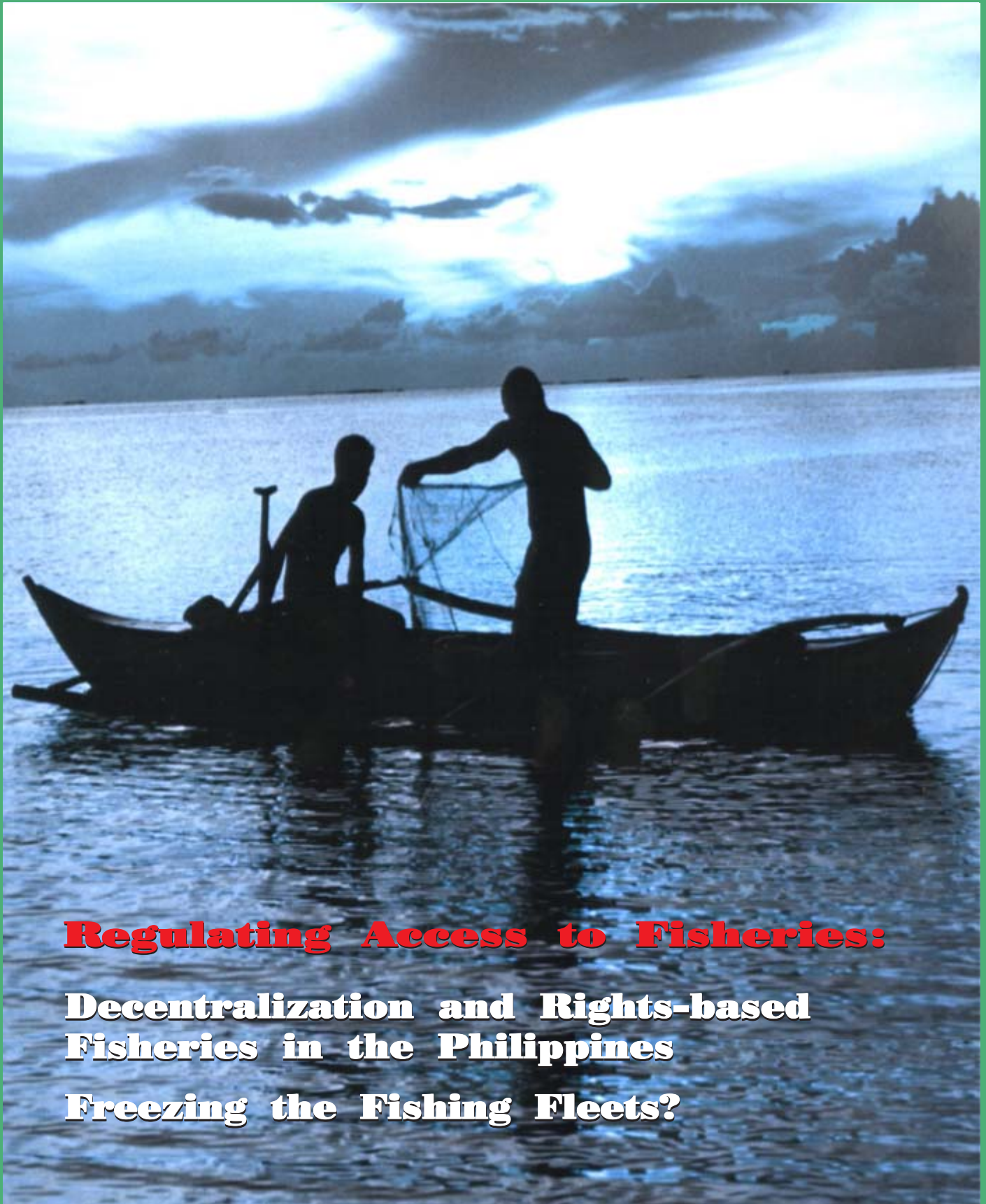


# FISH *for the* PEOPLE

A Special Publication for the Promotion of Sustainable Fisheries for Food Security in the ASEAN Region

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## **Regulating Access to Fisheries:**

**Decentralization and Rights-based Fisheries in the Philippines**

**Freezing the Fishing Fleets?**



Southeast Asian Fisheries Development Center

## EDITORIAL

“There are too many people chasing too few fish” is the often-repeated description of coastal fisheries in the Southeast Asian region. And indeed, even during a short visit to the coastlines of the region, we are confronted with numerous issues and problems that appear to stem from the over-exploitation of coastal aquatic resources. Everywhere in the region, fishermen are struggling to cope with decreasing catches and the consequences of deteriorating coastal ecosystems. And while both the quantity and the quality of catches are decreasing, the number of fishermen apparently continues to grow, as fishing is widely seen as an opportunity to provide employment and income, or at least some basic element of the daily dietary needs. Fishers’ common reaction to the mounting problems they face is to increase their effort to catch fish.

It is widely accepted, that the underlying system of open access to fisheries resources needs to be replaced by regulated access, through the establishment of some system of rights-based fisheries. For the predominantly small-scale fisheries of the Southeast Asian region, it is commonly thought that use rights systems should be built around some form of community rights. Such an approach would entail the delegation of some fisheries management functions to fishing communities, giving them the authority (or the right) to decide where, when, and how a fisher is allowed to fish. But in many communities, the open-access nature of fisheries is deeply ingrained culturally and socially. This means that the introduction of rights-based fisheries systems to regulate the access to and the use of fisheries resources needs to be based on a long process of dialogue with the community, awareness creation and community organization before the community might accept any form of access regulation to fisheries.



*Small-scale fishermen in the Philippines (courtesy of Mr. Zoilo Aquino, FRMP/BFAR)*

This issue of *Fish for the People* focuses on questions surrounding the regulating of access to fisheries. The first article of the Special Feature discusses the approach of the Philippine Fisheries Code to regulating access to fisheries resources at the municipal level, and introduces one example of community organization and involvement in coastal resources and fisheries management, which eventually may lead to the establishment of a rights-based fisheries system. The article shows that an intensive,

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continuous dialogue and consultation between coastal communities, local governments, fisheries and coastal resources management experts and other stakeholders can actually lead to changes in the way, coastal resources are used.

The article by Olivier Delahaye Gamucci argues that avoiding a further increase in fishing effort by freezing the number of boats and people engaged in fishing is an important first step in adjusting fishing capacity to the carrying capacity of the ecological resource base.

In his article on Human Resources Development, Magnus Torell points out that traditional fisheries management institutions as well as communities first need to have the capacity to actually initiate and carry out the changes in fisheries management approaches required for the introduction of such rights-based fisheries systems.

As a Country Story on the Philippines, Kai Klummann describes community-based coastal resource enhancement efforts in the Philippine province of Aklan. It is a story of capacity building at the local level, and may just be the foundation for establishing use rights and other regulatory systems for coastal fisheries that are supported and implemented by the community. In due course, these may even result in freezing the number of municipal fisherfolk, through applying the Fisheries Code's provision of establishing and maintaining registries of municipal fisherfolk.

With these articles, we hope to give readers some insights into how open access might gradually be replaced with some form of regulated access to fisheries resources. We are aware that in the Southeast Asian region there are many other approaches and initiatives for making coastal fisheries more sustainable. We would like to invite you, our readers, to share your views and experiences in local level fisheries management. If you know stories like the one about the coastal communities in Aklan, do not hesitate to send them to us, via email: [fish@seafdec.org](mailto:fish@seafdec.org)

Theo Ebberts

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**FISH for the PEOPLE** is a special publication produced by the Southeast Asian Fisheries Development Center (SEAFDEC) every four months as part of the ASEAN-SEAFDEC Special 5-year Program to promote sustainable fisheries for food security in the ASEAN region.

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# Regulating Access to Fisheries

## Making the Law Work: Decentralization & Rights-based Fisheries in the Philippines

by Theo Ebbers

Photo: courtesy of TD/Audio-Visual Section

### Introduction

The decentralization of fisheries management, together with increased community involvement, has in recent years been a mantra for fisheries managers and scientists. Pointing to declining and collapsing fish-stocks, they claim that conventional fisheries management approaches have failed. The new paradigm of fisheries management asserts that only the delegation of some management functions and responsibilities to fishing communities and other resource users can reverse the trend of ever-decreasing fish catches. Such community-oriented approaches focus on the establishment of locally-based fisheries management, widely considered to be the most appropriate system for the tropical small-scale fisheries typical of Southeast Asian countries (see Fikret Berkes et al., 2001, for an example and excellent summary of community-oriented approaches to coastal and small-scale fisheries management).

**“The Philippines is [...] the country with the most advanced and innovative institutional and legal framework for locally-based fisheries management.”**

Most ASEAN countries now claim to have adopted such an approach to fisheries management. The Philippines is the most frequently cited example, and is the country with the most advanced and innovative institutional and legal framework for locally-based fisheries management. The Philippine Fisheries Code of 1998 is often seen as a model upon which the legal framework for small-scale coastal fisheries management in other countries of the region could be shaped. Only recently have some critical voices started to question the Philippines’ experiments in the decentralization of and community participation in fisheries and coastal resources management (see for example, Pollnac et al, n.d.).

**“Over the past couple of decades, participatory coastal resource and fisheries management projects in the Philippines have proliferated.”**

This article takes a look at participatory coastal resources management approaches in the Philippines, and looks to summarize the lessons to be learned from these experiences. The article is based both on a review of relevant literature and on personal knowledge from working with coastal communities in the Philippines.

## **A Coastline under siege**

Over the past couple of decades, participatory coastal resource and fisheries management projects in the Philippines have proliferated. Promoted by various institutions and interest groups, there is almost no coastal community left that has yet to encounter these coastal resources management activities. To paraphrase Alan White and colleagues, the Philippine coastline is “under siege” from a variety of coastal management activities, addressing “declining fisheries, mangrove forest and coral reef destruction, and poverty among coastal communities.” (White et al., n.d.).

One would expect that this surfeit of coastal management initiatives would have resulted in some observable improvements to the coastal environment in terms of fish stocks and populations, critical coastal habitats like coral reefs and mangrove forests, or poverty alleviation among coastal communities. But two recent publications on the state of fisheries and coastal resources in the Philippines (Alvarez, 2002; Green et al., 2003) paint a gloomy picture, and with catch per unit effort (CPUE) levels declining at alarming rates, “all of the Philippines’ main fish species and marine organisms...[show] severe signs of overfishing,” coral reefs and mangrove areas still experiencing further reduction.

**“Recent publications on the state of fisheries and coastal resources in the Philippines paint a gloomy picture, with CPUE levels declining at alarming rates”**

So have these many coastal resources and fisheries

management efforts been in vain? If the overriding objectives and goals of all these coastal initiatives and efforts is the establishment of sustainable coastal fisheries and resources management systems, where have they gone wrong? Why – despite all the local and community-based participatory management efforts – do the negative trends of declining fish catches and environmental degradation persist? Why are the few projects and initiatives that are considered successful not been replicated elsewhere?

## **The quest for sustainable coastal resources management systems**

A closer look at the Philippines’ approach to the decentralization of coastal fisheries and management, together with its underlying policies and legal framework, will provide some tentative answers to these questions and suggest ways to increase the success and sustainability of local-level coastal zone management efforts.

Various recently published case studies attempt to identify the factors that contribute to the success of local-level participatory or community-based coastal fisheries and resources management efforts. Although the evaluation of the success of each project and management initiative needs to be conducted within its own objective framework, such as protection and rehabilitation of critical coastal ecosystems and resources, it is safe to say that the overriding objectives of most projects lies in the quest for sustainable coastal resources management systems.

## **The Philippines’ legal framework for coastal resources and fisheries management**

The legal framework for coastal resources and fisheries management in the Philippines is comprised of several laws. The two most important of these, quoted in most of the significant literature on fisheries management in the Philippines, are the Local Government Code of 1991 and the Fisheries Code of 1998. Other important laws and regulations impacting on coastal fisheries and resources management are the NIPAS Act, the AFMA, and various other laws and administrative orders.

The Local Government Code of 1991 delegates authority to manage coastal resources to local government units (LGUs) or municipalities, which under this law are responsible for protecting the natural environment and its sustainable use. Section 149 of the Code empowers the municipalities to regulate fishing operations in coastal or “municipal” waters. Thus, municipalities have “the exclusive authority to grant fishing privileges in the municipal waters ...” (sect. 149a), with the municipal council having the right to issue permits for aquaculture operation and municipal fishing boats (i.e. boats which are smaller than 3 GT) in municipal waters (sect. 149b).

**“With these provisions, all functions and responsibilities for small-scale coastal or municipal fisheries have already been delegated to the local administrative level.”**

On a wider issue, section 447 of the Code makes it mandatory for the municipal council, to “Protect the environment and impose appropriate penalties for acts which endanger the environment, such as dynamite fishing and other forms of destructive fishing, illegal logging and smuggling of logs, smuggling of natural resources products and of endangered species of flora and fauna, slash and burn farming, and such other activities which result in pollution, acceleration of eutrophication of rivers and lakes, or of ecological imbalance...”(sect 447, 1vi).

With these provisions, all functions and responsibilities for small-scale coastal or municipal fisheries have already been delegated to the local administrative level. The Philippine Fisheries Code of 1998 actually further specifies the responsibilities and management functions of the LGUs with regards to the usage of coastal waters and resources. Of special interests are the provisions regarding municipal fisheries and the establishment of Fisheries and Aquatic Resource Management Councils (FARMC) in each coastal municipality.

### The Fisheries Code’s provisions regarding Municipal Fisheries

Section 16: The **municipal/city government shall have jurisdiction over municipal waters** as defined in this Code. The municipal/city government, in consultation with the FARMC shall be responsible for the management, conservation, development, protection, utilization and disposition of all fish and fishery/aquatic resources within their respective municipal waters.

The municipal/city government may, in consultation with the FARMC, enact appropriate ordinances for this purpose and in accordance with the National Fisheries Policy...

The LGUs shall also enforce all fishery laws, rules and regulations as well as valid fishery ordinances enacted by the municipal/city council...

Section 17: **Grant of Fishing Privileges in Municipal Waters.** Duly registered fisherfolk organizations/ cooperatives shall have preference in the grant of fishery rights by the Municipal/City Council,...

Section 18: **Users of Municipal Waters.** All fishery related activities in municipal waters, as defined in this code, shall be utilized by municipal fisherfolk and their cooperatives/organizations who are listed as such in the registry of municipal fisherfolk.

Section 19: **Registry of Municipal Fisherfolk.** The LGU shall maintain a registry of municipal fisherfolk, who are fishing or may desire to fish in municipal waters for the purpose of determining priorities among them, of limiting entry into the municipal waters, and for monitoring fishing activities and/or other related purposes...

The LGU, in consultation with the FARMCs, shall formulate the necessary mechanisms for inclusion or exclusion procedures that should be most beneficial to the resident municipal fisherfolk.

Section 20: Fisherfolk organizations/cooperatives whose members are listed in the registry of municipal fisherfolk, may be granted use of demarcated fishery areas to engage in fish capture, mariculture and/or fish farming...

