

## Book Review

*Crisis in the World's Fisheries*. McGoodwin, James R. Department of Anthropology, University of Colorado, Stauford University Press, 1990. 235 pp. ISBN#0-8047-1790-7.

**Reviewed by Michael A. Robinson**  
Albano Laziale  
Italy

The practice of fisheries management has not been one of the conspicuous success stories of the twentieth century. In spite of the development of a considerable institutional structure, the spilling of much ink and much talk within fisheries management bodies, most fisheries continue to yield smaller fish, lower total catches and fewer economic benefits than they would if somehow rationally managed. This book helps to explain why.

It seems it has always been like this. The author cites several examples of prehistoric fisheries which failed to sustain accustomed yields. In spite of the existence of traditional management systems they seem to have been the exception rather than the rule, and if they worked, it was due as much to the absence of external pressures as to any intrinsic merit of the system or enlightenment in society. In fact, things began to fall apart with the growth of production for the market as opposed to subsistence fishing, leading to an intensification of competition, encroachment of outsiders on traditional fishing grounds, and the introduction of new and more effective technology.

By the end of the nineteenth century the effects of overexploitation were sufficiently serious in the North Atlantic to lead the coastal countries to establish a permanent mechanism for the study of the fisheries. In the first part of Chapter 4, the author traces the subsequent development of the theory of the dynamics of exploited fish populations and the incorporation of economic considerations into the calculus. The author however considers bio-economics alone to be insufficient and he stresses the apparent irrationality of much of human behavior and the necessity to take human needs and preferences into account if management is to function effectively. The remainder of the chapter is taken up with Prof. McGoodwin's attempts to resolve his own inner doubts on this score. He would like to recommend that more anthropologists and sociologists be involved with policy in this field and that fishermen, particularly small-scale fishermen have a greater role in decision making. He is however too honest to insist, as he realizes that however flawed they may be bio-economic models have a degree of coherence not yet attained in the field of sociology and the situation is likely to remain so for some time to come. He recognizes also that while in an ideal world fishermen should make decisions concerning resource management, they lack the training and competence to do so i.e., they would not know a Gordon Schafer curve if they saw one.

The author proceeds to examine the recent history of the theory and practice of management. He rather dismisses Hardin's (1968) paper on the Tragedy of the Commons, emphasizing the distinction between common property and open access, noting that it is the latter which leads to overexploitation; where there is common ownership the owners often voluntarily institute means for limiting fishing effort among themselves. The difference between Hardin's somewhat Hobbesian thesis and that of the present book is basically one of a view of human nature in society. Professor McGoodwin is not convinced that the institution of common property leads necessarily to the plunder of the resource and the ruin of the environment, but he believes that fishermen can behave in an enlightened way. Building on this belief he sees in property rights (or in limited entry which operates in much the same way), one of the best hopes for management in the future. The establishment of property rights in particular is seen to be a hopeful approach as not only would it build on traditional systems but it would also have low management costs.

The author reviews the objectives and means of management. The review of the former covers the by now fairly well trodden ground of MSY, MEY and OSY, pointing out the fairly formidable conceptual methodological and data problems of at least the last two of these concepts, but concluding that mathematical game theory offers a glimmer of hope of overcoming at least some of the problems. The review of the possible means of management, e.g., closed areas, closed seasons, gear restriction, etc., is also fairly standard although the chapter on passive methods of regulation contains some curiosities including the view that fish consumption should be limited in the interest of management. In fact, a possibility that Prof. McGoodwin does not consider is that aquaculture might eventually take some of the pressure off naturally occurring species and lead also to the wider consumption of fish.

Much of the last section of the book in fact is a review of arguments for and against different objective and strategies for management. If the author does have an axe to grind it is that management should be "humanised" and here he comes close to demonstrating a belief in the perfectibility of man. If only there were more anthropologists and sociologists involved in policy making, and if only more fishermen were more closely involved in formulating management measures all would be well. Unfortunately, there is another view of the involvement of fishermen in management born of prolonged and depressing attendance at meetings where TAC's and quotas are being discussed, a view which corresponds rather closely to that of Hardin's individual "who benefits as an individual from his ability to deny the truth even though society as a whole, of which he is a part, suffers."

