

SMALL-SCALE capture fisheries in many less-developed countries are important both as labor-intensive sources of employment and as the major source of fish within these countries. Nonetheless, communities of such fishermen often are the most economically depressed. Geographic isolation and difficulties of transportation lead to inefficiency in marketing, while the relative inefficiency of their boats and gear compared to commercial fishermen limits their catch.

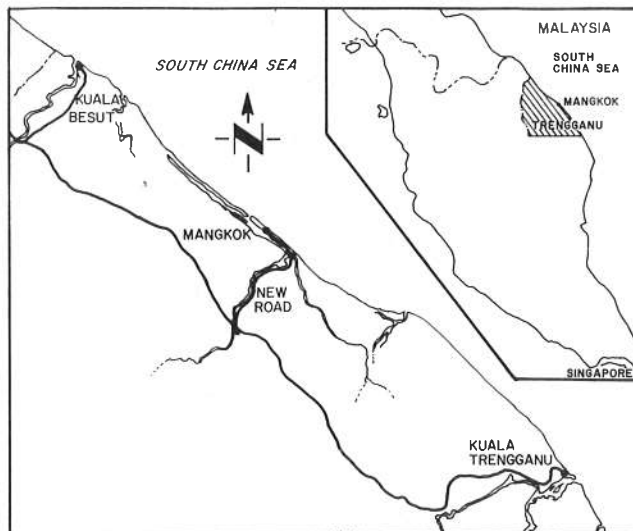
The broad goal behind development efforts is to improve standards of living of the target population. For small-scale capture fisheries, there are two basic development strategies: those that focus on production and those that focus on efficient handling, processing and marketing of existing production. It is argued here that the strategy chosen is likely to determine who will benefit from development. The distribution of such benefits should be an important criterion in the design of small-scale fisheries development efforts.

The production-oriented strategy leads towards increasingly efficient but typically more capital-intensive boats and gear. This approach is politically attractive since administrators and politicians can point to new fishing units as evidence of their efforts on behalf of small-scale fishermen. However, only a limited number of fishermen are likely to benefit from such technological innovations due to their costs and the financial and administrative limitations of government subsidy and loan schemes. Recipients of more efficient boats and gear may obtain short-term benefits but, as fishing becomes more capital-intensive, those less fortunate will be pushed closer to the margin of subsistence. Meanwhile, the greater incomes earned by owners of capital-intensive fishing units will diverge from the more static incomes earned both by operators of less efficient fishing units and by their own crewmen.

On the east coast of Peninsular Malaysia, for example, owners of large purse-seiners claim 50% of the catch

The Road to Mangkok: Achieving Equitable Distribution of Benefits from Small-Scale Fisheries Development

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after expenses with the remainder being distributed (and unequally at that) among a crew of 18-20 men. Owners of smaller boats using gillnets, in contrast, earn approximately 41% of the catch from their investment, the remaining 59% being divided among a crew that typically numbers only three. The income per crewman is roughly comparable, but the discrepancy in income between owners of large purse-seiners and their crewmen is far larger than in the case of less capital-intensive gillnetters.

In short, production-oriented development strategies are likely to benefit a limited number of individuals and introduce socially disruptive inequalities into communities of small-scale fishermen.

The other approach to small-scale fisheries development—increasing the efficiency of handling, processing and marketing fishermen's catch—is less spectacular than production-oriented strategies. In the context of declining landings by small-scale fishermen, however, this is more realistic than a strategy based on ever-increasing yields from coastal waters. The benefits to greater post-catch efficiency are likely to be more equally distributed throughout small-scale fishing communities

and so prove less disruptive than strategies which depend on more efficient production.

Distribution of benefits from development strategy is likely to depend on its relative dependence on capital and labor. Efficiency in fishing generally correlates with capital intensity. In small-scale fishing villages, handling, processing and marketing of fish tend to be labor-intensive rather than capital-intensive. The technologies are relatively simple and inexpensive, and increased efficiency in these matters is likely to ripple throughout the community in the form of higher prices for fishermen and/or increased local employment.

