

State of Coastal Resource Management Strategy in Thailand

MONTHIP SRIRATANA TABUCANON

Environmental Quality Standard Division, Office of the National Environment Board, Soi Piboonwatana 7, Rama 6 Rd., Bangkok 10400, Thailand

This paper firstly presents an overview of the state of coastal resources available in Thailand. It then highlights the pollutants and their causes which jeopardize the preservation and protection of these resources. The government's efforts to maintain a favorable coastal environment rest with several planning, policy making and implementing agencies. The government mechanism through the various agencies are also featured. Case studies, past and present, directed on coastal resource management are discussed and constraints of implementation are pinpointed.

I) INTRODUCTION

Thailand's 2,500 km. long coastal environment faces rapidly increasing pressures from expanding population, tourism, shrimp mariculture and fishing. To protect its coastal environment and natural resource base, Thailand has begun to formulate the integrated coastal resource management plan which includes: Cabinet resolution, Legislative action and National Economic and Social Development Plan (Seventh:1992-1996). The plan recognizes that local governments, local non-government agencies and key economic sectors must cooperate in formulation, testing and eventual success of coastal policy implementation, and by systematically promoting interagency collaboration, increasing public awareness and providing technical information essential for policy decision making.

The Office of the National Environment Board (ONEB) is a policy making agency. In principle, ONEB analyzes environmental issues from a broad perspective, and makes recommendations to Cabinet, Parliament and the Economic and Social Development Board. Policy implementation and enforcement is then carried out by various agencies concerned. The five national priority coastal resource issues in the policy development plan include: Protection of water quality, Preservation of tourist amenities, Protection of critical coastal habitats, Development of a sustainable mariculture industry and Protection of near-shore fisheries resources. These policies must set specific guidelines for the sustainable use of coastal resources.

II) STATE OF COASTAL RESOURCE AND POLLUTION IN THAILAND

The seas surrounding Thailand are the Gulf of Thailand and the Andaman Sea. The Gulf of Thailand extends from the shallow western part of South China Sea over 750 kilometers to the northwest between the Thai-Malaysian peninsula and Indo-China. The whole body of water covers 320,000 square kilometers. There are four major rivers flowing into the upper gulf, namely the Chao Phraya, the Bang Pakong, the Tha-Chin and the Mae Klong as shown in figure 1.

Coastal area of tropical country like Thailand is characterized by highly productive ecosystems which support a broad range of diversified. With the increasing population and rapid economic growth in Thailand, the exploitation of the coastal resources has contributed significantly to economic development. Over ten percent of the population in Thailand lives in the coastal areas resulting in a rather high level of exploitation of natural resources and in degradation of the environment. Indeed, population pressure associated with high economic activities has caused a large-scale destruction and serious degradation of the coastal and marine environment. Increasing pollution, both land and marine-based compound, is a crucial problem for Thailand.

The overall level of pollution is still within the acceptable limit of the environmental quality standard of Thailand. However, there are critical areas in around highly populated and industrial areas. The following is a summary of natural resources and major pollutants in the coastal area of Thailand.

A) Natural Resources

2.1 Land Resources

Thailand possesses about 2,600 km. of beach resources, stretching west and south along the Gulf of Thailand. This extensive coastline contains many beach areas suitable for tourism development. Valuable beach resources are also located at many offshore islands. In the last decade, Thailand has experienced a surge in international tourism, from 1.9 million tourists in 1980 to about 4.0 million in 1989. Construction of buildings, earth digging, land filling and development of public utilities have been carried out according to landowners' wishes. Such unorganized development has resulted in the problems of flooding, untreated wastewater, landslide, traffic and insufficient public services. Even though the integrated land-use plan has been initiated, after going through many law promulgation stages for years, areas marked off in the plan for certain purposes may not be the same as the actual areas which have gone through the fast-paced development.

