorbing wastes without damage to water quality. This of course results in sizeable waste and loss to the national economy. The treatment systems at some plants will be "overdesigned", and those at others "underdesigned" and not capable of protecting the environment. Also, the standards do not deal with solid wastes which can also be major source of pollutants affecting waterways.

Planning criteria aside, there is a variety of other non-environmental legislation which, properly used, might be of environmental importance. There are means by which the Government might create non-penal economic incentives to meet newly established environmental objectives. It is possible, for example, to waive duty requirements in connexion with the importation of pollution control facilities. The depreciation on capital investment in waste-water treatment equipment can be accelerated for tax

/purposes.

purposes in order to make such investments more attractive. Domestic production of pollution control equipment can be encouraged through the investment promotion process.

It is difficult to anticipate in the abstract the range of opportunities that exist in legislation other than that normally considered "environmental" for the promotion of environmental goals, but the importance of a well-rounded approach to environmental legislation must be clearly understood. The implication, of course, is that the legislative effort cannot be wholly confined to "environmental" agencies alone, but must include all of the offices of government whose activities bear, or might be brought to bear, on the implementation of environmental policy.

An example of how the NEB should properly function in relation to the implementing agencies of the Government is the subject of environmental standards which relate to the over-all quality of water, air, land, or other values in an area, zone, or region, and emission or point source standards. Thus for protecting water quality, NEB should set environmental standards (receiving water standards) for each significant water body in the country, based on present and projected beneficial uses, then the appropriate agency e.g. the Ministry of Industry for industrial liquid/solid wastes, shall set appropriate emission standards (effluent standards) for liquid waste discharges and also control solid waste disposal so that the environmental standards will be met.

Similarly for protection of coral beds, following development of appropriate coral bed protection standards by NEB (developed in consultation with the Department of Fisheries), the Department of Fisheries, pursuant to the enabling legislation applicable to it, should issue Ministerial Regulations for implementing specific programmes or controls designed to achieve the desired level of protection.

9. Summarized tabulation of environmental policy legislation

Table A1-1 presents a brief summary of the existing laws in Thailand relevant to environmental protection as described above.

/Table A1-1.

Table A1-1. Summary of legislation relevant to environmental protection in Thailand

No.	Title of Act	Environmental controls authorized
B.E. 2518	National Environmental	Establishes NEB/ONEB, as Thailand's first governmental agency specifically empowered to pursue environmental protection on a national scale including provisions for environmental impact assessment
B.E. 2484	Public Health Act (1941)	Empowers local authorities to regulate activities affecting public health and welfare including refuse handling, maintenance of public lavatories, nuisance control and sale of food
B.E. 2512	Factories Act (1969)	} Empower Ministry of Industry to control waste discharge from industries including establishment of effluent discharge standards
B.E. 2518	Factories Act (No. 2) (1975)	
B.E. 2451	Penal Code (1908)	} Specify penalties for environmental offences including water pollution and noise pollution
B.E. 2489	Penal Code Amended (1956)	
B.E. 2503	Act for Cleanliness and Orderliness of the Country (1960)	Miscellaneous provisions on environmental offences, including authority for removal of dilapidated buildings
B.E. 2518	City Planning Act (1975)	Establishes interagency City Planning Committee, requires designation of areas to be planned, prescribes planning procedures, and establishes enforcement procedures and penalties
B.E. 2479	Control of Construction of Buildings Act (1936)	May be used for regulating aesthetic/architectural quality of new building construction
B.E. 2484	Forest Act (1941)	} Provide for proper management of forest resources
B.E. 2507	National Forest Resources Act (1964)	
B.E. 2496	Social Justice Land Reform Act (1953)	} For stabilizing landless/nomadic populations and thereby reducing forest destruction
B.E. 2511	Land for Livelihood Act (1968)	

/Table A1-1 (continued)

Table A1-1 (continued)

No.	Title of Act	Environmental controls authorized
B.E. 2503	Wild Animals Reservations and Protection Act (1960)	Provide for protection of wildlife and wildlife habitat, for regulation of wildlife sanctuaries and prohibition of sale of protected species
B.E. 2515	Announcement No. 228 of Revolutionary Party (1972)	
B.E. 2510	Poisonous Substances Act (1967)	Regulation of importation, manufacture, sale, storage and price of agricultural chemicals, with some attention to health and safety with respect to pesticides
B.E. 2510	Minerals Act (1967)	Authorizes Government to attach conditions to leases and licences for mining including pollution and environmental controls (but without any clear statement of policy on these matters)

/Annex II.

