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# CRM in the Philippines: Lessons learned

Aquaculture Department, Southeast Asian Fisheries Development Center

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## In perspective

Author **Frederick J. Vande Vusse's** views are based on association with a series of projects that have been implemented in the Philippines over the past 15 years. Each project had or has a component intended to address coastal resource management issues. The project names, years of operation and funding institutions are —

- ✓ **Sumilon island Project**, 1975-82, Silliman University Marine Laboratory;
- ✓ **Central Visayas Regional Project**, 1984-92, World Bank
- ✓ **Marine Conservation and Development Program**, 1984-1986, United States Agency for International Development (USAID)
- ✓ **Rainfed Resources Development Project**, 1989-91, USAID
- ✓ **Forestry Sector Project**, 1988-92, Asian Development Bank (ADB)
- ✓ **Fisheries Sector Program**, 1990-94, ADB; and
- ✓ **Forestry Sector Project**, 1992-94, ADB.

Mangrove rehabilitation components are found in the two forestry projects, the Sumilon island and Marine Conservation and Development Projects focused on coral reef management, while applicable components of the others covered a broader range of coastal habitat and fishery issues. The author is connected with the Office of Natural Resources, USAID. Excerpts of his paper published in the conference proceedings about coastal cooperation follow. - *Eds.*

# CRM

Projects that require changing people's attitudes and the integration of technical, social and governance activities are among the most difficult to implement. Successes, when they occur, are often only partial and post project sustainability is proving to be an elusive goal in this relatively new field. The following is a brief treatment of some experiences in coastal resource management (CRM) to date:

## Control of illegal fishing

Most fishermen do not approve of the use of explosives (or cyanide) to harvest fish. They understand that these activities are illegal, dangerous to their health and destructive to future fish harvests in the area. As individuals, they have great difficulty taking effective action. However, when organized as a community and supported by local government, they can effectively end dynamite and cyanide fishing by area residents. Fishermen from outside the community using illegal methods can also be stopped in most cases if local government support for community action is rapid and sure.

The control of blast fishing has two immediate effects. One is the reallocation of catch and income from illegal fishermen. The second, as reported by fishermen in a number of sites but not yet scientifically documented, is a fairly rapid increase in both fish numbers and diversity. This would suggest that fish tend to avoid areas where underwater explosions occur frequently and return only when this activity is stopped. These benefits are readily apparent to the fishermen using legal methods.

Control of the use of cyanide for the collection of aquarium fish has been supported by training in the use of barrier nets and the establishment of cyanide testing laboratories in several key cities. Both activities are the work of the International Marinelife Alliance. Trainees find that they can catch the same species of aquarium

# ***in the Philippines: lessons learned***

fish in the same quantities with barrier nets as they did with a cyanide solution squirted into coral crevices. Long-term survival rates of fish caught with nets are much higher and coral is not killed in the process of capture. Random sampling of aquarium fish for cyanide testing prior to issuance of export permits is beginning.

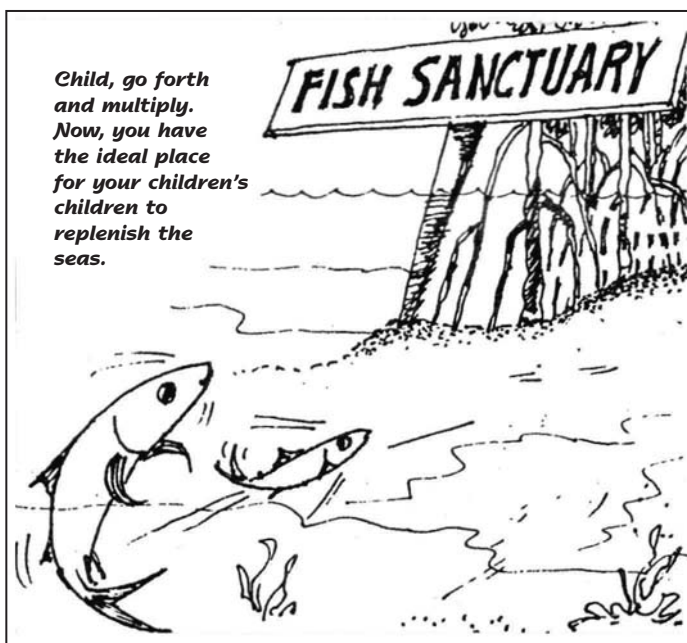
## **Coral reef management and reef sanctuaries**