Nevertheless, Prof. McGoodwin has written a good *tour d'horizon* of the subject, even if it has understandably a bias towards sociological and anthropological aspects. Unusually these days, there is not a single equation or diagram. In this the author is probably right as his book underlines not only the extreme difficulty of measuring many of the concepts involved but also the fact that theory in this field is well ahead of the practical possibilities of implementation, with little redress of the imbalance in sight. A wider and more educated appreciation of the subject will do no harm and could do some good.

If one has a criticism it is that the ample list of references, like the text, makes almost no mention of Africa and West Africa in particular. Apart from the over-

riding importance of fish and fishing in many African countries, the fisheries offer much of the interest to a social anthropologist. For an advocate of property rights as a means of management, the acadjas of Benin for example represent an interesting half-way house between open access and private property, and in addition access to many floodplain fisheries in the region is controlled by the feticheur or other traditionally appointed authorities. Greater attention to Africa might not have altered the general conclusions of the book, but it would have enriched it supporting some views and modifying others.

## Book Review

Richard B. Pollnac, Conner Bailey & Alie Poernomo (eds.), *Contributions to Fishery Development Policy in Indonesia*. Jakarta: Central Research Institute for Fisheries, Agency for Agricultural Research and Development, Ministry of Agriculture, 1992. 169 pp.

**Reviewed by Salvatore Comitini**

Department of Economics/Agricultural & Resource Economics  
University of Hawaii at Manoa  
Honolulu, HI

The eight chapters in this volume represent supported research conducted under the Fisheries Research and Development Project (FRDP), funded by USAID, through the Central Research Institute for Fisheries (CRIFI) of the Agency for Agricultural Research and Development (AARD), a semi-autonomous unit within the Ministry of Agriculture of the Government of Indonesia.

According to the introductory chapter: "This project was implemented in 1987 with one of its objectives being research directed at providing information to be considered in long-range fisheries development policy and planning. . . . The papers in this book are representative of the wide range of policy-related issues addressed by the FRDP." (p. 1) These range from development and management of fishery resources (including tuna, riverine resources, coastal aquaculture, and small-scale freshwater cage culture in reservoirs) to fishermen's cooperatives and the role of women in small-scale fishery development.

After briefly reviewing the content of several chapters, the editors conclude with the following statement:

The papers in this volume present the results of research that has [sic] important implications for decision makers. While research is supposed to be objective and value-free, it is very difficult to address issues such as environmental degradation and social equity without the appearance of advocacy for one position or another. Nevertheless, the research reported here was conducted objectively. The findings and their implications are presented for consideration by policy makers who must make difficult decisions involving trade-offs that have to be made in the development of Indonesia's fishery sector (. . .). The key consideration is sustainability. . . . The decisions are difficult and pressing, and only research can provide the rational basis for choosing between difficult alternatives. (pp. 3-4)

Economists might be troubled by an earlier statement regarding the term "sustainability" which states: "If the goal is sustainable development, then the level of investment must be at or below a harvesting level which can be sustained indefinitely." (p. 1) Although the editors (and authors) emphasize "sustainable development" and "social equity" as policy objectives for fisheries development,

nowhere are these terms ever satisfactorily defined nor illustrated in any practical context. One is left with the distinct impression that the *optimum* harvest policy is at or near the maximum sustainable yield and, therefore, by leaving it vague they need not have to defend its economic implications.

The social equity question is exemplified by stating: "Changes in the fishery, such as the introduction of new methods and technology, are often costly, and only those who are already wealthy can afford the changes, increasing the gap between the rich and the poor." (p. 3) It is not clear, then, how "long-range fisheries development policy" can better the lot of poor fishermen without somehow encouraging investments in new methods and technology which lead to increased productivity and higher incomes.

The first chapter written by Saila and Uktolseja (Tuna Resources Potential in Indonesian Waters) demonstrates use of a computer model (POPSYS) in seeking to determine the status of the skipjack tuna stock in three localized areas in eastern Indonesia. This chapter may be rather technical for policymakers in Indonesia and, in any case, is out of sync with the other chapters in the volume. Based on the limited data and analysis presented, one cannot readily accept their recommendation of an increase in the harvest level of skipjack of just 35 percent in all (or even, just, eastern) Indonesia. It is difficult to believe, for example, that any small scale skipjack fishery can be overfished using the pole and line method; and, by their own admission, the POPSYS model is not applicable to a large-scale pelagic fishery.