Annex II

NATIONAL ENVIRONMENTAL QUALITY ACT OF 1978

Translation

IMPROVEMENT AND CONSERVATION
OF NATIONAL ENVIRONMENTAL QUALITY ACT (No. 2)
B.E. 2521

BHUMIBOL ADULYADEJ, REX.,
Given on 26th December B.E. 2521;
Being the 33rd Year of the Present Reign

His Majesty King Bhumibol Adulyadej is graciously pleased to proclaim that:

Whereas it is expedient to amend the law on improvement and conservation of national environmental quality;

Be it, therefore, enacted by the King, by and with the advice and consent of the National Legislative Assembly as follows:

Section 1. This Act is called the "Improvement and Conservation of National Environmental Quality Act (No. 2) B.E. 2521".

Section 2. This Act shall come into force as from the day following the date of its publication in the Government Gazette.

Section 3. The following shall be added to section 3 of the Improvement and Conservation of National Environmental Quality Act, B.E. 2518:

"Government agency" means Central Administration, Provincial Administration, or Local Administration under the law on State Administration;

"State enterprise" means a State enterprise under the law on budgetary procedure;

"Competent official" means an official appointed by the Prime Minister for the execution of this Act."

Section 4. The provisions of section 5 of the Improvement and Conservation of National Environmental Quality Act, B.E. 2518 shall be repealed and replaced by the following:

/"Section 5.

"Section 5. The National Environment Board has the power and duties as follows:

(1) to submit policy and opinion concerning the improvement and conservation of environmental quality to the Council of Ministers;

(2) to consider the implementation of policy in respect of the schemes or projects concerning the environmental quality;

(3) to consider and submit opinion on projects of Government agencies, State enterprises and private organizations, which may have adverse effect on the environmental quality, to the Council of Ministers or Government agencies concerned;

(4) to submit plans for the development, improvement and conservation of environmental quality to the Council of Ministers;

(5) to give advice to the Prime Minister on matters to be prescribed in the Notification issued under section 17 or the Order issued under section 20 of this Act;

(6) to recommend the standards of environmental quality to Government agencies having the statutory power to prescribe them as well as to recommend measures for the prevention and conservation of environmental quality in various respects to the Government agencies concerned;

(7) to recommend any amendment of or improvement to the law concerning the prevention and conservation of environmental quality to the Council of Ministers;

(8) to co-ordinate works between Government agencies, State enterprises and private organizations on matters concerning the environmental quality;

(9) to submit opinion to the Prime Minister for consideration and order in the case where any Government agency or State enterprise violates or does not comply with the laws, rules or regulations concerning the conservation of environmental quality, which may cause extensive damage;

(10) to submit report on the national situation of environmental quality to the Council of Ministers at least once a year;

(11) to consider any other matter concerning the environmental quality as the Council of Ministers or the Prime Minister may request;

(12) to perform other functions as may be designated by law to be those of the National Environment Board.

In the performance of above-mentioned duties, the National Environment Board may entrust the Office of the National Environment Board with the operation or submission of recommendations to the National Environment Board for further proceedings."

Section 5. The provisions of (4) of section 12 of the Improvement and Conservation of National Environmental Quality Act, B.E. 2518 shall be repealed and replaced by the following:

"(4) to check and evaluate the result on the compliance with or enforcement of the laws, rules and regulations concerning the prevention and conservation of environmental quality by Government agencies, State enterprises and private organizations in order to report to the National Environment Board."

Section 6. The provisions of section 17 of the Improvement and Conservation of National Environmental Quality Act, B.E. 2518 shall be repealed and replaced by the following:

"Section 17. The Prime Minister shall, with the advice of the National Environment Board, have the power to issue Notifications in the Government Gazette, prescribing the following :

(1) categories and magnitude of projects or activities of Government agencies, State enterprises or private organizations, which are required to submit report concerning the study and measures for the prevention of and remedy for the adverse effect on the environmental quality during the preparation stage to the National Environment Board for consideration and approval before further proceedings;

(2) standards of environmental quality which, by law, are not within the scope of power and duty of any Government agency;

(3) methods to be used for checking environmental quality."

Section 7. The following provisions shall be added as section 18, section 19, section 20, section 21, section 22, section 23, section 24, section 25, section 26, section 27 and section 28 of the Improvement and Conservation of the National Environmental Quality Act, B.E. 2518:

/"Section 18.