Communities of small-scale fishermen are often isolated by distance and difficult terrain from major population centers which provide the most lucrative outlet for their catch. Though there is considerable scope for the introduction of solar dryers and other advances in post-catch technology, frequently the single most important constraint facing small-scale fishermen is inability to quickly and efficiently move their catch to the consumer.

Building a road may be a simple project, but it can result in complex consequences, as shown by a case study



Fish buyers crowd around a typical gill-netter, Mangkok.



Drying fish on the beach at Mangkok.

from the east coast of Peninsular Malaysia. Due to their isolation, the fishermen of Mangkok in northern Trengganu State had no alternative to salting and drying most of their catch. Early in the 1970s, however, a road was built into Mangkok which allowed for the shipping of fresh iced fish to Kuala Trengganu, the state capital, and to the major urban centers on the West Coast. A competitive Dutch auction marketing system was adopted; fish prices immediately increased by 50% or more, raising the incomes earned by owners and ordinary crewmen alike.

Improved prices and incomes were the immediate, direct and obvious consequences of this road's construction, but the effects of this development were more far-reaching than this. The processing of dried, salted fish had been dominated by a few local households who bought most of the local catch.

Typically older and functionally nonliterate, they were able to conduct their business in the security and comfort of their home village. The physical and managerial demands of *fresh* fish marketing were quite different, however, and the dried fish processors were unable to adapt to the new marketing arrangement.

In their place, a half dozen locally-born men in their 20s and 30s have come to dominate the marketing of fresh iced fish in Mangkok. Their work requires elaborate record keeping (and hence a certain level of education) and the establishment of trade relationships with older middlemen in Kuala Treng-

ganu and beyond, including such major urban centers as Singapore and Kuala Lumpur.

Reluctant to establish a new range of business relationships where literacy is essential, the older dried fish processors also are disadvantaged by their very age, as the marketing of fresh iced fish is physically exhausting work. During the peak fishing season (January through March), the fresh fish buyers of Mangkok often have to work 18 hr/d.

Beginning as early as 6:00 AM, the buyers must wade out to each boat as it comes in, climb aboard, make a number of swift calculations, decide whether or not to buy, and then move on—often at a run—to the next of as many as 40 boats each morning. After overseeing the packing of fish and crushed ice into crates, they must take the fish by small pickup truck to Kuala Trengganu and purchase ice for the following day.

It is at this point that Mangkok's buyers often extend their working day and their costs. As there is a local shortage during peak seasons, often they must wait for hours to buy ice and sometimes in desperation, they drive almost 150 km north hoping to buy ice at Kuala Besut, another major fishing port. Without ice they would not be able to buy fish the next day. Often it is after midnight when Mangkok's buyers finally reach home with their precious cargo of ice.

The marketing possibilities provided by the new road to Mangkok

led not only to the displacement of the dry fish processors as primary purchasers of local catch, but also to a gradual change in the distribution of boat and gear ownership. In an effort to insure a constant supply of fish for their processing operations, Mangkok's dry fish processors invested not only in drying mats and other related paraphernalia but also in fishing boats and nets.

Once fresh fish marketing by auction was adopted, however, this concern with supply of fish for processing lost its urgency. Despite their investments, the processors were unable to retain control over marketing of their catch.

With increased incomes due to higher prices, and an active trade in used boats and nets, many of Mangkok's fishermen now are able to own their own fishing unit.* As a consequence, it has become increasingly difficult for owners of more than one fishing unit to attract and maintain crews.

By the late 1970s, almost all of the boats and nets previously owned by the dry fish processors—in the late 1960s totaling half of approximately 30 fishing units operating out of Mangkok—had been sold to local fishermen. As a consequence of Mangkok's new road then, a new system of

*A typical fishing unit consists of a 10-m long wooden planked hull powered by a 6 to 8 hp diesel in board and a drifting gillnet. When new, the equipment will cost US\$5,000 but used, it will cost US\$1,000 or less.

marketing was developed and the ownership of boats and nets became more evenly shared.

The case discussed above is ideal in two senses of the word: it dramatically illustrates the systematic nature of technical (or specifically, infrastructural) and socioeconomic change; and it represents an ideal in terms of equitable distribution of the benefits of development. Even in such cases, some groups or individuals may be unable to adapt to change. The obvious examples in this case are the dried fish processors.