The chapter by Pollnac and Malvestuto (Biological and Socioeconomic Conditions for Development and Management of Riverine Fisheries Resources on the Kapuas and Musi Rivers) provides an overview of present conditions along these two river basin systems, although the descriptive detail covers mainly the former which is located in West Kalimantan and the latter in South Sumatra.

The paper is largely descriptive and leaves open important questions as to how to resolve negative impacts on fisheries along these rivers from commercial logging and deforestation, rubber and oil palm production, land clearing and food crops production, and chemical and fertilizer industries. Readers are also told that traditional fisheries management systems have evolved along the Kapuas River basin as a way of local self-management while access to fisheries resources along the Musi River is rented out by the government to the highest bidder. Economists would have hoped to see some commentary or analysis of any contrasting effects on management of the resources and the relative well-being of the fishers involved.

The chapter by Bailey and Zerner (Local Management of Fisheries Resources in Indonesia: Opportunities and Constraints) argues for local management of fisheries resources by so-called community-based management institutions. Except for two isolated case studies, no *general* framework is provided as to the structure of this form of organization and how it would resolve the basic problem of common property in a static efficiency sense. Even under a communal property regime along with seasonal closures and gear restrictions, which the authors propose as regulations, communal fishermen still have free access to the resource during the open season and thus would continue to impose external costs on each other.

This was eventually recognized in the United States after enactment of the 200-mile fishery zone which excluded foreign fishermen but allowed domestic

fishermen free access, and eventually led to proposals for individual transferable quotas—a form of imposed market solution which the authors seem to eschew. If efficiency is defined as using a minimum amount of effort to produce any given catch, then a community-based organization where every member of the community is allowed free access to the fishing grounds would probably not have efficiency as an objective.

No reference is made to any form of private property right as an alternative to local management of fishery resources. Indeed, transactions involving transfer of fishing rights are regarded as somehow unethical as the following passage indicates:

In the southeastern Maluku Islands (Aru and Kei), Indonesian entrepreneurs have succeeded in acquiring rights to community-owned fishing grounds through the advancement of loans to individual families during the monsoon season. The *petuanan* itself, or rights to harvest it, was the security for these loans. Once indebted, many families transferred their rights to these entrepreneurs. In some communities, outsiders have acquired sole rights to harvest local marine resources, resulting in loss of local control over the community's resource base. Recent studies in Aru and Kei islands document significant losses in income by local residents as a result of this transferral (. . .). (pp. 46–7)

One may ask how it is unethical, or unfair, for both sides to a voluntary transaction to receive consideration at least equivalent to the value of the property right given up?

Their preference for future use and the "long-term societal good" neglects the opportunity cost of not using the resources in the present, which should be factored into the equation. Benefits will be realized only over future time periods; therefore, they should be discounted to make them commensurate with currently imposed costs. What discount rate to use? In Indonesia, given the lack of developed capital markets, especially in remote regions, it could be quite high thus leading to heavily discounted future catch revenues.

In general, the paper seems to lack a fundamental familiarity with the concept of social cost under a common property regime. The essential point is not one of local control over local resources, but rather devising a legal-institutional structure which assigns property rights over resources such that users pay the full costs of using the resource for private gain. It is not crystal clear how a community-based management system automatically gives this result.

The following chapter by Bailey (Coastal Aquacultural Development in Indonesia) continues in the same normative mold:

The basic argument advanced in this paper is that the drive for increased foreign exchange earnings has tended to blind Indonesian policymakers and international donors to the negative social and environmental consequences of rapid development in shrimp aquaculture. (p. 57);

Government programs and policies, supported by international agencies, are directed towards increasing production in the most expeditious manner possible. This goal became increasingly critical after the trawler ban of 1980. Government programs have focused on intensification of production in areas where *tambak* already are in place, and extensification of production into new areas. Both strategies pose problems with regard to sustainability and distributional equity, . . . . (p. 65)

The author tends to confuse cause and effect regarding these latter two questions. It is noted, for example, that "many small-scale producers decided to lease their land to outside investors (usually urban entrepreneurs) who have the capital and technical resources necessary to intensify production. Small-scale land owners receive lump-sum payments from these investors, often for multiple year leases." Then, it is reported that "[h]igh stocking densities and heavy feeding create water quality and disease problems for neighboring producers." (p. 66) The implication is that the two problems of "sustainability" and "distributional equity" are inextricably linked; yet, it is not exactly clear why they should be.