"Section 18. In the case where there is a Notification under section 17(1), the official invested by law with the power and duty to consider and grant a permit or renewal of a permit to any person in order to enable him to carry out any project or activity shall submit a report concerning the study and measures for the prevention of and remedy for the adverse effect on the environmental quality during the preparation stage of such applicant to the Office of the National Environment Board for consideration and approval before further proceedings.

After the said official has submitted a report concerning the study and measures for the prevention of and remedy for the adverse effect on the environmental quality during the preparation stage under paragraph one, the Office of the National Environment Board shall consider the report within ninety days from the date of receiving such report. If the Office of the National Environment Board does not finish its consideration within the said period, it shall be deemed that the Office of the National Environment Board has granted its approval to it in accordance with the first paragraph.

In the case where the Office of the National Environment Board gives its approval under paragraph one, the said official shall grant the permit or renewal of permit to the applicant.

In the case where the Office of the National Environment Board does not give its approval under paragraph one, the said official shall delay the grant of permit or the renewal of permit to the applicant until such person has submitted measures for the prevention of and remedy for the adverse effect on the environmental quality to which the Office of the National Environment Board can give its approval.

After such person has submitted measures for the prevention of and remedy for the adverse effect on the environmental quality under paragraph four, the Office of the National Environment Board shall consider the said measures within thirty days from the date of the submission; if the Office of the National Environment Board does not finish its consideration within the said period, it shall be deemed that the Office of the National Environment Board has granted its approval thereto under paragraph four and the said official shall grant a permit or a renewal of permit to the applicant.

/Section 19.

Section 19. For the purpose of carrying out the activities under section 18, the National Environment Board may request any Government agency, or Government educational institution, as it thinks fit, to make a report concerning the study and measures for the prevention of and remedy for the adverse effect on the environmental quality.

The National Environment Board may authorize an expert in the study of the adverse effect on the environmental quality to make a report of study and measures for prevention of and remedy for the adverse effect on the environmental quality.

The application for and the grant of a permit, the qualifications of the expert, the order suspending or revoking the permit, and the control of the activities of a licences shall be in accordance with the rules, conditions, and methods prescribed in a Ministerial Regulation and the fees for the application for and the grant of a permit shall be in accordance with those prescribed in the Ministerial Regulation.

Section 20. If there is an emergency arising from environmental pollution, which, if left unremedied, will be dangerous to life, or will cause personal injury or damage to the properties of the people or the State, the Prime Minister shall have the power to issue an order prohibiting the person from causing such danger or damage or the person who may be in danger or suffer any damage from acting in any way which will intensify the severity of such environmental pollution, or issue an order that certain acts be carried out in order to stop or reduce the severity of the environmental pollution during the emergency.

The Prime Minister may delegate the power to issue the order under paragraph one to the Changwat Governor to exercise such power within the Changwat area on behalf of the Prime Minister by issuing the order to that effect and publishing it in the Government Gazette.

After the Prime Minister has issued the order under paragraph one or the Changwat Governor acting on his behalf has issued the order under paragraph two, the said order shall be published in the Government Gazette without delay.

Section 21. In the case where there is a reasonable ground for suspecting that there is violation of or non-compliance with any law, rule

/or

or regulation concerning the control of environmental quality, the order of the Prime Minister or of the Changwat Governor acting on behalf of the Prime Minister under section 20, the competent official shall have the power to enter any premises or vehicle during sunrise and sunset or during office hours in order to inspect the said violation or non-compliance.

In the performance of duty by the competent official under paragraph one, the owner or occupier of premises or vehicle or any person concerned shall provide him with reasonable facility.

Section 22. The performance of duty under section 21 shall be done in the presence of the occupier of the premises or vehicle; if such person cannot be found, it shall be done in the presence of at least two other persons requested by the competent official to attend as witnesses.

Section 23. In performing his duty, the competent official must produce his identity card at the request of the person concerned.

An identity card of competent official shall be in such form as prescribed in a Ministerial Regulation.

Section 24. In performing his duty, the competent official shall be official under the Penal Code.

Section 25. Whoever violates or fails to comply with a Notification of the Prime Minister issued under section 17(2) shall be liable to imprisonment for a term not exceeding one month or to a fine not exceeding one thousand baht or to both.

