ECONOMY AND ENVIRONMENT PROGRAM
FOR SOUTHEAST ASIA

POLICY BRIEF

COSTING COASTAL CONSERVATION: THE CASE FOR COMMUNITY-LED MANGROVE PROTECTION

The destruction of mangrove forests for commercial gain is one of the most pressing environmental problems facing Southeast Asia. But a recent EEPSEA study has shown that it makes better economic sense to conserve this vital resource than to destroy it.

The study looked at the Surat Thani Province of southern Thailand, where substantial areas of mangrove have been cleared for shrimp farming. It compared the financial returns to this commercial exploitation with the economic benefits of sustainably using the remaining mangrove. It concluded that while mangrove clearance for shrimp farming is lucrative for individual entrepreneurs it economically disadvantages local communities. Furthermore, the study found that local people have the capability to sustainably manage the mangrove resource themselves, conserving the environment along with their livelihoods.

The study was undertaken by a team led by Suthawan Sathirathai, of the Centre for Ecological Economics, Chulalongkorn University, Bangkok. The study looked at Tha Po Village, on the coast of Surat Thani Province, where about 130 households depend almost entirely on fishing for their livelihood.

The area around Tha Po used to be extensively covered with over 1100 ha. of mangrove swamps. In the past decade, over half this area has been cleared for commercial shrimp farms. As elsewhere along the Thai coast, this clearance is partly encouraged by government policy. Thailand's exports of frozen shrimp now produce about $1200 million in annual export revenue.

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While it is relatively easy to estimate the revenue from shrimp farming, it is more difficult to value the resources and services provided by a mangrove forest, since few of these are marketed. They are important, however, as the experience of the villagers in Tha Po shows. Following the partial destruction of mangroves in their area, they experienced a drastic decline in fish catches and suffered storm damage, water pollution water and mosquito infestations.

To put an economic value on the mangrove resource, Dr. Sathirathai and her team first conducted a number of in-depth field studies to see how the remaining mangroves around Tha Po benefited the local community. They found that the villagers used the mangroves as a source of fuelwood and other minor forest products. Even more significant, however, were the environmental services the mangroves provided - primarily as nurseries for fish and as barriers to storms and soil erosion.

Dr. Sathirathai then calculated the monetary value of the benefits that would be lost if an area of mangrove was destroyed. She assessed these benefits from two perspectives: that of an entrepreneur and that of the local community as a whole. Finally, she compared her findings with the value of a comparable area of shrimp farm.

When the situation was viewed from the perspective of an individual entrepreneur - who could discount many of the indirect benefits provided by mangroves - it was clear that farming shrimp is much more lucrative than trying to make a living from the mangrove itself. The net present value (NPV) per rai (6.25 rai = 1 hectare) for a commercial shrimp farm was as high as US$ 3,734.80. The highest NPV per rai for the mangrove forests was US$ 666.42.

However, when the situation was analyzed from the community's point of view the scenario was much different. While an entrepreneur usually pulls out of a shrimp project after five years when profits start to diminish, the community has to live with the abandoned shrimp ponds, which can take up to 15 years to re-establish as a mangrove forest. When this longer time scale and other external costs, such as pollution from the shrimp ponds, are taken into consideration, the value of the mangrove is in the range of US$ 5,771 to US$ 4,227 per rai.

The survey therefore concluded that, while the conversion of mangroves into shrimp fisheries is privately profitable, it is not economically viable from society's point of view. It also showed that the 'gainers' from conversion are mainly outsiders who can afford the high initial investment. Indeed, only 11 households in the Tha Po Village were engaged in shrimp farming. The remaining farms were owned by outsiders, most of whom were businessmen from Bangkok and other cities. In order to provide greater benefits to local people, Dr. Sathirathai recommends that villagers be encouraged to participate in the conservation of mangrove forests.

To investigate the feasibility of this approach, Dr. Sathirathai's team carried out further research on the potential role of the local community in protecting the mangrove. 80% of the villagers felt strongly that the local community should participate in the management and conservation of the mangrove forest. 40% were already involved - replanting and protecting areas from encroachment.

Indeed, the potential for community involvement in mangrove conservation looks increasingly promising. Villagers in Tha Po and elsewhere have organized to protect the remaining inland mangrove forest. Local government officers who have not supported their efforts in the past have started to notice the significance of the mangroves. A Community Forest Bill is being discussed that would allow local communities to participate in the management of the forests as long as resources are not degraded. And there is talk of extending a ban on logging of terrestrial forests to clearing of coastal mangroves.

By showing the true value of the mangroves, Dr. Sathirathai's economic analysis provides support for initiatives such as these. Showing the value of what may be lost is often the first step in preserving it.

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The full text of this study is available as an EEPSEA Research Report:
Economic Valuation of Mangroves and the Roles of Local Communities in the Conservation of Natural Resources: Case Study of Surat Thani, South of Thailand - Suthawan Sathirathai

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