One of the oldest and best documented activities began in 1974 at Sumilon Island near the southern tip of Cebu. Fishermen from the mainland who fished around this small (50 hectares) uninhabited island agreed to protect all of the coral reefs and to establish a marine sanctuary that included 17% of the island's total coral reef area. Over the next six years, the total catch of coral reef fish at Sumilon doubled to more than 20 tons per km<sup>2</sup> per year and continued to increase until the management system broke down in 1984. Then the sanctuary was repeatedly violated with coral destructive fishing methods and reef fish harvests declined by 50% over the next five years. Although this breakdown in the management system was not planned, monitoring results clearly show the value to the fishermen of coral reef protection combined with sanctuary establishment. Fish harvests doubled at Sumilon while they were declining everywhere else.

The Marine Conservation and Development Project of Silliman University sought to convince the residents of three small densely populated islands in the Central Visayas of the value of coral reef protection and sanctuary establishment. One of the islands was Apo in southern Negros Oriental. Silliman Marine Laboratory staff had

been trying unsuccessfully for several years to convince islanders to establish a sanctuary. It was only after resident community organizers spent one year gaining community trust and assisting the residents to understand reef ecology and appreciate the benefits they could derive from reef conservation that the islanders adopted the project as theirs, not Silliman's, and established a sanctuary in 1985. Fish harvests have increased and the sanctuary is still being maintained by the Apo community some nine years later. Apo has now become a major tourist destination because of its beautiful reefs and abundant fish. However, large numbers of tourists have now replaced dynamite and cyanide as major threat to the reefs.

The Central Visayas Regional Project (CVRP) sought to apply these learnings on reef conservation and expand coverage to include other coastal habitats. Activities included the control of dynamite fishing, mangrove forest

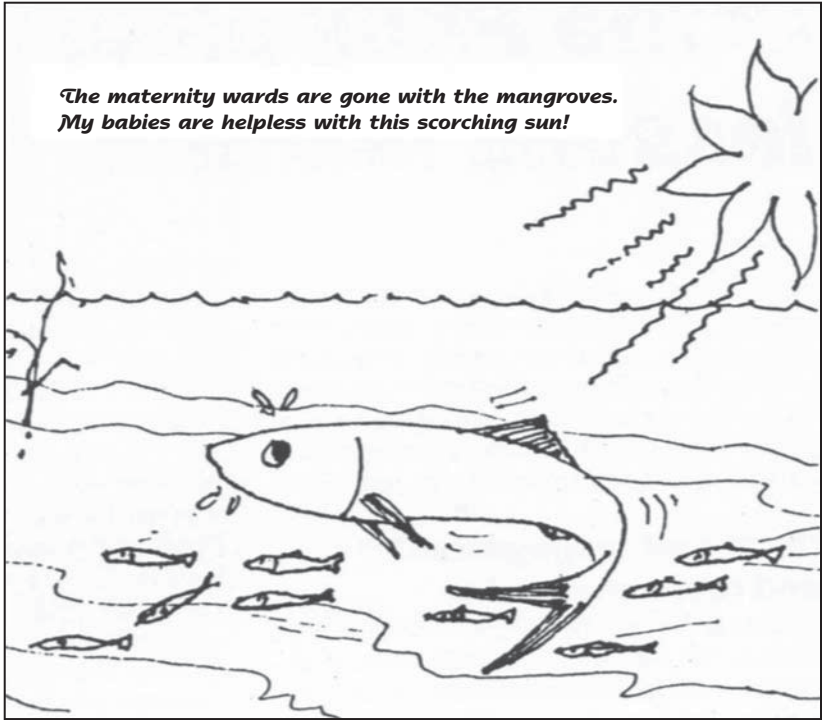


management and artificial reef placement in addition to coral reef protection and sanctuary establishment. These were carried out at five sites that each ranged in size from two to six municipalities. Community development activities focused on assisting the community to learn how to work together to improve the management of their coastal resources. It soon became apparent that the very fishermen who were causing resource management problems could become protectors and proficient resource managers if given the opportunity.