2.2 Mangroves

Approximately 1,806 square kilometers, or 50 percent of Thailand's mangrove forests have already been destroyed by conversion to other uses during the past 28 years (1). The main conversions of mangrove forest have been to aquaculture, mining, salt pond construction and other activities,

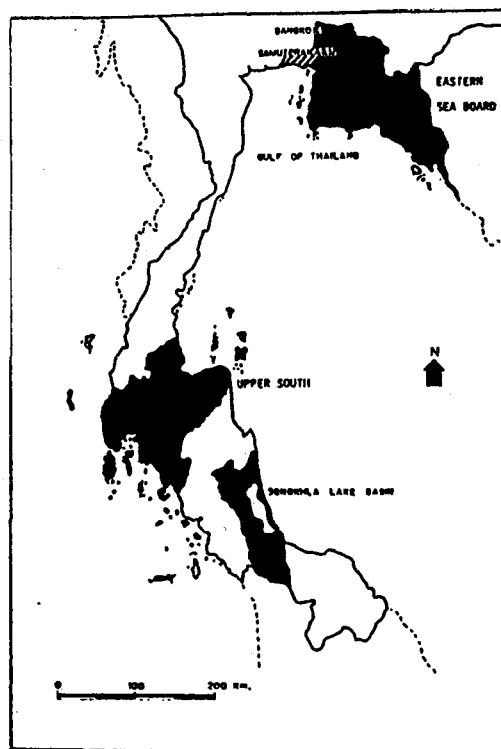


Fig 1: Coastal Resources Management Projects in Thailand

including agriculture, urbanization, industrial sites and harbors. It is believed that the rate of conversion of mangrove areas for other uses, will decrease due to the establishment of mangrove land-use zones.

2.3 Coral Reef

In Thailand, coral can be found scattered along the coastline and around the islands. The condition, major problem and management potential of coral reef are investigated under the Coastal Resources Management Project (CRMP) (2). The predominant causes of damage are sedimentation from onshore construction, deforestation in the coastal watersheds, and domestic waste disposal. Tourism-related damage, dynamite fishing and other destructive fishing practices (trawling) are the increasing concern.

2.4 Fisheries

The explosive growth of the Thai demersal fisheries in the 1960s in the Gulf of Thailand, their expansion outside of the gulf, their retrenchment following the 1973 oil crisis and the promulgation of the 200-mile Exclusive Economic Zones (EEZ) by Southeast and South Asian Countries where Thai trawlers had been operating are now so well documented(3). What Thai fisheries managers are confronted with, however, is that the Gulf of Thailand is "empty" of fish and full of fishing boats. Approaches which are being studied are, among others, imposition of larger mesh sizes for the cod end and trawlers, "buy back" and restrictive licensing schemes, and use of sturdy, concrete, artificial reefs to prevent inshore trawling and to allocate the nearshore resources to small-scale fishermen using passive gears in order to increase fisheries production at the rate of 5.5% annually.

B) Major Pollutants

2.5 Sediment

Soil erosion, in fact, is one of the most pressing problems in Thailand. Rivers transport 47 million cubic meters of sediments annually to the coastal areas, especially sediment load at the mouth of the Chao Phraya River of about 104 tons per square kilometer (1). This contributes to mangrove succession and to productivity and fisheries in the surrounding waters. However, in many localities, sediments block navigation in ports and channels used for shipping and trade, smother coral reefs and deteriorate the water quality. The cause of the soil erosion is due to poor land management in the watershed region.

2.6 Sewage

The rapid growth of Bangkok and the industrialization of outlying areas are producing many signs of stress in terms of water quality, even well out into the Gulf of Thailand. The liquid sewage is generally discharged raw directly into coastal waters or through rivers and waterways. One phenomenon which has been of particular concern in coastal areas has been the elevated faecal coliform levels and red-tide phenomena.

2.7 Industrial Wastes

There are estimated to be more than 90,000 legal factories in Thailand (1). Wastes discharged from these plants and works are mainly in the form of wastewater. All private polluting factories have to install suitable wastewater treatment facilities in order to obtain their annual operating permits from the Department of Industrial Works (DIW). New factories need to get approval for their proposed treatment facilities before they receive their initial permit. The wastewater plant must treat effluents to a standard of effluent quality defined by the DIW. Some government-owned factories are also in the process of installing treatment facilities. Smaller factories typically do not have their own treatment facilities, due to lack of space, a lack of funds or both.

2.8 Petroleum and their associated products

The pollution of the Thai marine environment by industry and shipping activities is causing a great deal of concern, results both from oil discharges from ship breaking activities along the Eastern Seaboard and from the discharge of oily ballast, tank washings and bilge oil from shipping operations. The estimated annual spillage would be approximately 45,000 tons per year. However, this does not take into account the numerous sources of oil draining into storm drains, canals and sewers from petrol stations and other sides.

2.9 Solid wastes

A large percentage of uncollected solid wastes is transported by rivers and canals to coastal areas and to open sea. The estimated volume of uncollected solid waste of Bangkok Metropolitan Area, about 1,307 tons out of 4030 tons per day, is directly dumped into canals and/or rivers, or discharged into drainage systems. As a result, these solid waste create problems on the quality of the water resources (1).

III) NATIONAL INTEGRATION OF COASTAL RESOURCE POLICIES

The Coastal Resource Management Plan in Thailand was first initiated in 1980. Individual government agencies have developed and implemented sectoral management plan since 1962. These plans were incorporated as components of successive five-year National Economic and Social Development Plans (NESDB) by the National Economic and Social Development Board (NESDB). In the mid-1970s, it was recognized that Thailand's coastal zone were much affected by development of urbanization and industrialization. The ONEB is a policy making agency. Policy implementation and enforcement is then carried out by various agencies concerned.

For coastal and marine resources, these agencies include the Department of Fisheries, the Royal Forestry Department, the Department of Mineral Resources, the Land Development Department, the Tourism Authority of Thailand and ONEB. There is no single national agency responsible for coastal management or which has jurisdiction over both marine areas and coastal lands. For example, the Department of Fisheries manages fisheries resources, while mangrove areas come under the Royal Forestry Department.

Although intersectoral cooperation has been presented as a major objective, it is rarely achieved.

Consequently, coastal area management was included as a priority program in the present Sixth National Plan (1987-1991) under the Natural Resources and Environmental Sector, one of 10 sectors in the plan. The proactive management of natural resources was emphasized as opposed to mere reactive measures to rehabilitate deteriorated resources as presented in the Fifth Plan. The Sixth Plan encourages intersectoral management of coastal resources to attain optimal resource utilization. The relevant objectives for government action are: (a) to develop management policies, plan and strategies for coastal development for sustainable use of coastal resources; (b) to support and promote research, inventory and evaluation for assessing resource issues, utilization and development impacts; and (c) to develop plans and strategies for specific coastal resources and conservation areas.

Plan at the provincial levels, a Subcommittee on Land Classification and Coastal Land Development chaired by the concerned provincial governor, supervises field surveys of local geographical conditions. The subcommittee reviews and approves the provincial plan and forwards it to the Central Subcommittee for final approval. Plans at the local levels, the Town and Country Planning Division under the Ministry of Interior prepares land use plans for towns and cities for systematic and orderly growth. These plans are used as a regulatory mechanism to prohibit or control the development of shoreline especially at major tourism sites. Unfortunately, the present planning and proclamation process consumes a great deal of time. There are no mechanism exists to ensure that the individual laws and regulations affecting coastal resources work together to achieve economically sustainable environmentally sound objectives. As a result, well intentioned policies and laws are simply not implemented. In addition, many current policies encourage resource use and development that conflict with current laws on conservation of natural resources.

Plans at the sectoral level are divided into marine national park, fisheries and tourism. Each plan prescribes conservation and rehabilitation measures to cope with the overall problem of sustainable resource development.

IV) CASE STUDIES ON COASTAL RESOURCE MANAGEMENT PLAN IN THAILAND

4.1 The Eastern Seaboard Project

The Eastern Seaboard Project was the first project aimed at enhancing a comprehensive and detailed guide for economic development through provisions for mitigation and control of environmental impact in the east coast of Thailand. The guidelines included seven major environmental management plans for regional water resources, coastal resources, regional air quality, community development, industrial development, watersheds, forests and wildlife and specifically the beach city of Pattaya (4).

