

Towards Improved Linkage Between Research and Management in Marine Fisheries

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This article provides an example of weak linkages between research and fisheries management, despite the pressure of many "actors" and institutions on both sides. Managers must learn to listen to scientists; the latter need to become entrepreneurial; and appropriate fora are required to bring the actors together.

To improve the weak linkage between research and management is one of the greatest challenges in today's marine fisheries. Although this issue is known virtually to everyone, it is less clear why it continues to exist, and what concrete efforts are being undertaken to remedy the situation. In

this article, I use the Philippines as the key example: not to single out one country but because of my first hand experiences. A government document reported that the five major problems still confronting Philippine fisheries are the: (1) resource depletion in the coastal zones; (2) widespread environmental dam-

age; (3) poverty among municipal fishers; (4) low aquaculture productivity; and (5) limited utilization of offshore and exclusive economic zone waters by commercial fishers.

It may be worth looking at the institutional dynamics of fisheries management to understand the problem. Fig. 1 illustrates the

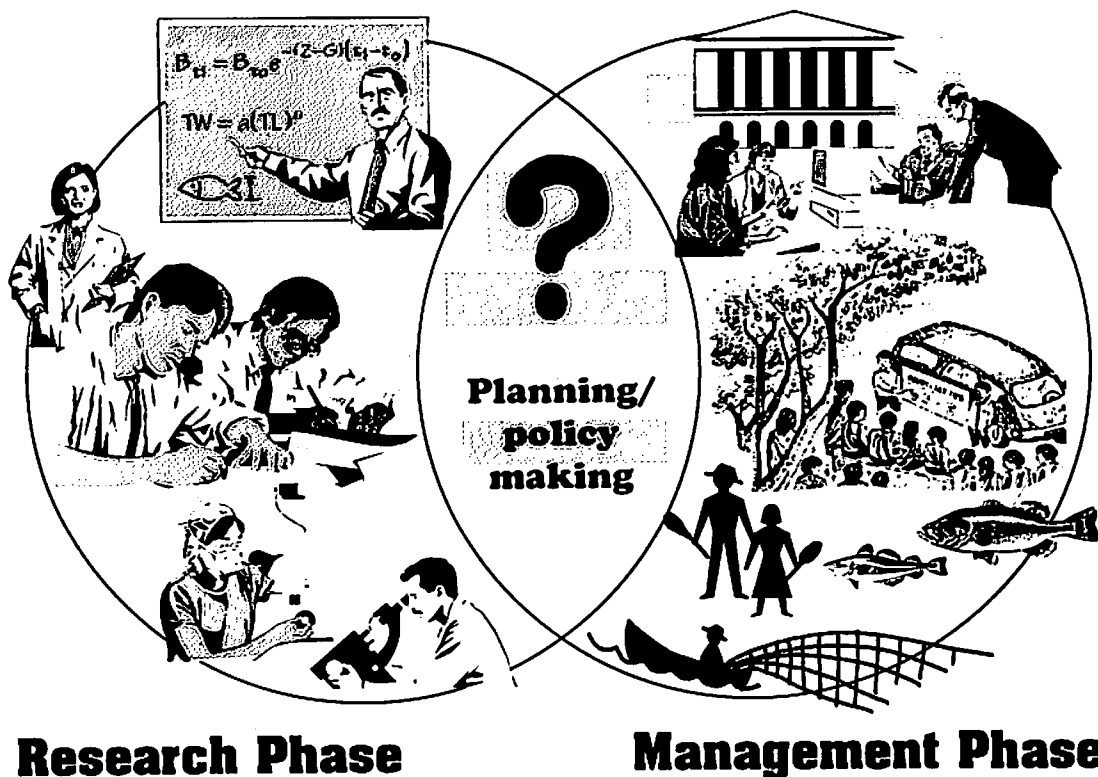


Fig. 1. An schematic of the research-management dynamics of Philippine marine fisheries.

current situation. The whole process is an evolving/developing system admittedly with enormous problems which are also faced by most countries with marine fisheries. The research phase is the stage where the scientists generate the necessary data or information to provide answers to certain management questions. The management phase is where the actual resource management activities are carried out. Some key actors are illustrated within each phase. Singly or in unison, these actors have influenced the way fisheries policies are formulated, and ultimately implemented in the field.