Cross visits by fishermen from CVRP sites to the existing sanctuary at Apo Island proved to be a very effective tool for convincing the visitors to establish marine sanctuaries in their home village. Fishermen who have experienced with and are actively using a resource management technology are among the very best extension agents. A total of 27 marine sanctuaries were established under CVRP and many are still being protected by local fishermen several years after project completion. Most sanctuary failures resulted from hasty establishment by local officials before strong community support was developed or from a lack of enforcement of sanctuary regulations by local officials.

A major constraint facing all of these municipal level marine sanctuaries was the lack of a formal legal basis for their existence. This resulted from difficulties in getting the required central government approval. Enforcement of sanctuary regulations relied heavily upon the strength of fishermen's organizations and the cooperation of local government officials who were reluctant to act without a solid legal basis. Under the Local Government Code of 1991, municipal governments can now establish marine sanctuaries without approval by the national government.

*The maternity wards are gone with the mangroves.  
My babies are helpless with this scorching sun!*

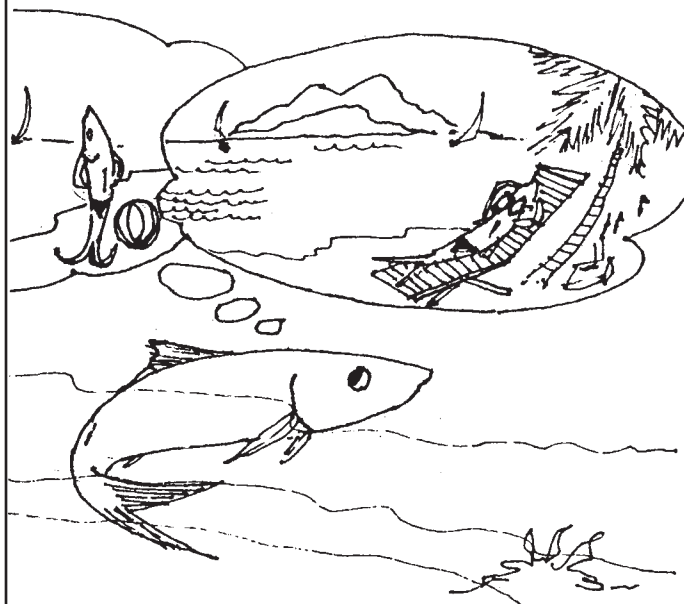


A marine sanctuary is elegant in its simplicity. An area is totally closed to harvest. There are no rules on harvest or gear limits that are easy to violate. A sanctuary is the least difficult form of harvest management to implement. It should also be noted that the greatest potential for increasing capture fishery harvests in the Philippines rest with the coral reef fishery.

## **Mangrove rehabilitation and management**

Coastal residents proved eager to rehabilitate and manage mangrove forests. They are aware of the importance of mangroves in shoreline protection and to the coastal fishery. They have seen their catch decline when the large mangrove areas were cleared for fishpond development. The Department of Environment and Natural Resources (DENR) also began to provide Stewardship Agreements (a 25-year renewable lease) under CVRP in 1984. Providing secure tenure to one individual in return for maintaining that area as forest effectively created one new forest guard for every few hectares of mangrove at minimal cost to government. However, Stewardship Agreements were re-

*I have two choices for a summer sojourn:  
SUMGOLON or APO. Hmmm ... what's  
this I hear about Malalison?*



stricted initially to open areas that required reforestation or afforestation. Existing forest was not removed from the commons, made available for management and placed under the care of specific individuals.

Mangrove planting was eagerly adopted by coastal residents but long-term success rates are less than 50% because of physical and biological factors not yet fully understood. Requiring participants to plant mostly outside of natural mangrove habitat was clearly a factor. In addition, while CVRP participants planted nearly 1000 hectares of new mangroves, illegal fishpond developers destroyed more than 1000 hectares of existing forest in the same project sites. This could have been avoided if Stewardship Agreements had been available for existing forest areas from the beginning. This set of problems was carried over into the Forestry Sector Project with similar results.

In 1991, coastal residents were allowed to begin management of existing degraded mangrove forest under a Mangrove Stewardship Agreement at the DENR's Rainfed Resources Management Project coastal site in Bohol. Se-

lected seed trees are being allowed to grow to encourage natural regeneration while others continue to be used for fuelwood and poles. Forest quality and the number of naturally occurring seedlings have both improved substantially. The DENR has now shifted its emphasis away from straight reforestation to the rehabilitation and management of existing forests in its other programs.