Section 26. Whoever violates or fails to comply with an order issued under section 20 shall be liable to imprisonment for a term not exceeding six months or to a fine not exceeding ten thousand baht or to both.

In the case where the person who violates or fails to comply with the said order is the person who causes danger or damage, he shall be liable to imprisonment for a term not exceeding five years or to a fine not exceeding fifty thousand baht or to both.

Section 27. Whoever obstructs or fails to provide facility to a competent official in the performance of his duty under section 21 shall be liable to imprisonment for a term not exceeding one month or to a fine not exceeding one thousand baht or to both.

/Section 28.

Section 28. The Prime Minister shall have charge and control of the execution of this Act and shall have the power to appoint competent officials, issue Ministerial Regulations prescribing fees not exceeding the rates attached hereto and prescribing other activities and issue Notifications for the execution of this Act.

The Ministerial Regulations and Notifications shall come into force upon their publication in the Government Gazette."

Section 8. The rates of fees attached hereto shall be added as the rates of fees attached to the improvement and Conservation of National Environmental Quality Act, B.E. 2518.

Section 9. The Prime Minister shall have charge and control of the execution of this Act.

Countersigned by:

General Kriangsak Chomanan
Prime Minister

/Rates

Rates of fees

- | | | |
|---|-----------|------------|
| 1. Application fee for licence to make report concerning the study of the adverse effect on the environmental quality | each copy | 20 baht |
| 2. Licence to make reports concerning the study of the adverse effect on the environmental quality | each year | 2,000 baht |

Certified correct translation

(Taksapol Chiemwichitra)
Office of the Juridical Council

/Annex III

Annex III

APPROPRIATE BUDGET ALLOWANCES FOR EIS STUDIES AND REPORTS
FOR PROJECTS IN THAILAND

Based on experience with EIS projects both here in Thailand and in the United States of America, the attached suggested fee curve (figure A3-1) and tabulation (table A3-1) have been prepared to indicate appropriate budget levels for EIS studies to be done for projects in Thailand. These include an appropriate fee for the Thai input plus a 10 per cent addition for some guidance from outside experts.

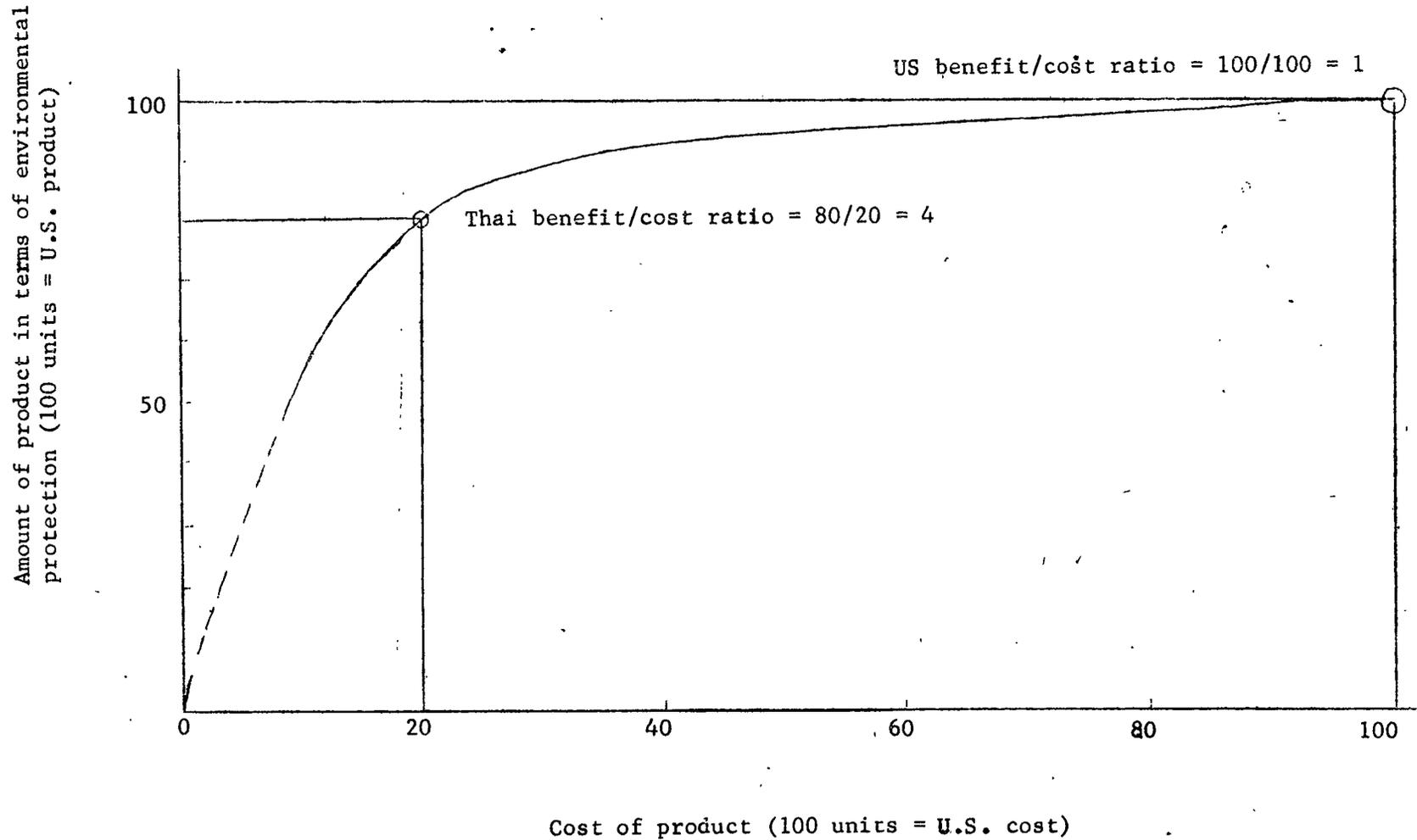
It is important to note that these fee levels do not correspond to fees for comparable projects in the United States of America, which would be many times higher. Nor would the suggested fee levels be sufficient to employ outside firms to do the same work - their fees would be about 2.5 to 3.0 times as much as indicated here.