Between the research and the management phases is an overlap where planning and/or policymaking take place. Planning and/or policymaking may be visualized as a crucial "transformation" stage where the research results are transformed into guiding policies, programs and projects, usually in the form of management plans or policy papers. It is also during this stage where some critical activities are undertaken, such as the definition and reformulation of issues, establishment of evaluation criteria, identification of alternatives and assessment of their impacts, and choosing alternatives and packaging of management plans. This stage is signified by a bold question mark in Fig. 1 to signify the dynamic interactions of the various actors involved in fisheries management.

The actors for the research phase are mainly academic researchers and scientists from re-



Discussion with representatives of the community in the development of marine parks management plan, El Nido, Palawan, Philippines.

search institutions. The Philippines has a strong fisheries research subsector. Two key academic institutions within the University of the Philippines system are the Marine Science Institute (MSI) in Manila and the College of Fisheries in Iloilo, Visayas Region. Also in Manila is the Bureau of Fisheries and Aquatic Resources (BFAR), the main staff bureau of the government that also regulates the production and gathering of fisheries prod-

ucts, including licensing, conservation and investigation. Also situated in Iloilo is the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC), a research and development center known for its high quality research. Located in Los Baños, 60 km south of Manila, is the Philippine Council for Aquatic and Marine Research and Development (PCAMRD), which has a mandate to provide directions for research

and development of the fisheries and aquatic resources sector. ICLARM, an international center dealing with fisheries issues on a global basis, has its headquarters in Manila. These six institutions produce the bulk of marine fisheries research literature in the Philippines. In theory then, one would expect that all questions pertaining to the management of the marine fisheries could be addressed by the research teams of these institutions.

The actors on the management side may



One of the sessions of the San Miguel Bay Management Council (SMBMC) where ICLARM is an active research partner.



Participants to the workshop on "Fisheries Co-Management/Community-Based Resource Management" Cebu, July 1995.

countries, while government administrators, who directly supervise and/or evaluate fisheries related activities, contend that they have contributed their share.

The four major legal documents that guide fisheries management are the following: (1) 1987 Philippine Constitution; (2) Fisheries Act No. 4003 promulgated on 5 December 1932; (3) Presidential Decree (PD) 704 also known as the Fisheries Act of 1975; and (4) Local Government Code (LGC) of 1991 or Republic Act (RA) 7160. Aside from BFAR, other national agencies, such as the Philippine Coast Guard and the Department of Environment and Natural Resources, assist in the enforcement of fisheries laws and mangrove conservation, respectively. The past administration created in 1989 a Presidential Committee on Anti-Illegal Fishing and Marine Conservation or the *Bantay Dagat* Committee. At the local level, many municipal governments have formed multisectoral municipal enforcement teams often called Baywatch.

The fishing community which comprises the third group, has organized itself into organizations, mostly in the form of cooperatives. Many fishers' spokespersons claim that the best examples of community-based resource management (CBRM) in fisheries are found in the Philippines. They have attended many fisheries training courses and seminars, and have participated in many CBRM

projects, such as mangrove replanting and deployment of artificial reefs.

If all the key actors or stakeholders claim to have done their share, the nagging question is why marine fisheries in the Philippines have remained in poor condition, i.e., severely overfished. The majority of the one million small-scale fishers are either the poorest of the poor or live below the poverty line.



The Purok president gives his impression during the conduct of rapid appraisal of fisheries management system in Ulugan Bay, Palawan.

A closer look shows that all the actors are contributors to the continuing problem. First, the politicians and/or policymakers may not have the will to execute the recommendations of the scientists. A total of six bills and one resolution dealing with fisheries management have been filed and presented to the Senate Committee on Agriculture and Food since 1988 and there is now a proposed consolidated fisheries code. Yet after seven years, these have not yet been enacted into any law. Second, the recommendations of the scientists may be theoretically sound but cannot be implemented in the real world: they are simply not politically feasible. Some fisheries scientists are preoccupied with the conduct of basic research not relevant to management. Third, the government's administrative arm has overestimated its capacity to manage the country's archipelagic fisheries given its limited resources. Fourth, some local communities have been under the impression that CBRM is enough to manage the fisheries. The list can go on.