## Artificial reefs

Artificial reefs (ARs) are intended to provide immediate habitat that will allow new reef fish populations to develop. CVRP had the first large scale AR program in the country and over 70,000 m<sup>2</sup> of bamboo and concrete ARs were constructed and installed by fishermen between 1984 and 1991. The project went to great lengths to insure that fishermen could construct and place AR modules without specialized equipment (e.g., SCUBA) and to minimize AR module cost. (See page 22 for the argu-

ment against the use of bamboos and tires as ARs. -Eds.)

Artificial reefs proved very effective in demonstrating to fishermen the relationship between the presence of reef habitat and reef fish populations. This increased their willingness to protect natural coral reefs and establish reef sanctuaries. It also produced a sense of accomplishment when they saw that their efforts could improve the local fishery.

## Mariculture

Culture of a number of species (including oyster, green mussel, seaweed, snapper and grouper) was tried as a means of intensifying production and increasing fishermen income. Sustainable economic successes were few. The most important learnings are that each mariculture activity requires a very specific combination of ecological and economic factors to succeed. In most locations, many more people will benefit from an active program of capture fishery rehabilitation and management than from mariculture.



## Community organization

Community organization is a process, the "glue" that holds a program together. It is essential to developing the long-term sustainability every community-based resource management program hopes to attain. Small-scale fishermen know they have a problem but feel helpless as individuals to address *de facto* open access. Community organization assists them to identify and prioritize their problems and needs, and to begin to work together to meet priority needs. When mastered, the problem solving process can be applied to other development needs. Local government must be fully involved as their cooperation, or lack of it, can make or break a project. Community organization should not be viewed as a separate activity, something that is used only at the start of a project and that is not fully integrated with resource management activities.

## Targets and process

Sustainable successes in coastal co-management require changing people's attitudes and assisting them learn how to better manage their productive resources. This is a process of human development that can lead to quantifiable improvements in resource management. Unfortunately, monitoring in many projects focuses on physical accomplishments without requiring that the processes leading to long-term sustainability be used to achieve those results. Physical accomplishment targets can be met much more easily without this time-consuming development process but the results are seldom if ever sustainable.

The use of financial incentives must be handled with great care. They are all too often viewed by fishermen as a government dole and by project workers as a means of attracting the fishermen needed to meet project targets. Both attitudes work against the development of sustainable resource management. Several of the projects cited have demonstrated that even the poorest fishermen are willing to donate their labor for activities they believe will improve their fishing livelihood or their community. This sacrifice promotes a sense of "ownership" of the activity and thus strengthens their commitment to sustainable resource management.

## The role of government

It is important for government agency workers to realize that fishermen are the real day-to-day managers of coastal resources and that the role of their agency is mostly one of managing people who use resources rather than the resources themselves. The workload assigned to most government extensionists often precludes their spending enough time in any one village to foster sustainable community development. Workers from development-oriented NGOs are often better suited for this task. A more appropriate government role may be to support community initiatives and provide a realistic regulatory framework.

## Summary

Philippine coastal communities can become capable fishery resource managers and that their management practices can become largely self-sustaining if the project approach focuses on **assisting fishermen to learn how to help themselves.** (*Underscoring supplied. - Eds.*) Community organization is an essential part of the process and should not be viewed as an end product in itself. There are also no quick fixes, and projects require a complex array of activities if large numbers of coastal residents are to be assisted.

In some of these projects, the control of illegal fishing combined with limiting of commercial fishing to offshore areas and good coastal habitat management resulted in a doubling of daily fish catch and income for small-scale fishermen. However, even with the best of management, the total fishery harvest is limited and further increases in individual fishing income can only come from reducing total fishing effort. This will require a system of control on access to the resource to limit the number and kind of fishing gears and to divide the resource equitably. Assisting coastal communities to devise and implement realistic equitable access controls is the major challenge facing coastal resource co-management.

Source: PG Wells and PJ Ricketts (eds). 1994. **Coastal Zone Canada '94: Cooperation in the Coastal Zone.** Conference Proceedings Vol. I. Coastal Zone Canada Association, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada.