Editorial

The Changing Focus of Coastal Fisheries Management in Asia

The strategies for coastal fisheries management in Asia have been changing in the last five years. There is a growing recognition that the current centralized, bureaucratic management strategies have, for the most part, not been successful in reversing the trend of resource degradation and overexploitation. There is a need for substantial and rapid evolution of existing coastal fisheries resource management strategies to support sustainable resource use. There must evolve a partnership arrangement which builds on the knowledge and capacities of the local community and the abilities of the national government to support development of enabling policies and institutional restructuring and to provide assistance.

Throughout Asia, the recognition of resource user participation in management is not just in coastal fisheries but in other areas as well, such as irrigation and social forestry. Community-based management and co-management strategies strive for more active people's participation in resource management. In a broad sense, it involves the decentralization of authority and functions to manage the fisheries resource from the centralized national government to the resource users or community organization. The use of community-based management is often being used to complement broader integrated coastal resource management strategies which address multisectoral resource use issues and conflicts.

One of the priority areas of research of the Asian Fisheries Social Science Research Network in the future will be on community-based management, common property management and integrated coastal resources management. Several of our member-institutions are already taking a lead role in research on these management strategies.

There is a changing focus of coastal fisheries management in Asia which includes more people participation in the planning, implementation and evaluation of management strategies. The social sciences can provide important concepts, tools and methods to assist in this process. ***R. S. Pomeroy***

Management of Mangrove Areas in Calauag Bay, Quezon Province, Philippines

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Editor's note: The following is a summary of the results of an AFSSRN-funded study of the same title conducted by the UPLB team from March to December 1991.

Introduction

Mangroves are important for nurseries for multispecies fisheries resources. Their rapid conversion to alternative economic uses will inevitably reduce the fish catch in the nearby coastal waters and, consequently, undermine the economic well-being of coastal fishers (Dixon 1989).

To prevent further negative effects of mangrove depletion on the income of coastal fishers, judicious management of mangrove areas is imperative. One strategy is to regulate the conversion of mangrove areas by means of land lease. The fishpond lease fee can be set low or high depending on whether one wants to encourage or discourage conversion. If it is set high, this may compel the producer to employ better technology rather than converting additional mangrove areas to fishpond. This pricing policy would lead to induced-innovation and greater resource use efficiency.

How much should the lease fee be? What is the basis for setting the fee? These are the key questions that the study attempted to answer. The basis used in the study was resource rent, which is defined as a surplus value over and above the opportunity cost of all factors of production employed as a result of access to a valuable

resource in limited supply. The rent is the amount the producer will be willing to pay for using the land. This rent will be the basis in setting the lease fee for mangrove areas converted to fishponds.

Knowledge of the resource rent could be important to the Bureau of Fisheries and Aquatic Resources or the local municipal authorities who are tasked with regulating the use of mangrove areas. The goal is to sustain the productivity of the ecosystem (i.e., the fishpond production and coastal fisheries) to benefit present and future generations.

There was no attempt in this study to determine the rent to mangrove areas if they were not converted to any other use because of the difficulty of quantifying the impact of mangrove depletion on the production of coastal fisheries. The primary objective of the study was to estimate resource rent of mangrove areas converted to fishpond production.

Methodology

The residual method was used to calculate the resource rent. Rent is defined as total revenue minus all costs excluding the fishpond lease fee. Total revenue includes normal profits as farmers will sell at a price that incorporates the profit mark-up (Schatz 1991).

To determine the annual per hectare rent, the present value (PV) of the stream of rents for the period of the fishpond lease was taken and divided by the lease period. The rationale behind the net present value (NPV) is to incorporate society's valuation of the opportunity cost of money or their preference between present and future consumption (Henderson and Quandt 1971).

The rents were calculated based on the technology practised by the farmers and the prices of inputs and outputs that prevailed during the survey period. The rents calculated are based on a technology that uses low levels of chemical inputs and low stocking density of about 2,000 fingerlings/ha/crop and 5,000 milkfish fry and shrimp, respectively. This technology results in low yields. In the aquaculture industry, there is a technology available, characterized by high stocking density and heavy dosage of chemical inputs, that results in high yields and better profits.

Table 1. Economic rent (discounted) of mangrove areas by period of lease, discount rate and cropping system, Calauag, Quezon, 1991.

Item	Cropping System		
	Milkfish-milkfish	Milkfish-shrimp	Shrimp-shrimp
	Pesos/ha/year		
10 per cent			
5-year lease	1,247	1,195	3,296
10-year lease	1,011	968	2,672
20-year lease	700	671	1,851
15 per cent			
5-year lease	1,103	1,056	2,916
10-year lease	825	791	2,182
20-year lease	515	493	1,362

Results and Discussion

Table 1 shows the annual discounted rent using 10 and 5% social rates of discount. Three types of cropping system were considered: milkfish-milkfish, milkfish-shrimp and shrimp-shrimp. Each type uses a combination of species grown in a pond sequentially in a given year, e.g., milkfish is grown in the first half of year one followed by shrimp in the second half. The rents are highest with the shrimp-shrimp system. These rents are much higher than the fishpond lease agreement (FLA) fee of P50/ha/year (US$2). The size of the rents indicates that the fishpond owners have the capacity to pay higher fees, which could be ploughed back into the fisheries to rehabilitate the mangrove areas and hence, the ecosystem of both inland and capture fisheries.

It is possible to calculate a whole schedule of rents by varying the assumptions on technology and prices. Rents can be calculated assuming the best technology available and given input-output prices and this will result theoretically in rents higher than those shown in Table 1.

Conclusions

The major causes of mangrove depletion are cutting of mangroves for fuelwood and charcoal and clearing for fishpond development.

The economic rent is significantly greater than the current FLA fee of P50. There is then justification for the government to increase the fee which could be used to rehabilitate the inland-coastal fisheries to improve productivity and ensure sustainability of the ecosystem for future generations.

The government could charge P3,296/ha/year (US$130). This rent corresponds to the shrimp-shrimp system for a five-year lease and a 10% discount. This would compel the fishpond owners to shift to the more profitable cropping system or may motivate them to use better technology to improve productivity and hence, income.

One important consideration in the implementation of a revised FLA fee is that the rent should be location-specific. Although the technology may be applicable from one place to another, environmental conditions and input-output prices are likely to differ from one region to another.

References

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