4.2 The Songkhla Lake Basin Project

The Songkhla Lake Basin Planning Study arose from concern that projected urban and industrial development could damage water quality and other environmental conditions and that demands for further development of the basin's natural resources would lead to environmental damage and conflicts in resources allocation (5). This project was the first regional development planning project representing the "economic-cum-environmental" principle which linked three subplans on natural resources, socioeconomics and environment. Environmental strategies included the setting of environmental quality standards, the use of conservation zone and the adoption of environmental impact assessment procedures (6).

4.3 The Samutprakarn Industrial Project

The Samutprakarn Industrial Pollution Control and Management Study was initiated by ONEB in 1986 (7). The study delineated and quantified pollution sources and their impacts of Samutprakarn Industrial area on the river and the gulf of Thailand. The study included the solid waste, industrial and domestic wastes management in order to improve the regulatory control and the enforcement processes.

4.4 The Upper South Coastal Resources Management Project.

The "Integrated Coastal Resource Development and Management Planning, Upper South Coastal Zone" (8) attempts to attain its goal through analyzing, documenting and disseminating information on trends in coastal resources development, increasing awareness of the policies for strengthening existing management capabilities, providing technical solutions to coastal resources use conflicts and promoting institutional arrangements that bring multisectoral planning to coastal resources development. The process of planning involves the inputs and participation by various agencies at the provincial and local level. The management plans included water quality, land use, mangroves, aquaculture, fisheries, coral reefs, marine parks and an integrated overall plan in order to eliminate unnecessary overlaps, duplicates and ambiguities.

4.5 Coastal Resources Management Project

Coastal Resources Management Project began in the year 1987. The project's goal is to formulate nationwide policies and plans by using pilot projects at the Phuket province and at Tarutao National Park. The Phuket Action Committee was established and chaired by the Provincial Governor; prepared a resource profile, public education and training program and recommendation for strategies. The five national priority coastal resource issues in the policy development plan, include protection of water quality, preservation of tourist amenities, protection of critical coastal habitats, development of a sustainable mariculture industry and protection of near-shore fisheries resources. These policies set specific guidelines for sustainable use of coastal resources including long-term trends in the condition and uses of resources, the economic implications of these trends, sources and causes of local and national problems, current governance efforts, national strategy and policy and implementation options to achieve local and national success (9).

V) CONSTRAINTS OF THE IMPLEMENTATION OF COASTAL RESOURCE MANAGEMENT PLAN IN THAILAND

The goals of coastal resource management plan in Thailand are to improve the quality of life of the coastal communities through rational allocation of environmental, sociocultural and institutional resources. However, some constraints have been noted as follows:

5.1 Ineffective law and implementation

Management of coastal resources is not governed by any specific legislation, the law is fragmented and embodied in many specific laws. There is no strong commitment of law enforcement agencies and the limitations in the formulation of action plans.

5.2 Planning constraints

Although the development plan has been set, the collaborative efforts by implementing agencies to carry out management strategies are still lacking. The authority at the provincial level is not enough. However, to minimize potential institutional disputes, clear designation of each authority is essential.

5.3 Lack of public participation

The problem in achieving the plan is usually not only technical, but social and political. Local goals and the willingness of citizens and their leaders to participate will ultimately dictate whether a technically feasible alternative will succeed or fail. The evidence shows that the proposed city plan could not get approval as proposed in the pilot site after enactment of the law for ten years. The reason is that it is impossible to satisfy the different sectors of the country especially in terms of land use plan and regulation.

5.4 Insufficient institutional capabilities and budget

ONEB is only a coordinating agency in terms of planning and policy-making, not in terms of implementation. Sectoral agencies are left on their own to balance sectoral objectives with national or subregional multisectoral objectives. Budgetary constraints have also meant that few recommended programs or projects have been implemented.

VI) CONCLUDING REMARKS

Much has been said about the deteriorating state of Thailand's coastal resources. Environmental causes and problems are known and are starting to be fairly well-documented. In the recent years, national level plans for preservation of coastal resources have been given explicit attention. The main bottleneck is seemingly in implementation of strategies and the coordination of the various implementing agencies, both national and provincial. Efforts towards effective implementation should therefore necessarily directly address to this weakness in the chain.