The suggested fees are believed to be sufficient to obtain a "minimum adequate product" assuming the bulk of the work is done by Thai personnel. While it is true that this talent is scarce in Thailand today, it is part of NEB's job to stimulate its development. If NEB is to be successful in implementing an effective national EIS programme, this must be on the basis that the EIS work will be done primarily by Thai personnel.

With respect to what is meant by a "minimum adequate product", for current conditions in Thailand, while it is true that the fee levels as suggested will result in a lesser product than would be produced in the United States of America, the difference in the two products is illustrated in figure A3-2. Thus the Thai product represents a compromise representing an optimum benefit to cost ratio for conditions in this country. The United States product is a relatively luxury one. On this point, as for all "standards" which NEB is to set for Thailand, the cost of achieving the standard must make sense in terms of the benefits achieved, considering the current state of economic development in Thailand.

/Figure A3-1.

Figure A3-1. Schematic representation of proposed Thai EIS Project versus United States Project in terms of benefits versus costs



/Table A3-1.

Table A3-1. Suggested budget allowances for
EIS fees for Thailand

Construction cost of project, \$US million	Fee, \$US'000	
	Thai personnel only	Plus outside input
250	230	250
200	200	220
150	172	188
125	156	170
100	138	150
80	121	132
60	102	112
50	92	101
40	82	90
30	70	76
20	56	61
10	38	41
8	33	36
6	28	31
4	23	24.5
2	15	16.5
1	10	11

/Figure A3-2.

EIS fee in thousands of dollars

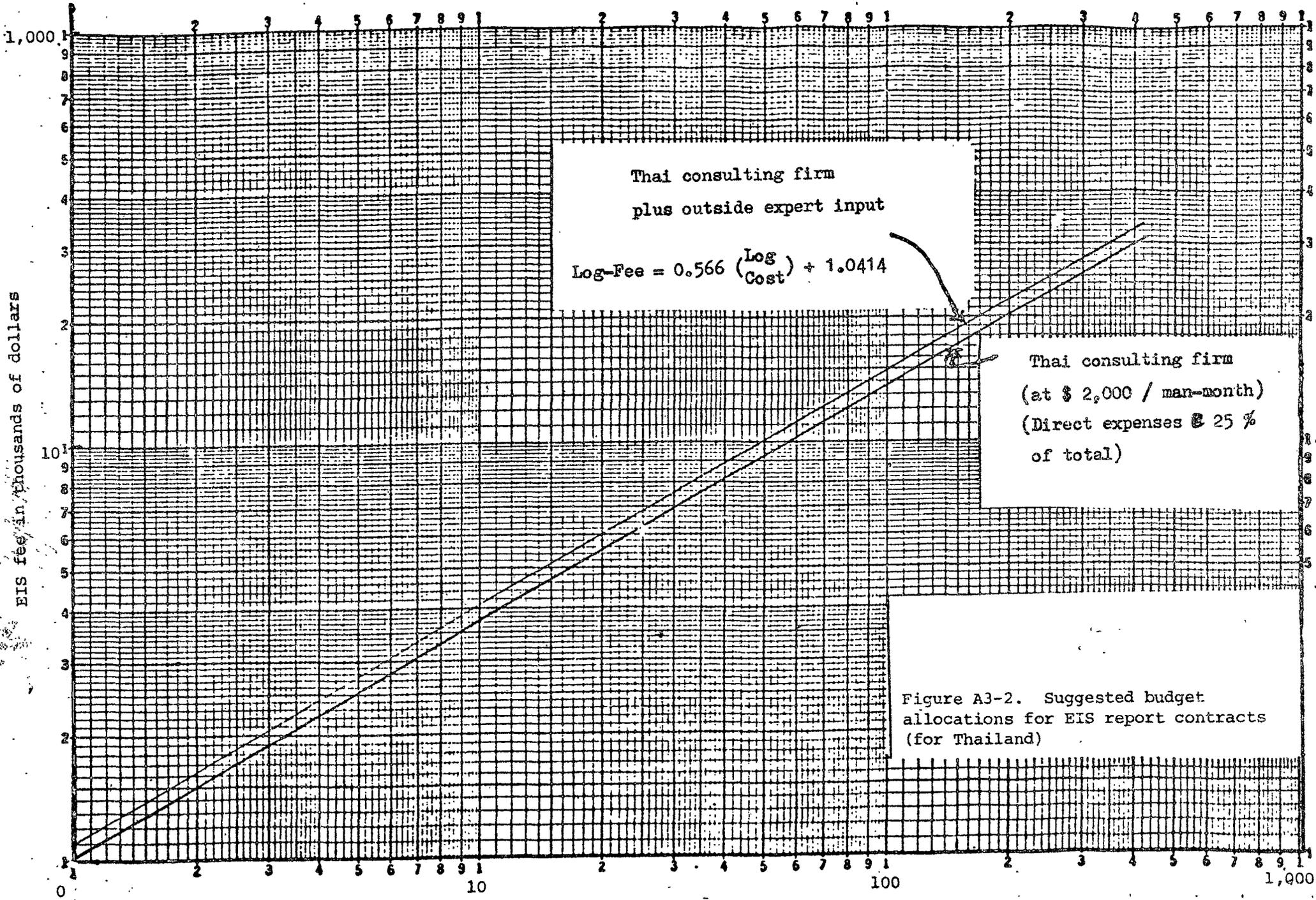


Figure A3-2. Suggested budget allocations for EIS report contracts (for Thailand)

Annex IV

A COMMENT ON ENVIRONMENTAL PLANS AND PROGRAMMES
IN THAILAND^{1/}

The formal aspects of environmental planning in Thailand can be defined simply and briefly. In Part Three, Chapter 1 of the Fourth Plan (1977-1981), environmental issues are divided into two parts.

(a) Resource issues, which include land and land use, forestry water resources, energy and mineral resources.

(b) Environmental issues, which again include deforestation, soil deterioration, mining effects, unplanned urban growth, despoliation of tourist areas, preservation of cultural sites, and pollution.

While several of the resource areas refer to problems of natural resource conservation, in fact the manner in which the problems are defined, and the solutions determined, make it clear that they will be addressed in ways which are compatible with traditional "developmental" thinking, as opposed to what we might call "environmental" thinking. Thus, while rural land use is seen as related to deterioration of soil and other resources, the problem is seen as one of land tenure, consolidation of plots, and reallocation of land (p. 146). Similarly, energy is seen as a problem of shortfall, and therefore plans are oriented toward limiting use of present fuels, developing hydropower, and assessing reserves of coal (p. 160). In mining, while there is talk of a land-use scheme, but in fact such schemes are heavily dependent on the chance location of the deposit, and it is therefore likely that efforts will concentrate on the more tractable areas of promotion of infrastructure in mining areas, and greater use of geological surveys (p. 167).

