

**A**long the 2,600 km of coasts covering 22 provinces in the lower half of Thailand, there are three important living resources - mangrove, seagrass and coral - which have directly and indirectly benefited the communities on these coasts.

Mangrove forests are scattered along 927 km of the coasts. They are abundant with 74 various flora species and 368 fauna species, including marine animals. In 1961, Thailand had 2.3 million rai of mangrove forests, but by 1989, there remained only 1.1 million rai (1 rai = 1,600 m<sup>2</sup>).

Seagrass grows under shallow and calm waters along coastal areas of sandy mud adjacent to mangrove forests. Coral reefs in Thailand grow in shallow waters, scattered along the coastal areas and around the islands.

Together, mangrove forests, seagrass beds and coral reefs create a complex coastal ecology. The abundance of one supports the survival of the others. By the same token, the decaying of one affects negatively the entire

coastal ecological system. The deterioration of mangrove forests causes soil erosion which causes siltation. The muddy water chokes and kills the seagrass and subsequently the coral reefs in deeper water. On the other hand, the deterioration of coral reefs and seagrass forests allows ocean waves to erode the coastal areas where mangroves grow. This coastal ecological system provides a suitable habitat for many marine animals. It results in richness and beauty of the sea which is invaluable for the entire human race.

Because of this, the government needs to review urgently certain policies which help spur the deterioration of coastal resources.

### Mangrove Forest Concessions

Granting concessions to log mangroves for charcoal making is one such example. The Forestry Act has granted the private sector the right to log mangroves since 1941. In 1968, the concession system was reorganized to allow each concessionaire the right to log an area of 2,500 to 5,000 rai for 15 years. The concession was to be divided into 15 strips. Each year, one strip was to be logged using the "clear cut" method. At the end of the year the strip was to be reforested and the next strip logged.

While the Forestry Department believes this method would make it possible to preserve the forests, the reality is that the concessions have not been operated according to the ground rules. In most cases, the entire concessioned area was logged, causing damage to the ecology of the forests. According to the Budget Bureau's 1991 Report, the area under concessions has

# Community Management of Coastal Resources, Southern Thailand

PISIT CHANSNOH



Village boats and fishers ready to go fishing in Thailand. (Photos courtesy of Yad Fon Association)



Villagers from Chaomai, Thailand, install a sign on seagrass protection area. (Photo courtesy of Yad Fon Association)

been reduced by 100,000 rai. If we include the concessioned areas in Rayong, Chon Buri and Chumphon provinces which were totally lost during the first concessioned period, the loss would total about 200,000 rai. This is a clear indication that the concession system and the government's control do not work. The system should be urgently reviewed before it is too late.

### Coastal Farming Policy

Encroachment on and destruction of mangrove forests have intensified since the government began promoting shrimp farming using modern intensive techniques. These systems rely on high-nutrient food and antibiotic drugs together with the poisoning of "undesirable" marine animals to accelerate the growth of the shrimp. Such systems produce high income to the entrepreneurs, who are able to harvest two or three times a year, but with no regard to environmental costs.

Up till 1986, encroachment of mangrove forests affected 690,000 rai or 64.3 per cent of the total areas destroyed. There has not been an official figure on the total area of mangrove forests lost to shrimp farming. However, there is little doubt that very large additional areas have been encroached upon since. For instance, between 1986 and 1989, the mangrove forest areas were reduced by 99,000 rai. Between 1989 and 1991, the mangrove forest areas in five eastern

provinces were reduced by 59,000 rai, mainly because of shrimp farming.

The government continues to promote shrimp farming even though it lacks measures to protect mangrove forests or control environmental destruction resulting from the activity. This has a severe impact on the well-being of local fishers.

### Destruction of Seagrass Beds

Much of the seagrass forests have deteriorated as a result of various coastal activities including waste water discharge from shrimp farms, industrial plants and communities, which cause the coastal seawater to become turbid and decay. What makes the situation worse is the use by large fishing boats of fishing gears such as purse seines to sweep the sea floor, destroying seagrass in the process.

Seagrass is food for some sea turtles and dugongs, two marine groups now near extinction in Thailand.

Even though laws exist to prohibit the use of destructive fishing gears within 3 km of the coast,

violations are common because of the abundance of marine animals in inshore areas.

### Destruction of Coral Reefs

The discharge of waste water from communities and industrial plants has caused extensive damage to coral reefs. Other activities detrimental to coral reefs include tourist boats using the reefs for anchorage, the collecting of coral for sale as souvenirs, and use of purse seines, explosives and poisons for fishing.

The destruction of coastal resources results in rapid reduction of marine animals, causing hardship to the nearly 30,000 fishing households along the coasts. They have been heavily burdened with debt from purchases of modern fishing equipment. The equipment does not increase their income because they have to go farther out to sea which increases their costs. At the same time, they have to compete with commercial fishing fleets which use more efficient equipment.

Several fishing communities have collapsed because of reduced revenue. Many fishing households must sell their land to shrimp farmers or resort developers. Their members become wage laborers or hired hands on commercial fleets, and they must be away from family for months at a time. Sometimes, they return home with little money left. This causes other social problems such as gambling and drug abuse.

Local fishers derive their living by working hard at sea daily. But they are



Coral garden in Tubbataha Reef, Palawan, Philippines. (Photo by R.S.V. Pullin, ICLARM)



Mangroves are destroyed for fishpond development, Philippines. (ICLARM photo)

small groups with no bargaining power. Compared with farmers or planters, fishers lead the most difficult life with least opportunities.

### Community Organization

The Yad Fon Association has been working with 17 small fishing communities in Si Kao and Kan Tang districts since 1985. Before then, villagers in these communities had attempted by themselves to protect fishing areas, and mangrove and seagrass areas. They realize that use of destructive fishing equipment only causes damage to themselves and their communities in the long run. They began by pushing for discontinuation of the use of such fishing equipment within their communities and for conservation of mangroves and seagrass.

Little success was achieved in the beginning until the setting up of a 587-rai community forest with provincial authorities' support. This became the first community mangrove forest in the country supported by the Forestry Department. The project has since spread to four other communities with the total forest area of 1,557 rai.

The villagers have also joined forces to protect three important seagrass areas covering 133 km<sup>2</sup>. With no illegal fishing and destruction, the forests have since grown in size and become more abundant.

With assistance and support from the provincial authorities, universities and



A young villager collects honey from a community mangrove forest, Thailand. (Photo courtesy of Yad Fon Association)

various nongovernment organizations, the communities have now formed a network to conserve coastal resources and protect their fishing areas. They now have more bargaining power, and it boosts their determination to carry on their conservation activities.

In just a little over two years since the use of destructive fishing equipment has stopped, the coastal ecology in the area has dramatically improved. Marine animals have increased noticeably; the shrimp population has vastly grown; more crabs have been found in seagrass areas; more squids, mackerels and other larger fishes have been caught. Fishes which had disappeared have started to reappear.

Within the last three years, sea turtles have made several nests. The villagers have helped ensure that more eggs hatch naturally. They have so far released 616 baby sea turtles into the sea. What is

gratifying is that more *dugong* have made appearances in the seagrass beds. Villagers have also noticed several schools of dolphins which indicates unmistakably that the sea has become more prolific. Small-scale fishers are now making more income, and the benefit has reached every household.

Several communities in the meantime have set up community organizations which have become self-reliant and successful. A few have been selected as model fishing communities at the national level for coastal resource management. The provincial authorities have adopted this model of sustainable community development to apply to all communities along the coast.

Starting from discussion and debates to understand root causes of problems and then arrive at appropriate solutions, the communities have learned much about the conservation of coastal resources. It is an important learning process from tried-and-true practices which helped strengthen community organizations.

Past conservation practices have confirmed that villagers do have conscience and ability to manage coastal resources to achieve sustainable development. For such concepts and practices to spread to other places, the government must accept the right of community to manage natural resources based on local wisdom. These organizations would provide sustainable development for small fishing communities along the coasts. In this way, the government would be able to save a large amount of the national budget.

**P. CHANSNOH** is the president of Yad Fon Association, a nongovernment organization based in Trang Province, Thailand, which is involved in rural community development.

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