The fundamental issue remains, however, that the various actors have communication barriers or gaps. Some sectors have difficulty in communicating, while others have refused to communicate at all. Some scientists are purists who think that they have no responsibility whatsoever to transform their findings into policy, or to explain their results in language that is understandable to their clients. These



Effective fisheries management requires active participation by scientists, policymakers and fishers.

barriers or gaps. Some sectors have difficulty in communicating, while others have refused to communicate at all. Some scientists are purists who think that they have no responsibility whatsoever to transform their findings into policy, or to explain their results in language that is understandable to their clients. These researchers claim that their business is simply to do science, and that fisheries resource management is somebody else's job. On the other hand, many policymakers believe that they could ignore scientific information in policymaking. Some government administrators refuse to acknowledge that good science has a role in fisheries management, that it could not simply be governed by the art of public administration. Some fishing communities and organizations may be also at fault for "romanticizing" fisheries management, proposing that they are better off without government intervention, and also ignoring the exogenous factors that always come in the management equation.

This communication problem has resulted to a confusing situation. A case in point is when RA 7160 extended the boundaries of the municipal (essentially small-scale) fishing zone from 7 to 15 kilometers from shore. While this was a politically popular move, it appeared that there was minimal consultation with the fisheries scientists. The biological and resource protection implications were not adequately considered.

Appropriate fora or avenues must be established where the various actors can communicate. But there are prerequisites for planning and/or policymaking to link research and management effectively. It involves some form of value re-orientation. For one, the fisheries scientists as analysts must become "entrepreneurs." Richard Tobin, a noted political scientist at the Winrock International Environment Alliance, has defined such entrepreneurs as analysts who: (1) are concerned with the rigorousness of science and methodological correctness; (2) possess high political skills, i.e., are sensitive to the political realities; and (3) have excellent personal relations with their clients. The researchers should demystify science and must be accessible to the government administrators and local communities. Although their main role is to produce good science, they should be actively involved in the planning/policy making arena to be effective change agents. I think the researchers should be the most enterpreneurial because they have the least at stake from the consequences of certain management decisions: the fishers may starve while the politician may lose the vote of his or her constituency.

Similarly, politicians and government administrators must be willing to listen to the wisdom of science. Fisheries management, to be effective, can no longer be done by simple intuition or on an *ad hoc* basis. The local

communities must also participate in what has been called a "collaborative" mode. Stephen Biggs of the International Service for National Agricultural Research (ISNAR) has defined this as a type of participation where scientists and farmers (fishers) collaborate as partners in the research (management) process. In the Philippines, the participation of farmers and certainly of fishers, has been more in consultative and contractual modes. Under the collaborative mode then, the fishers should interact actively and continuously in both the fisheries research and management processes.

My own experience at ICLARM has given me enough reasons to be hopeful. I have been serving since 1993 as ICLARM's representative and technical adviser to the San Miguel Bay Management Council (SMBMC), a multisectoral and multilevel organization that directs the management of San Miguel Bay in the Bicol Region. (ICLARM is represented in recognition of its research efforts in the area since 1980.) The SMBMC is an eye-opener about the difficult management problems being faced every day by fisheries administrators, concerns from which researchers are normally shielded. In our fisheries co-management training and workshops over the last two years, I have observed that politicians, government administrators and local communities are willing to work with the scientific community in attaining the sustainable management of marine fisheries resources.

All the actors must extend themselves beyond their conventional roles. It must be recognized that as the actual situation with fisheries gets more critical, then all parties must start to seek each other more deliberately, e.g., fisheries managers to get scientists advice, researchers to provide realistic management options, fishers to be active collaborators in various projects, etc. This may be the only effective way towards improved linkage between research and management in marine fisheries.

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Errata to Naga, the ICLARM Quarterly, Vol. 18, No. 3, July 1995:

In Michael D. Pido's article, "Towards improved linkage between research and management in marine fisheries," the last paragraph on p. 16 should read:

"The actors on the management side may be broadly grouped into three: (1) the politicians, (2) the government administrators, and (3) the local communities. The politicians come from both the legislative and executive branches of the government. They claim that they have come up with landmark legislation comparable, if not better than other Asian countries, while government administrators, who directly supervise and/or evaluate fisheries related activities, contend that they have contributed their share."

On p. 17 of the same article, the last seven lines on the third column were inadvertently repeated in the following page, and should be deleted.

The article on p. 47 "*Tarpon atlanticus* in Colombia: a big fish in trouble" by Camilio B. Garcia and Oscar D. Solano, the word "juvenile" which appears on the bottom right of Fig. 1 should also be deleted.