The factor which distinguishes these approaches is that they each appear to emanate from one specific sector of government activity, as opposed to an environmental approach which would attempt to deal simultaneously with several systematically-related sectors. Nevertheless, this method has uses even in environmental areas. While one might hope for greater emphasis on the effects of agriculture on forests, the importance of deforestation by "heavy investment on economic infrastructural facilities" (p. 150) is recognized, and both reforestation and designation (the classification of areas which are henceforth to be

/protected

^{1/} This comment was written by Roy Stubbs, East-West Centre, Honolulu, Hawaii and represents his personal views.

protected from degradation) are unambiguously defined as programme areas. More environmental in the current sense is the area of water resource problems, which are clearly seen to be related to overpumping, watershed erosion, and degradation by human and industrial waste disposal - and the Plan forthrightly calls for the design of a water resource maintenance plan which would be marked out by these parameters (p. 153).

The test of the Plan, however, comes when it confronts specific environmental issues (e.g., air and water pollution), and attempts to define both short- and long-term measures to be taken. At this point, national planning becomes somewhat vague. Short-term measures include:

(a) Stricter enforcement of existing laws (but no indication as to why the laws have not been effective in the past, and what should be done to make them more effective);

(b) Budgetary support for projects which develop the environment (but few guidelines as to the types of projects to be favoured, or the sorts of money available);

(c) Assistance to be sought from private individuals and organizations.

The longer-term measures, while equally valuable and evidently steps in the right direction, are hardly more helpful. They include:

(a) The formulation of a national environmental development plan;

(b) Better co-ordination of agencies;

(c) Definition of environmental standards, and introduction of EIS procedures;

(d) Improvement of the administrative performance of agencies;

(e) Public relations campaigns;

(f) Formulation of comprehensive city plans;

(g) Issuance of industrial plant permits.

At its most definite, the Plan confirms the existing mandates of many of the agencies working in environment. It does not, however, indicate what has caused the problems in cities, and consequently does not provide a great deal of advice on how its recommended goals might be achieved. In this sense, it performs the role of describing the present situation, rather than moving environmental policy significantly ahead.

The number of projects which can be definitely labelled as environmental is not large - roughly 2 per cent of the total budget. Given the fact that the budget must contain areas which have no relation to environment, however, this is not unfavourable; it should be pointed out, for instance, that the World Bank only designates 3 per cent of its \$US 8 billion in loans for 1979 as environmentally related (World Environment Report, vol. 5, no. 7, 12 March 1979, p. 1).

Certain projects have been considered by others as environmental because they deal with a rational form of land, crop, or infrastructure management; see, for instance, the UNDP/FAO programme to accelerate rubber replanting in southern Thailand (THA/75/021), noted in the UNEP, Programme Planning Country Report for Thailand (July 1978, p. 3c). We prefer a more limited definition, in which projects can be called environmental because the preamble attached to it in the Plan makes it clear that this is the point of the exercise, or because there is a recognized systemic relationship between the various parts of a project (as in water/forestry/human settlement interactions of watershed conservation. This is admittedly a loose definition, and the fact that there might be other interpretations is readily accepted. However, considered in this fashion, the following table gives an approximate list of programmes with an environmental thrust in the Fourth Plan:

It should be pointed out, however, that this listing of environmental activities and expenditures is not fixed. Several factors prevent a definitive estimate.

First, there is the change of Government which has occurred during the implementation of the Plan. The priorities of the new Government have already had some effect, with the amount of parkland being reduced from the planned amount. Further modifications are likely given the fact that, since the recent elections, the Prime Minister himself has taken over the role of acting ministerial representative for environment in the Government, and that this role itself is likely to change in the near future.

Second, there is the question of disbursement. Allocations are not always provided in a lump sum at the beginning of the Plan period, and the financial units in the Government strive to maintain their liquidity by providing only a percentage of the expected figure at any one time. While this negative

/Table 1.

Table 1. Fourth Plan (1977-1981) expenditure on environment

	(million baht)
Total budget	252,450
<u>Forestry control and protection</u>	1,900
Increasing forest protection patrols from 220 to 336 units	
Expanding wildlife zones from 12 to 22	
Increasing national parks from 13 to 20	
<u>Management and reforestation</u>	905
Reforestation, together with replanting under the Forest Industry Organization	
<u>Watershed conservation</u>	1,500
Including improvement of depleted forest areas	
<u>Pollution control</u>	40
Surveys on industrial pollution	
Curbing of industrial pollution along river banks	
<u>Social welfare</u>	385
Hilltribe research and welfare	
<u>Recreation areas and sports</u>	85
Zoo development	
Public park development	
<u>Cultural arts</u>	390
Maintenance of historic sites	
Establishment of archives	

Source: Fourth Plan, pp. 299-312.

/effect

effect on cash flow is occurring, other agencies are depending on their influence to obtain contingency funding, which has the effect of altering the distribution of money available to all agencies. The positive pressure is not synchronized with the negative, so that money supply and flow remains unpredictable.

Third, lack of co-ordination between the Civil Service Bureau and the finance agencies often means that the Bureau is ready to staff programmes at a time when the agencies lack cash; while, at other times, cash may be available, but personnel are not. The result is that implementation of certain programmes is sporadic and sub-optimal.

With all of these factors providing uncertainty, it is likely that the Budget Bureau and the National Economic and Social Development Board will not know exactly what has been done and how much has been spent until the end of the Plan period. This "back-budgeting" is the rule rather than the exception in many developing countries.^{2/}

The considerable amount of environmental activity which falls outside the scope of the Plan, however, must raise the question as to whether the concept of national planning is an appropriate model for environment in Thailand. In the sense that organizations choose to follow a certain course of action, plans do exist. However, in terms of a co-ordination and rationalization of effort, environment in the national Plan is only a rough indicator of what is happening. Much of the problem lies in the fact that agencies compete for funds by duplicating the work of others, and leaving it to some superior to decide which competitor will drop out of the race. In situations where the problem goes untreated - as has been the case in establishing standards - agencies can go on for years claiming jurisdiction over identical areas.

To attempt to take various agency activities in environment and place them in sectors until we have what looks like a Plan, therefore, would be misleading, since it would suggest that in certain areas work is rationally shared, while in differing areas resources are spread according to some over-all strategy. Environmental strategy, on the contrary, is based too much on the rule that those who can get the money can do the work. Planning, in other words, is based on organizational, rather than national, priorities.

/Examined

^{2/} Cf. N. Caiden and A. Wildavsky, Planning and Budgeting in Poor Countries (New York, John Wiley and Sons, 1974).

Examined in this light, planning begins to show some trends by virtue of the individual agency programmes. At the earliest stage, we find such programmes as the 24 agro-sylvic settlements developed under the Forest Village Programme nine years ago by the Forest Industry Organization. While environmental in nature, the programmes are essentially seen as human resettlement schemes, and in this respect have evolved into the present public housing schemes of the National Housing Agency, which is to build 23,000 units in the Bangkok Metropolitan Area during the Fourth Plan.

With the appearance of the National Environment Board, changes begin to occur. We can trace these modifications in thinking through the establishment of the expert advisory Committees which are appointed to assist the Board on technical issues. There are presently eleven such committees. At the establishment of the Board, however, there were only six. As might be expected from the earlier stage, there were Committees for Population and Human Settlements, and Land. Following the influx of environmental thinking, to these were added Committees for Water, Air and Noise, Nature and Art Conservation, and Education and Public Relations. Attempts at developing programmes occurred in all of these areas. A seventh Committee, for Law, was instituted in 1976, showing a certain preoccupation with the non-technical, or institutional, aspects of the problem; curiously, however, no corresponding committee for studying the administrative aspects was set up, the reason suggested being that the entire Thai environmental structure was dependent on the expert advice of only one national with training in the area.

It is since 1976, however, that a definite trend away from what we might call sectoral preoccupations has occurred, with the establishment of Committees to deal with Nuclear Energy, Land Subsidence (in Bangkok), and the ecosystemic problems of Songkhla and Bang Krachao. The last four are attempts to deal in a comprehensive way with development activities. Nuclear energy is seen as a response to a nation's use of energy as a whole. Land subsidence is seen not simply as a problem of overpumping, but more an effect of too-rapid development of Bangkok as a primate city. Songkhla becomes a direct contact with development projects in their classic form; and Bang Krachao, as a green area, is a planned attempt to deal with air pollution problems in Bangkok which appear to have no single cause.

/Now

Now, it is clear that these methods of attacking the problem are ad hoc, and in no way a systematic method of dealing with national environmental strategy. Nevertheless, within the limits of organizational planning, they do represent a means of influencing the programming of other agencies, and in this sense provide a "bottom-up" model of planning.

The effects of this are now being seen in other areas. Of particular interest are the plans of the National Energy Administration, which now provide for impact studies in such dam projects as Ubol Ratana at Nam Pong. If allowed to continue, then, this method of organizational planning in Thailand may produce an interesting alternative to traditional forms of central planning.