It is also worth noting that Mangkok's women, who had provided most of the labor for dry fish processing, would have been put out of work but for another, unrelated event—the growth of the trawler industry off the east coast. Several trawlers now regularly off-load trash fish for pro-

cessing at Mangkok so that the community's women—and of course those who pay them, i.e., the dry fish processors—have not become completely unemployed.

The road to Mangkok is a good example of an opportunistic development in the post-catch sector. It is important to add, however, that once a particular constraint, such as access to markets, is eliminated, other constraints are likely to surface or become more pressing. For example, in the case of Mangkok, once the new road allowed for marketing of fresh iced fish, the inadequacy of the ice supply in northern Trengganu became a problem.

Development strategies designed to improve post-catch efficiency are more likely to benefit a wider number of small-scale fishermen than strategies

more narrowly aimed at increasing production. Production, of course, cannot be disregarded, as it provides the material basis of life as we know it. In some cases, development strategies focusing on increased production may be justified by the existence of a previously unexploited resource. But we must also be concerned with the distribution of production and the efficiency with which production from a limited natural resource is handled, processed and marketed. If we do otherwise, we risk both squandering the resource and disrupting human communities by creating new or exacerbating existing inequalities. Our definition of small-scale fisheries development must include questions of equity and social justice, and we must recognize that development programs can be designed to benefit the many rather than the few. ●

Protein from the Sea: Technological Change in Philippine Capture Fisheries by Alexander Spoehr. *Ethnology Monographs* 3. Department of Anthropology, University of Pittsburgh, Pittsburgh, Pa. 15260, U.S.A. 224 p. Published March 1, 1980. Price US\$9.50.

This book, states its author, is conceived as an introduction to field research on the nature of the interaction of technology and technological change in fisheries, on the one hand, and the specific aspects of social and economic organization, mediated through the decisions and actions of individuals, on the other hand. This anthropological perspective focuses on work organization in production and marketing and is used to demonstrate the changes in the last half century in a sample of Philippine fishing technologies.

The book is an excellent and welcome addition to published research on Philippine fisheries. The last 20 yr have produced very little in-depth reporting on the subject which is surprising because it has been during the past two decades that the Philippine fishing fleet has changed dramatically through motorization of small craft (known as pump boats) and the introduction of large-scale trawlers and purse seiners.

Book Review

The pioneering field research of various Filipino marine biologists and fisheries technologists conducted during the 1930s-1950s resulted in an impressive body of data which are invaluable to current-day researchers, though often overlooked. Dr. Spoehr has drawn from these earlier works and his historical accounts of technological changes make fascinating reading.

The book has chapters devoted to the following fishing methods, each well illustrated:

- The Fish Corral: Improvements on an Ancient Invention
- From Traditional Fishing Craft to the Pumpboat Revolution
- Lift Net: The Development of the Philippine Bag Net or 'Basnig'
- Gill Netting: The 'Pukot Patuloy' (Largarete) of Cadiz
- High Level Technology: The Adoption of Modern Trawling and Purse Seining

The author believes that "the role of owners-operators as the entrepreneurs and managers of the industry has been crucial." The important role of women in pumpboat construction as boatyard

managers is also discussed, as is the essentially family-run nature of most fishing enterprises, particularly those that operate more than one craft.

In addition to chapters on fishing technology, the book contains an interesting chapter on various wholesale fish markets. The focus is on the central role of the broker in these markets, and the elaborate network of 'suki' relationships that governs exchanges and extension of credit between suppliers, brokers and retailers. The chapter thus adds to the recent literature that puts the middleman, with his risks and credit role, in a more balanced perspective.

Curiously, the author does not discuss at any length the conflicts that have arisen between small-scale and large-scale fishermen in the Philippines. He does, however, draw attention to the finiteness of the Philippine capture fisheries resources and the eventual need for management.

One can only hope that this well-written book will be read by fisheries officials and university researchers alike and that it will stimulate additional research of use to those committed to managing the presently 'open-access' capture fishery resources of the Philippines.—I. R. Smith, ICLARM