The same type of cause and effect confusion permeates the chapter written by Zerner (*Development of the Small-Scale Freshwater Cage Culture Fishery in Reservoirs in Java: Legal, Environmental, and Socioeconomic Issues*). For example, referring to the Saguling Reservoir in West Java, the author states:

"Fisheries Service regulations stipulate that: (a) permission must be obtained for installation of cages; (b) only local inhabitants may receive permission to install cages; (c) permits cannot be transferred; and (d) permit holders may not install more than 4 cages. Further, both the provincial Fisheries Service and the Regency of Bandung have forbidden the addition of any more cages in Saguling Reservoir." (p. 76)

Obviously, the author fails to see that, because four cages (the quota) may not be the optimal scale *and* permits are not transferable, we have here a classic case for a transferable quota system which would allow permit holders to take advantage of any economies of scale and thus to operate more efficiently. To be sure, "[t]he regulation which limits fish farmers to 4 cages is not followed. In practice, farmers install between 2 to 20 cages based on their financial capability. One wealthy local producer was reported to operate 80 cages." Furthermore, limited permits has resulted in "lack of control over entry" and "overcrowding" in the cage culture industry with deleterious effects on water quality and an "increasingly severe, occurrence of fish kills." (p. 77)

There are two chapters dealing with fishermen's cooperatives. The first by Sembiring (*Fisheries Cooperative Development in the Cendrawasih Bay Area of Irian Jaya*) serves to underscore the fact that fishermen's cooperatives in Indonesia (with too few exceptions) have been woefully unsuccessful in assisting fisheries development in general and providing any significant realized benefits to members in particular. These can be traced to familiar factors relating to local government control, ineffective leadership, mismanagement, fiscal irresponsibility, and outright corruption by management officials who tend to serve their own interests to the detriment of the economic well-being and welfare of their members. This has led to widespread mistrust and lack of confidence in the cooperative form of organization among small scale fishermen.

The chapter by Lubis (*Factors Influencing the Success of Fishermen's Cooperatives in South Sulawesi*) is easily the best scientifically researched paper in the entire volume from the standpoint of methodology and analysis. Using correlation analysis, the author attempts to identify the significant factors which explain a cooperative's success or failure in Indonesia. Not surprisingly, the most important factors are related to management style and leadership. A few surprising results are that cooperative success is neither significantly related to marine biological and environmental factors nor to a composite measure of socioeconomic indicators, and is positively related to degree of development in areas where

cooperatives are located thus implying that rural cooperatives tend to be less successful. The author gives some insightful reasons for these results and concludes with policy recommendations which should be required reading in all government agencies involved with promoting cooperatives in Indonesia.

The last chapter by Upton and Susilowati (*The Role of Women in Small-Scale Fishery Development in Indonesia*) is a report on field research (over a period of two months) in various locations in West Java, Bali, and South Sulawesi on fishery-related activities involving women. From a questionnaire administered to respondents covering several fishing villages and communities in West Java and South Sulawesi, it was found that about 40 percent of the women were engaged in some form of post-harvest handling and processing activity (drying, salting, boiling, cleaning, sorting, freezing, etc.); fish trading with 31 percent was the second most common activity, the majority being small scale retailers. The recommendations and strategies with regard to policy towards enhancing the role of women in fisheries development follows closely a U.S. AID policy paper on women in development.

One cannot be overly critical of the topics and particular issues covered in this volume. The authors have undertaken diligent field research and provided interesting and informative case studies on important and relatively neglected aspects of fisheries development in Indonesia. However, in proposing new initiatives and policy recommendations, they obviously find it rather easy to make up a wish list of programs, many of which involve additional government expenditure and support. It is quite another matter to attach price tags to each program and analyze each in terms of their costs and benefits, including the tradeoffs with other relevant activities which should be taken into account in policy decisions affecting fisheries development.

Moreover, one might have expected a value-free set of hypotheses and policy proposals flowing through these chapters. Terms such as "sustainability" and "distributional equity" are pretty much left undefined and swayed by the authors' values or ethical beliefs. How does the concept of "sustainability" relate to the economic paradigm of a renewable resource under common property? How does the role of women impinge upon "sustainability" and community based management? Specifically, how does enhancing the role of women lead to better fishery development? What are the implications of the findings on cooperatives for an hypothesis on community based management? These, and other questions, should be addressed before "this research can provide the rational basis for choosing between difficult alternatives."

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