Section 21: Resident municipal fisherfolk of the municipality concerned and their organizations/cooperatives shall have priority to exploit municipal and demarcated fishery areas of the said municipality.



## Of fisherfolk councils

The Fisheries Code is very clear about the roles, functions and responsibilities of the local government with regards to the management and utilization of coastal aquatic resources. These provisions of the Local Government Code and the Fisheries Code entail a total decentralization of small-scale, non-commercial fisheries management functions to the local, i.e. municipal, level. Under this law, the municipality/city has the sole jurisdiction and authority to manage and regulate the usage of coastal waters and resources.

**“It is mandatory for the local government to consult with these [stakeholders] councils before enacting local legislation regarding the use and management of coastal resources.”**

With the introduction of FARMCs, the Fisheries Code adds an element of community participation to the already localized coastal fisheries and resources management. These councils, which comprise fisherfolk and other community representatives as well as local

### The Code’s provisions on FARMCs

**Section 68.** Fisherfolk and their organizations residing within the geographical jurisdiction of the *barangays* (village, the administrative level below municipality), municipalities or cities with the concerned LGU shall develop the fishery aquatic resources in municipal waters and bays.

**Section 69.** FARMCs shall be established at the national level and in all municipalities/cities abutting municipal waters, as defined by this code. FARMCs shall be formed by fisherfolk organizations/cooperatives and NGOs in the locality, and they shall be assisted by the LGU and other government entities. Before organizing FARMCs, the LGUs, NGOs, fisherfolk and other concerned persons shall undergo consultation and orientation on the formation of FARMCs.

**Section 74.** The Municipal/City FARMCs shall exercise the following functions:

- a) assist in the preparation of the Municipal Fisheries Development Plan and submit such plan to the Municipal Development Council
- b) recommend the enactment of municipal fishery ordinances to the *sangguniang bayan/sangguniang panlungsod* (Municipal/City Council, the elected governing body of the LGU) through its committee on fisheries;
- c) assist in the enforcement of fishery laws, rules and regulations in municipal waters;
- d) advise the *sangguniang bayan/panlungsod* on fishery matters through its committee on fisheries, if such has been organized; and
- e) perform other such functions which may be assigned by the *sangguniang bayan/panlungsod*.

**Section 75.** The regular member of the Municipal/City FARMCs shall be composed of:

- a) Municipal/City Planning Development Officer
- b) Chairperson, Agriculture/Fishery Committee of the *Sangguniang Bayan/Sanggunian Panlungsod*
- c) Representative of the Municipal/City Development Councils
- d) Representative of accredited NGOs
- e) Representative of the private sector
- f) Representative of the Department of Agriculture; and
- g) At least eleven fisherfolk representatives (seven municipal fisherfolk, one fishworker and three commercial fishers) in each municipality/city.

The Council shall adopt rules and regulations necessary to govern its proceedings and election.



government representatives, make suggestions on coastal fisheries management issues and approaches to the local government. It is mandatory for the local government to consult with these councils before enacting local legislation regarding the use and management of coastal resources. Under this provision, the fisheries code ensures that fisherfolk are heard in establishing local legal frameworks for fisheries management.

The provisions of the Fisheries Code of 1998 ensure that fisherfolk representatives constitute the majority of each FARMC, increasing the chances that their concerns will be addressed as priority issues. The Fisheries Code thus not only establishes a strong co-management framework for local level fisheries management, in which government institutions and the fishing community are tied together to manage their coastal fisheries resources, but at the same time provides a basis for a user-rights based fisheries management system. The code is very clear in that each municipality is supposed to maintain a registry of municipal fisherfolk, with only those registered being allowed to fish, and these registries being compiled in close cooperation and coordination with the representatives of each fishing community, i.e. the FARMC. This is a clear departure from the prevailing open-access system to fisheries.

**“The Fisheries Code thus not only establishes a strong co-management framework for local level fisheries management (...) but at the same time provides a basis for a user-rights based fisheries management system”**

## So does it work?

The legal framework for fisheries management in the Philippines seems to meet most, if not all, of the major requirements for modern, innovative, small-scale coastal fisheries management. The management authority has been delegated to the local level. Mechanisms to ensure community participation are formalized. The numerous coastal resources management initiatives that have proliferated along the Philippine coastlines over the past decades now have a supportive legal framework that should enhance the probability of their success. According to a report by the Bureau of Fisheries and



Aquatic Resources (BFAR), “To date, fisherfolk in 94 percent of the coastal municipalities nationwide had been organized either as a municipal or city fisheries and aquatic resource management councils, or M/C FARMCs. Numbering 953, these councils are pursuing activities on capability building; formulation of municipal fishery ordinances; implementation of livelihood development projects; law enforcement and networking with government agencies, NGOs and other stakeholders. It is also worth noting that more and more LGUs are supporting the role of these

councils in local governance.” Recent fisheries statistics published by BFAR show a small but steady increase in fish production since 2000, not only from aquaculture, but also from marine capture fisheries.

Though it is not clear whether these increases reflect actual trends in marine capture fisheries in the Philippines or are just caused by changes in the reporting system and statistical methods, the reported boost in municipal capture fisheries may have been caused partly by the implementation of the Fisheries Code. After



commercial fishing activities have been banned from municipal waters, municipal fishermen now catch what was formerly caught by commercial fishermen in these waters. Moreover, according to sources from BFAR, the catch increases in commercial fishing operations can be attributed to various bilateral agreements between the Philippines and other countries, which allow Philippine fishing vessels to fish in those countries' territorial waters.

**“Recent fisheries statistics published by BFAR show a small but steady increase in fish production since 2000, not only from aquaculture, but also from marine capture fisheries.”**

### Meanwhile, open access continues

However, the reported increase in municipal capture fisheries might also be attributed to increased fishing activities in municipal waters by the growing numbers of people engaged in these fisheries. The lack of stringent measures to implement provisions of the Fisheries Code aimed at strengthening the management of fishing capacity in municipal waters strongly suggests that municipal fisheries in the Philippines is still characterized by an open access regime.

The Fisheries Code contains several provisions that aim to restrict access to municipal fisheries and to replace prevailing open access fisheries with some form of user rights and capacity management for municipal waters. The most outstanding of these are:

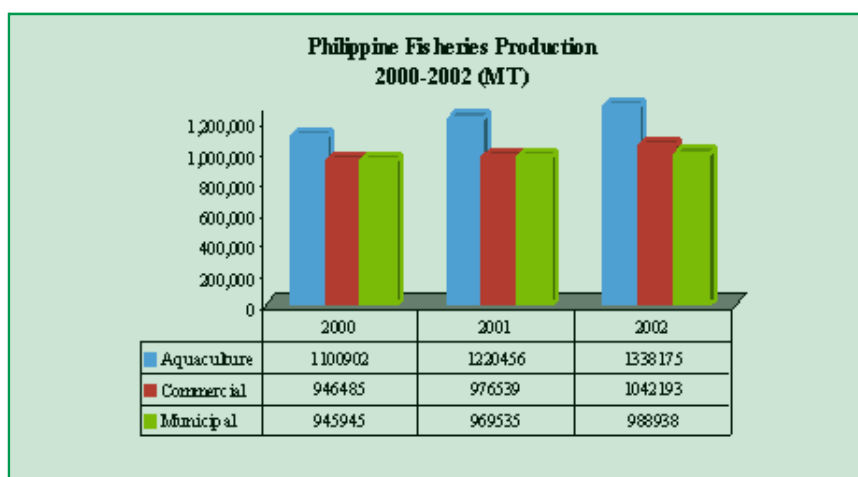
1. The requirement for each municipality to maintain a registry of municipal fisherfolk.

2. The restriction of fishing activities within municipal waters to boats smaller than 3 GT.

3. The option to grant demarcated areas to fisherfolk groups for fishing activities or aquaculture purposes.

**“The lack of stringent measures to implement provisions of the Fisheries Code aimed at strengthening the management of fishing capacity in municipal waters strongly suggests that municipal fisheries in the Philippines is still characterized by an open access regime.”**

The establishment of registries of municipal fisherfolk is intended to limit the number of people engaged in municipal fisheries, by allowing only those who are registered to fish. This could be an important first step towards freezing the number of fishers active in municipal waters at current levels, and possibly to even reduce that number. The data available from BFAR could be interpreted as proof that these provisions of the Code are actually working. According to the Philippine Fisheries Profiles, the number of municipal fishermen has remained exactly the same since 1989, with a total of 675,677 people engaged in municipal fisheries.



However, with the Fisheries Code only in effect since 1998, these published data rather suggest that such a registry of people engaged in fishing does not actually exist, and the data simply has not been updated since 1989.

Recognizing the full authority of the municipality over its water areas, the Code requires the municipality to consult with FARMCs when formulating necessary mechanisms for inclusion or exclusion procedures **most**

**beneficial to the resident municipal fisherfolk.** With this provision, the fishing community actually has the means, through the FARMCs, to determine who is included in the registry and allowed to fish, and who is not allowed. The fisherfolk usually realize that it might be “most beneficial to the resident municipal fisherfolk” not to further increase the number of people engaged in fishing activities in municipal waters. Yet, the expression “most beneficial to the resident municipal

an effective means of exclusion, and are thus able to limit the number of people allowed to fish in designated fishing areas, they cannot prevent non-group members from engaging in fishing activities outside these designated areas. Moreover, non-group members who are still part of the local fishing community may resist the establishment of such designated areas, as they could lose access to parts of their traditional fishing grounds.

### Community participation through FARMCs – a double-edged sword

While the fishing community in a municipality may agree to freezing the current number of fisherfolk, it seems rather unlikely that they would agree to any further reduction in their right to fish, since this might lead to a reduction in income generated by fishing.

This assumption is partially supported by Pollnac’s analysis of factors influencing the sustainability of integrated coastal management projects in the Philippines, in which he concludes, that “there is a negative relationship” between community involvement and the success of coastal management projects. His study suggests that “while ICM (Integrated Coastal Management) decisions made by project staff are positively associated with an ICM project sustainability indicator (post-project improvement in resources), decision making by a project-related, village association has a negative impact.” Often, the community may consider the future productivity of coastal fisheries resources to be less important than the current income and employment opportunities provided by the resources. In this case, it might be useful that the FARMCs’ role is defined by the Fisheries Code as simply that of a consultative body. The Municipal Council, as the local legislative body, is required to consult with the FARMCs in all matters pertaining to coastal (municipal) fisheries management, but nowhere is it mandated that the council has to follow the recommendations of the FARMC.

On the other hand, restricting the FARMC to the role of an advisory body to the local government may often lead to a situation in which coastal fisheries management initiatives taken up by the community are not translated into local legal regulations because the Municipal Council does not agree with these initiatives.

Number of people engaged in municipal fishing activities in the Philippines		
	1989	1990 to 2001
municipal	675,677	675,677
commercial	56,715	56,715
aquaculture	250,000	258,480
<b>Total</b>	<b>982,392</b>	<b>990,872</b>

*Source: BFAR Fisheries Profiles*

fisherfolk” is usually interpreted in such a way that any form of exclusion is seen as detrimental to municipal fisherfolk’s interests, and eventually the local government unit will have to decide on what is most beneficial to municipal fisherfolk: inclusion in the registry, rather than exclusion.

**“the expression ‘most beneficial to the resident municipal fisherfolk’ is usually interpreted in such a way that any form of exclusion is seen as detrimental to municipal fisherfolk’s interests.”**

Even the exclusion of boats larger than three GTs from municipal waters does not represent an effective mechanism to reduce and manage fishing capacity in municipal waters, since the municipality will find it difficult, if not impossible, to exclude anybody from fishing.

The lack of alternative opportunities and incentives to discourage someone from registering as a municipal fisher has contributed at least to some extent to the continuation of open access. It has also rendered futile any attempts at controlling fishing effort, through the establishment of community fishing rights in the form of TURFs. While registered municipal fishers may have

**“Often, the community may consider the future productivity of coastal fisheries resources to be less important than the current income and employment opportunities provided by the resources.”**

To make the Fisheries Code working, taking into consideration the strengths and weakness of community participation into fisheries management, it is necessary that FARMCs and their respective municipal government actually come and work together in formulating local rules and regulations on how to use coastal resources. To make this happen, several conditions must be met:

**1. The political will on both the FARMC/ community side and the municipal government side.**

Often, local political differences manifest themselves in the relationship between the FARMC and the municipal government. Although the Fisheries Code states explicitly that FARMCs should be non-political, usually they are formed along political alliances either with the current local government or with the opposition. Thus, the dependence on the local government to formulate and enact local ordinances regulating the use of local coastal resources usually leads to a situation in which local political considerations gain priority over environmental and resource sustainability concerns. Issues like the registry of municipal fisherfolk, the partial opening of municipal waters to commercial fishing, the protection and conservation of critical coastal habitats such as mangrove forests and coral reefs, the enforcement of rules and regulations regarding destructive and illegal fishing methods and so on, are all turned into local political issues, to be resolved (or not resolved) on the basis of the political benefits the

local government expects to gain from its decisions.

**“the dependence on the local government to formulate and enact local ordinances regulating the use of local coastal resources usually leads to a situation in which local political considerations gain priority over environmental and resource sustainability concerns.”**



**2. Assuming the political will is there, financial capacity is needed to meet the challenges of coastal fisheries and resources management.** Recent studies by Pollnac, White, Christie and others suggest that many local community-based coastal resources management projects in the Philippines fail in terms of sustainability because a regular source of funding is lacking. These projects are often supported and funded by outside agencies, and are usually stopped when the outside funding dries up.

**“many local community-based coastal resources management projects in the Philippines fail in terms of sustainability because a regular source of funding is lacking.”**

If the municipal government has the political will, it would be willing to allocate an annual budget not only for the functioning of the FARMC but also for the implementation of the commonly developed changes in resource and fisheries management practices. Through the annual allocation of dedicated budget, coastal fisheries and resources management could be institutionalized and become sustainable aspects of the local government administration.



3. Often, coastal municipalities do not have any qualified fisheries personnel. With coastal fisheries and resources management and the necessary budget allocation becoming a political issue, the municipality can employ fisheries development officers in their respective agricultural offices and charge them with advising the municipal government and the FARMC on the best course for sustainable fisheries management.



*Local fisherfolk receiving training on FARMC*

That this approach can function has been demonstrated in various coastal resources management projects around the Philippines, in which local governments are strongly involved in changing local resource use patterns and fisheries management practices in close cooperation with the community, because there are positive incentives in the form of publicity and political gains from these activities.

## Conclusion

The politicisation of coastal fisheries management issues represents the biggest threat to the translation of the spirit of the Fisheries Code into sustainable fisheries management practices. But it also offers coastal fisheries managers and coastal communities the opportunity to advance toward sustainable fisheries management systems at the local level. To make good use of this opportunity, intensive lobbying of local decision makers and government representatives is required. If they succeed in making coastal fisheries and resources management a priority political issue and demonstrate to local legislators and decision makers the potential economic, social and therefore political benefits of specific coastal fisheries and resources management measures, the local political establishment is more likely to take the provisions of the Fisheries Code seriously and actually make this law work.

**“The politicisation of coastal fisheries management issues represents the biggest threat to the translation of the spirit of the Fisheries Code into sustainable fisheries management practices.”**

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## Regulating Access to Fisheries Freezing the Fishing Fleets

*by Olivier Delahaye Gamucci*

### Introduction

Excess fishing capacity in world fisheries is of increasing concern, as it contributes considerably to overfishing, the degradation of marine fisheries resources and habitats, and can be considered as a significant economic misuse. Without action, fishing pressure and fishing conflicts are likely to increase, and will lead to resource depletion through overfishing. These issues call for strong collaborative efforts to curb escalation.

**“...subsidies encouraging overcapitalization are increasingly seen as unacceptable.”**

On 1 July 2004, 84 Member Countries of the UN Food and Agriculture Organization (FAO) concluded a technical consultation to review the progress and

implementation of the International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity) and issues related to illegal, unreported, and unregulated fishing. Importantly for the region, the meeting required the FAO to provide further support to developing countries struggling with problems of capacity management and illegal fishing. Similarly, fishing capacity has been a burning issue at the World Trade Organization (WTO), where subsidies encouraging overcapitalization are increasingly seen as unacceptable.

The FAO Code of Conduct for Responsible Fisheries (CCRF) specifies that states should take measures to prevent or eliminate excess fishing capacity and ensure that levels of fishing effort are commensurate with sustainable use of fishery resources. In order to address the issue of excess fishing capacity through fisheries

management, FAO prepared the IPOA-Capacity, which was endorsed in June 1999. Subsequently, the Johannesburg Plan of Implementation adopted by the World Summit on Sustainable Development in 2002, specified implementation of the IPOA-Capacity as a time-bound goal, calling for developing and implementing national and, where appropriate, regional plans of action by 2005.

### ‘The tragedy of open access’

The main reason behind the worldwide overcapitalization in fisheries is unlimited access to the resources. Participation in a fishery managed under an open access regime is restricted only by required skills and investment. In an extreme market economy approach and understanding of fishing, on which most solutions currently tried out are based, the tragedy unfolds as follow.

Early entrants to an open access fishery generally reap substantial profits, which in turn attracts other fishers. Eventually, the fishery reaches a level where no additional fishing pressure is needed to capture available fishery resources. Yet, fishers often continue to invest capital in the fishery beyond that level, creating an excess of fishing capacity through what is known as ‘capital stuffing’ in order to catch the fish before a competitor does, a phenomenon also known as the ‘race for the fish’.

**“The main reason behind the worldwide overcapitalization in fisheries is unlimited access to the resources.”**

Once total catch exceeds the maximum biological productivity of the stocks, the fishers have to invest even more capital in the fishery just to maintain the

same level of catch. This cycle of increasing investments and decreasing returns ultimately reduces profits to a level where fishing become unprofitable, causing the fishery to collapse. Where subsidies are provided, fishing activities may even continue beyond that point, possibly leading to a near-complete exhaustion of resources.

### Controlling fishing capacity

In the past, fishery managers have attempted to control fishing capacity through regulation of inputs (such as numbers of vessels, time spent fishing, or gear restrictions) or outputs (total allowable catch, possibly divided into individual quotas). More recently, managers have begun to implement limited access regimes to fisheries and resources, relying on rights-based management schemes. Yet, none of these measures effectively removes incentives towards capital stuffing in the race for the fish.

**What is fishing capacity?**

In the simplest of terms, fishing capacity is the ability of a vessel or fleet of vessels to catch fish. This ability is based on four components:

1. The number of fishing vessels in the fleet
2. The size of each vessel
3. The technical efficiency of each vessel, determined by factors such as on-board gear and equipment, fishers’ knowledge and techniques, and the size of the crew, and
4. The time spent fishing.

The term “overcapacity” indicates a level of catching power that exceeds what is needed to catch available fishery resources. When a fishery is described as “overcapitalised,” it means that the industry has invested more in fishing capacity than is needed to catch fish at the least cost.

**“...countries worldwide seem to have been rather successful at stabilizing the size**

**of their commercial fishing fleet, although new technologies and improvements to vessels’ ability to catch fish may counterbalance these trends.”**

A recent FAO review of progress towards implementation of the IPOA-Capacity showed that most countries deal with the management of fishing capacity by limiting new boats entering fishing fleets, at least for commercial fisheries, together with measures aimed at limiting the use of existing capacity. In practice, they directly incorporate capacity considerations into their fisheries management regimes. In general, countries worldwide seem to have been rather successful at



stabilizing the size of their commercial fishing fleet, although new technologies and improvements to vessels' ability to catch fish may counterbalance these trends. More importantly, smaller-scale fisheries are still largely unchecked, and continue to expand.

**“Any attempt to control capacity by focusing only on the larger fishing operations is doomed to failure in developing countries since mounting overcapacity there is often caused primarily by a growing number of fishers”**

Controlling capacity in the less developed regions of the world does not consist in removing the poor from fishing to make way for the richer commercial vessels. The poor are competing for a resource for their basic survival and livelihoods; commercial vessels aim to make a substantial profit from the same resource. Yet any attempt to control capacity by focusing only on the larger fishing operations is doomed to failure in

developing countries since mounting overcapacity there is often caused primarily by a growing number of fishers rather than by new technologies or capital stuffing.

Thus any reduction of fishing capacity must be accompanied with alternative or supplementary livelihoods, as these people often depend on fishing for their very survival. In many ways, fisheries is seen by the poorest as their last alternative for employment. The dominance of small-scale fisheries also renders the management of capacity difficult to implement as it requires well developed and effective monitoring, control and surveillance (MCS) schemes. Yet, in these countries, there is usually a lack of institutional and technical capacity for research and policy development as well as for implementation.

### **The case of tropical coastal fisheries**

During the FAO Technical Consultation in July 2004, it was recognized that the nature of fisheries is so



diversified in the various regions of the world that more should be expected from regional fisheries management organizations (RFMOs) and states. The global initiatives promoted mainly by the more developed nations, although useful to raise awareness of the issues, might not be valid for less privileged countries. The international framework promoted by FAO through the IPOA-Capacity might be appropriate for high seas fisheries, but when working with issues related to resources and fisheries in EEZ or for transboundary fish stock, practical approaches should be left to more local authorities such as RFMOs or individual states.

**“...it is important to generalize and recognize that the fisheries situation in the [Southeast Asian] region is in a state of overcapacity”**

In the ASEAN region, overcapacity is seen as the largest fisheries management problem threatening sustainability. In many places, catches by coastal fisheries are (estimated to be) in excess of sustainable levels, but with little alternative source of employment, reducing fishing capacity is difficult. The relevant fisheries management agency in each ASEAN Member Country is considered the most appropriate body to address such a task.

Although one may reject such an assertion, it is important to generalize and recognize that the fisheries situation in the region is in a state of overcapacity. Some may argue, correctly in some cases, that a particular fishery has not yet reached that status, but nonetheless it is imperative that each Member Country first recognizes that fisheries resources that are not fully regulated are likely to be overexploited as a basis for future actions. There lies the assumption that the current number of fishing boats in the region should be frozen at its current level before proceeding with further management based on reliable statistical information.

**“Although these [socio-economic] consequences must be considered, and as far as possible addressed, policy formulation for achieving sustainable fisheries would be impossible if such concerns were to be fully accommodated.”**

As discussed above, reducing fishing capacity in the region has important socio-economic consequences for some of the poorest segments of the population. Although these consequences must be considered, and as far as possible addressed, policy formulation for achieving sustainable fisheries would be impossible if such concerns were to be fully accommodated.

### **Addressing the issues in Southeast Asia**

Shortly after the adoption of the IPOA-Capacity, SEAFDEC and its Member Countries organized a workshop jointly with FAO on overcapacity in Penang in November 2000. The workshop explicitly recognized problems of excess fishing capacity in the region, and that the mechanisms proposed by FAO might not be appropriate for the region considering its specific fisheries. With this in mind, the meeting also came out with initial guidelines for the management of fishing capacity in the region. Amongst these, the meeting recognized the importance of developing indicators that could be used for helping to understand the status and trend of individual fisheries, as a first step towards addressing the problem of overcapacity.





**“ The progressive decentralization of fisheries management and the introduction of rights-based fisheries are seen as a solution to the issue of excess capacity of small-scale fisheries.”**

If ASEAN governments are to take management action to stabilize and even reduce excess fishing capacity, it is imperative for the scientific basis and facts that support such policy to be explained to the various stakeholders for their compliance. This is particularly so for political stakeholders. The progressive decentralization of fisheries management and the introduction of rights-based fisheries are seen as providing a two-pronged solution to the issue of excess capacity of small-scale fisheries. First, they build awareness and a sense of responsibility amongst the local stakeholders. Second, such schemes reorient the incentives influencing fishing communities so that instead of racing for the fish, fishers tend to adjust their efforts toward levels ensuring longer-term sustainable resource use.

**“Local communities are progressively being empowered to make the difficult decisions”**

### **Managing the fishing capacity of commercial fleets in Southeast Asia**

The Millennium Conference encouraged measures to improve the registration of fishing vessels together with the reduction of their number and level of fishing effort. Larger vessels are managed under a rights-based fisheries system, through each national licensing scheme, which usually encourages the freezing of their number to their current level. Most commercial vessels are excluded from fishing in coastal waters.

### **Closing the commons**

Following this line, the ASEAN-SEAFDEC Member Countries recognized the importance of community participation in limiting access to fisheries resources. Local communities are progressively being empowered to make the difficult decisions concerning fishery capacity and the sharing of incomes from coastal fisheries.

The Millennium Conference placed the first piece in the process of promoting decentralization and introduction of rights-based fisheries in the region. The adopted Resolution pledged to encourage effective management of fisheries through delegation of selected management functions to the local level, and recognized the need to progressively replace open access to fisheries resources with limited access regimes through the introduction of rights-based fisheries, which may also facilitate the management of fishing capacity and promote the use of responsible fishing gears and practices. Moreover, the Plan of Action adopted during the Conference includes the review of issues of fishing capacity at the national level, and to recommend, where appropriate, the introduction of rights-based fisheries and the reduction of the number of fishing boats and level of fishing effort using government incentives.

The implementation of limited access regimes and the delegation of management authority to the local level were extensively discussed during the Regional Workshop on Innovative Fisheries Management Approaches in Southeast Asia: Rights-Based Fisheries and Decentralization, held in Phuket in May 2003. Serious efforts were made to clarify possible ways to implement these issues at the regional and national level.



The workshop recognized the need for individual countries to review their existing legal frameworks with regards to fishing rights, with a view to how existing legal provisions relate to capacity management and regulation of access to fisheries.

### **Policy consideration: where to start?**

In the recent Regional Technical Consultation on Human Resource Development for Fisheries Management, held in Phnom Penh in June 2004, clarification was sought as to what policy change was required to achieve sustainable fisheries, especially in the light of possible human resource development needs. In this context, issues of overcapacity were raised again, and were addressed in specific group discussions. Outcomes mostly confirmed that alleviating issues of excess fishing capacity in the region could be achieved by following three main tracks:

1. To gradually introduce rights-based fisheries management regimes
2. To understand the state and trends of fisheries using indicators, and
3. To control the number of fishing boats.

These form a basis to consider changes in policy. While the first two tracks are relatively well accepted by stakeholders in the various Member Countries,

controlling the numbers of fishing boats, especially for small-scale fisheries is a far more sensitive issue. If one consults with fishing communities in each Member Country, most fishers may immediately agree with the concept of not allowing any additional fishing boat to enter the local fisheries. In other words, the concept of freezing the number of fishing boats is relatively well accepted, as fishers feel this will to an extent guarantee the stability of their income in the future. It also provides them with a basic sense of ownership and responsibility toward the resources. Most are very concerned that the ever increasing numbers of fishers and boats will eventually reduce their portion of catch. Member Countries therefore need to start to discuss with their fishers on how to freeze the numbers of boats or fishers, as a first step toward the management of fishing capacity on a case by case, fishery by fishery basis.

**“...most fishers may immediately agree with the concept of not allowing any additional fishing boat to enter the local fisheries”**

### **The way out**

Such an approach would require each government fishery management agency to introduce appropriate registration of all large-scale and small-scale fishing boats as well as fishers, followed by a complete halt to



any new registration after a certain period of time. The agency must reach an agreement with the fishers, stating that from now on only registered boats and fishers can fish, and encouraging fishers to collaborate with existing MCS enforcement authorities in reporting illegal fishing. In the course of freezing existing capacity, a framework must be set by each government in direct consultation with the fishers and other stakeholders, notably addressing the following important questions:

1. Who are the “professional fishers” to whom a fishing right would be granted? What are the criteria to be used for identifying them (such as a minimum percentage of income from fisheries, or a minimum number of fishing days per year)?
2. How can we deal with part-time fishers?
3. What are the benefits for fishers of registering, and thus supporting such as registration system?
4. What kind of registration system? And at what level – national, provincial or district level?
5. Which are the registration agencies? Who decides which individuals are entitled to be registered?
6. How frequently should registration be revised?
7. What are the obligations of fishers who register? Should they include monitoring, and the provision of basic fisheries statistics?
8. What are the enforcement mechanisms for conditions agreed through the registration system?

9. What are the penalties for registered users violating agreed conditions? Termination of the user’s right to registration? What about for unregistered users?

The framework will incorporate all national fishing activities into a rights-based fisheries management approach. Fishing rights will therefore have to be clarified through further discussion with fishers and other stakeholders:

1. To whom does the government provide the right? If fishers individually, can those rights be transferred to others, such as entrepreneurs? A small numbers of local entrepreneurs, such as traditional middlemen, could conceivably come to monopolize a large portion of the fishing rights. Then the question may go to providing responsibilities and mandates to appropriate local institutions such as fisher groups or communities.
2. How will the government encourage and support local institutions, including financial and technical assistance?
3. What kind of right can be provided? Based on areas, types of fishing gears, period of time?
4. What are the conditions for implementation of these fishing rights? In particular, what measures will be taken against illegal fishing?



Once simple but enforceable conditions to access fishing rights at the community level are established, compliance can be left to the community to manage, with proper support from the government.

**“The framework will incorporate all national fishing activities into a rights-based fisheries management approach.”**

## Conclusion

The need to freeze the number of fishing boats and fishers and the rights of fishers to fish to their current capacity are realities that must be recognized by all fisheries stakeholders. Although registration and freezing of larger-scale commercial fishers has been initiated, this must be extended to include all fishers, counting in small-scale operations that altogether catch far more fish in the region than their commercial counterparts. Control of fishing rights for these dominantly impoverished subsistence fishers can only be achieved through collaboration and consultation with local communities, and possibly later on the devolution of some management authority. Local communities and fishers must be at the heart of registration, freezing, management and reporting measures for proper compliance and enforcement.

Although only a small first step toward the serious management of fishing capacity, the freezing fishing capacity is urgently required to avoid further acceleration of the depletion of resources. Provided that both the relevant governmental agencies and local communities get proper assistance, and that the use of indicators to understand the status of each fishery on a case by case basis is promoted, these future management actions will definitely help to match fishing capacity with sustainable yields. This may mean further reducing fishing capacity in some cases, while allowing new entrants in others. This must be judged on a case-by-case basis, on the base of sound scientific evidence. In all, it will put into place the foundation of a robust policy framework for the management of fishing capacity and fisheries in general in Southeast Asia.

### About the author

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## HRD for Fisheries Management: Implications of Integrating Social, Legal and Environmental Aspects.

*by Magnus Torell*

This article is based on outcomes and recommendations from the ASEAN-SEAFDEC Regional Technical Consultation (RTC) on Human Resource Development in Fisheries Management held in Phnom Penh, Cambodia, 3 to 6 June 2004. The meeting was asked to look beyond technical considerations and give special attention to social, legal and environmental aspects of HRD in fisheries management. The meeting's primary focus was on small-scale fisheries, but participants were encouraged to address the management of large-scale and commercial fisheries and aquaculture as needed.

### **Filling capacity gaps**

In many development initiatives, education, human resource development (HRD) and improved knowledge and capacity are common objectives. But a critical point of departure for successful HRD programmes is to know what is needed for each category of people involved in the process, and how to deliver needed information and learning. This calls for a review of the "capacity gap" faced by each country relative to the

task at hand – in this case, fisheries management. This is true everywhere, in the sense that all countries – both developing and developed – need continuously to upgrade the capacity of people involved in various sectors to meet national and international requirements. For developing countries, there is the added imperative of reducing inequalities between themselves and more developed countries.

HRD in fisheries management is specific to the situation in each country. Consequently, ASEAN-SEAFDEC Member Countries have been encouraged to take initiatives and ownership in addressing HRD issues in accordance with their overall national objectives of fisheries development and management. The challenge for international and regional organisations is to use their position to support or facilitate these national initiatives. An important factor here is for these organisations to embark on processes and dialogues that allow for individual countries to maintain their ownership through all stages, including implementation. To raise awareness and clarify practical approaches and steps in HRD in fisheries management

in each country, national consultation needs to be conducted as an initial step towards mapping a way forward.

**“...a question remains as to how much each country wishes to be dependent on institutions other than traditional fisheries-related organizations to manage your fisheries.”**

The need to address social, legal and environmental aspects in the context of an HRD programme was further underlined during the meeting. Looking at the outcome of the groupwork sessions, a question remains as to how much each country wishes to be dependent on institutions other than traditional fisheries-related organizations to manage your fisheries. This dependence could take various forms – to relieve each country of some of its excess fishing capacity (alternative or supplementary livelihoods), to support monitoring, control and surveillance (coastguards) or quality monitoring control (such as water quality or product quality), to mention a few. One point is that fisheries agencies need to remain focused on fish, fisheries and people engaged in fisheries, and not become diversified into tourism and other sectors, which belong within the domain of other agencies. It is important as such in the overall picture of coastal and rural development to provide an environment in which it is possible to manage fisheries.

HRD should be promoted for the effective integration of habitat management and fisheries management, including the use of ecosystem approaches to fisheries management, habitat rehabilitation, resources evaluation, and preparation of local fishery management plans. This also includes capacity development for villages or communities to assess and monitor the health of their fishery ecosystems using simple but effective methods. One important issue here is to avoid fisheries management and habitat management becoming polarized; rather, common agendas need to be developed for the benefit of all people living in coastal areas.

In embarking on HRD programmes, it is important to follow-up and seek collaboration among institutions at the national level as well as among regional and

international organizations (such as SEAFDEC, FAO, NACA, UNEP, UNEP/GEF, AIT, MRC and WorldFish Center) and projects (such as CHARM and FISH), working to raise the capacity in Member Countries. Common efforts are needed to raise awareness and to implement guidelines for responsible fisheries at all levels through adequate HRD practices. These should be aimed at each target audience in an appropriate form, from the national to the village level, including schools.



**“One important issue here is to avoid fisheries management and habitat management becoming polarized; rather, common agendas need to be developed for the benefit of all people living in coastal areas.”**



## **Beyond a regional dilemma – developing national pilot projects for sharing experiences at the regional level**

That HRD requirements are specific to national situations creates a dilemma when developing regional approaches to HRD. It is difficult to develop detailed programmes that are relevant to all countries, especially



in local coastal and rural areas. As a practical approach towards developing and promoting HRD in fisheries management, the meeting suggested that pilot projects in a “representative set of countries in the region” should be promoted. The approach should include opportunities to share experiences at the regional level,

and further promote nation-wide HRD in fisheries management.

The criteria recommended for the selection of those countries address both development stages and fisheries situations in ASEAN-SEAFDEC Member Countries. Specific aspects indicated by the participants included:

- Has significant inland and marine fisheries
- Is at an early stage of developing its management structures for marine fisheries
- Has archipelago fisheries
- Has major fishing industries with a diversity of fisheries and with conflicts between small-scale and commercial fisheries
- Is a land-locked country, and
- Fisheries are in political and economic transition.

**“That HRD requirements are specific to national situations creates a dilemma when developing regional approaches to HRD.”**

In the selection process, consideration needs also to be given to the ASEAN recommendation to “reduce disparities among the ASEAN Member Countries.”

A quick follow-up on these recommendations would give a list that includes Cambodia (developing management structures), Lao PDR (land-locked), Myanmar (inland and marine), Vietnam (in transition), Thailand (diversity and conflicts) and Indonesia or the Philippines (archipelagic). Selecting six out of the ten ASEAN Member Countries in a representative list of countries also clearly indicates the diversity of fisheries, despite the many commonalities. It is also an indication of the difficulties of creating common detailed HRD programmes for the whole region. Shared experiences from the countries and the pilot activities would help to identify common, generic, elements for an ASEAN-based regional HRD promotion.

The meeting did not go into details of processes involved in selecting specific sites for pilot activities.



One group, however, did state the need to develop criteria for determining priority areas. Reference was made to a similar exercise at a workshop held in 2001 in Siem Reap (ICLARM, 2001), Cambodia, where special attention was given to the need to develop criteria for site selection with respect to wetlands/inland fisheries, which could be relevant for the selection of pilot sites in HRD as well. The general criteria defined during that meeting were:



- Areas highly affected by the seasonality of the hydrological (water) regime, i.e. differences in land's use between dry and wet seasons.
- Groups or villages using the resource, or affected by its use
- High level of complexity
- Several sectors overlapping geographically
- Several legal and institutional issues overlapping geographically, and
- Opportunity to link with other ongoing development initiatives or interventions by the government, NGOs or other international bodies

## Reflections on the outcomes of group discussions

During a special session at the Regional Technical Consultation, participants were divided into three groups. One group discussed the HRD implications of managing overfishing capacity; another focused on strengthening local fisheries management capacity, while the third group considered HRD requirements in terms of integrating fisheries management into habitat management. Several issues were identified by all three groups, such as the need to manage and reduce fishing capacity, the need to develop alternative or supplementary income opportunities, and the need to address legal and institutional issues.

**“Several issues were identified (...), such as the need to manage and reduce fishing capacity, the need to develop alternative or supplementary income opportunities, and the need to address legal and institutional issues.”**

In the following section, important concerns raised by the groups are presented, together with comments made by the whole group. Reflections emerging after the meeting have been added as well.

## Understanding the status and trends of fisheries

During the meeting, the importance of understanding the status and trends of fisheries was highlighted, specifically in terms of fishing boats, gear, people engaged in fishing and availability of resources. Reference was made to the usefulness of indicators as tools to assess status. The understanding of status and trends should also include socio-economic considerations and analyses of the (usually excessive) numbers of people fishing and their fishing patterns, together with reviews of livelihood patterns. This also implies that one should embark on the use of economic and social indicators as well.

When trying to assess the status and role of fisheries in a given situation, it is important to understand the social context, noting differences between peoples

engaged in small-scale or family fishing and those employed in large-scale or commercial operations. Household structures need to be reviewed, together with the relative dependence on fisheries, ownership of boats and gear, land tenure and access rights relative to existing legal provisions.

There are problems in actually getting enough reliable data to do proper aggregated valuations of every aquatic resource and fishery. It is interesting to quote from the ICLARM/WorldFish Centre in the Annual Report for 2002 (WorldFish Centre, 2003) which states that “valuations in an aggregated way, given the total lack of data for some and very unreliable data for many/all of the key resources and key uses, are not possible.” The assumption on which this blunt statement was based was that “what is recorded (if anything) is what is produced and/or used and consumed by the rich or less poor people, whereas products and uses not recorded are those on which poor people depend – which again leaves them and their livelihoods at risk to be bulldozed by “developments” due to ignorance as to the importance and values of those resources and uses.” The statement in a way reflects the general problems generating good information on which to estimate the importance of aquatic resource and fisheries both locally and nationally.

The implications of understanding the status and trends of fisheries in terms of HRD cuts across several sectors and various levels, from the local to the national, using techniques and survey methods that are broader than those used just for fish and fisheries. As indicated by the WorldFish Centre, there is also a need to develop new methods and technique that are easy to use and apply at low cost in rural areas. This might also imply that non-fisheries agencies in charge of certain surveys and censuses would need to be trained to include fisheries aspects in their work. The importance of understanding the status and trends of fisheries is apparent both as a basis for decision-making and planning at various levels and as a source of important information for training and HRD programmes.

**“Understanding of the laws and regulations relevant to fisheries is an important part of HRD for fisheries management.”**

## Laws and regulations

All countries have legal frameworks under which laws and regulations of relevance to fish and fisheries are organized, although some countries may not have well developed laws specific to fisheries. It is important to note that laws relevant to fish and fishing operations are broader than just fishing laws per se. They include land laws, water laws, health laws, environmental laws



and even constitutions. For example, Malaysia’s constitution clearly states that offshore and coastal fisheries are federal matters while freshwater fisheries are state matters. Importantly, many non-fisheries laws and regulations, including the constitution, either explicitly or indirectly state people’s right to use and access natural resources in more general terms. In general, both fishing laws and forestry laws outline restrictions to the use of natural resources by giving directives on access, including seasonal restrictions, gear restrictions, and licenses for concessions or for operation of fishing vessels (moving from open access to more restricted access). In this way, rights-based fisheries are basically restrictions on those who do not have the right to fish in certain areas, or the right to fish with specified methods.

Understanding of the laws and regulations relevant to fisheries is an important part of HRD for fisheries management. In many situations, it is also important to extend this knowledge to laws and regulation of countries importing fishery products, UN conventions, international laws, regional agreements and resolutions in addition to the understanding and knowledge of national laws and regulations. The context and ways in which HRD is promoted differ considerably depending on whether it is done at the local, provincial or national level. Even appropriate knowledge of international laws and requirements should be communicated to the local and provincial levels.

**“Promotion of co-management approaches in fisheries management was recommended (...) to facilitate consensus building among government authorities and stakeholders in areas such as managing fisheries and fishing capacity.”**

## **Promoting co-management approaches**

Promotion of co-management approaches in fisheries management was recommended during the meeting to facilitate consensus building among government authorities and stakeholders in areas such as managing fisheries and fishing capacity. Consensus building needs to include identification of management actions to reduce fishing capacity (particularly in destructive fishing) and supplementary and alternative livelihoods (such as aquaculture, tourism or agrobusiness).

In this context, the institutional and legal implications of various activities need to be clarified, together with the development of an understanding on the institutional structures needed to support co-management. In the search for alternative and supplementary income opportunities, this would imply looking into sectors other than fisheries, and facilitating exit from fisheries into another sector. Social implications have been mentioned above, and need to be reiterated. Co-management concepts are usually applied or tested in small-scale, village-based settings

that do not affect the large-scale commercial side. In the overall management of fisheries, there would be a need to consider co-management scenarios for large-scale commercial operations – boats operating from and landing in more urban areas with fleets and boats owned by people based in larger cities and operated by migratory fish-workers, many of whom may actually come from other countries. In national planning for sustainable fisheries at the central level, the development perspectives of small-scale and large scale fisheries need to be balanced against the benefits to the country as a whole as well as to individuals engaged in fishing.

The aspects suggested to be considered for HRD imply a whole range of items, including many disciplines at all levels, but with a special focus on those directly involved: users and local authorities. Special requirements, legal provisions and institutional structures at the local level imply differences from country to country in the detailed approach. This includes due involvement of local representative bodies such as tambon administrative organisations (TAO) in Thailand, commune councils in Cambodia, people’s committees in Vietnam, and local government units (LGU) in the Philippines. In a country such as Cambodia, there are specific sub-decrees for community fisheries and community forestry that need to be addressed in any HRD programme on co-management or locally-based management. In this respect, one group made reference to the need







to include HRD in establishing and managing cooperatives and local organisations, in motivating communities, in training in project management skills and in training at various levels to integrate local and provincial plans into national plans. Another important element of increased local responsibility in management is to build capacity to assess what is in their waters, and methods to assess and monitor at the community level.

**“it is worth repeating the notion that one critical element in the implementation of HRD programmes is to know what is needed for each category of people or institution, and how to deliver needed information and learning to the right target groups.”**

### **Institutional aspects**

HRD and capacity building are both basically concerned with building institutional capacity and are means to promote institutional development. Reference to institutional arrangements were made under various points and will not be developed further here. Rather, it is worth repeating the notion that one critical element in the implementation of HRD programmes is to know what is needed for each category of people or institution, and how to deliver needed information and learning to the right target groups. This is not that easy, as different groups mentioned. Given the increasing complexity of institutional

arrangements, there are in many cases unclear jurisdiction and mandates, and legal frameworks may be unclear and overlap. Project allocation of funds can, with good intentions, end up helping to build capacity in places where there is no full mandate to implement certain tasks.

### **Replacing open access with limited access**

To replace open-access fisheries regimes with limited access is frequently mentioned as one of the key tasks in moving towards more sustainable fisheries. Licensing systems are usually appropriate for commercial and larger scale fisheries, although regulations based on the allocation of rights to groups and individuals would be more appropriate for small-scale fisheries. As discussed above, licenses and rights allocations are basically ways of excluding others. Land-tenure and access rights relative to existing legal provisions need to be assessed for their relevance to the development of right-based fisheries system. It is also necessary to address social, economical and legal implications for those who are wholly or partially excluded from fishing. How to balance restrictions at the village level with restrictions on larger-scale urban-based commercial boats is another critical issue, and implies a need to have suggested implementation schemes based on national planning strategies and perspective.

In order to be effective, restrictions on people entering fisheries, or provisions for people being forced out, need to be matched by interventions and plans in other sectors for creating alternative and supplementary income opportunities, thereby helping to limit entry while at the same time facilitate exit.

**“...restrictions on people entering fisheries, or provisions for people being forced out, need to be matched by interventions and plans in other sectors for creating alternative and supplementary income opportunities...”**

The call for HRD in different fields and at different levels is evident, and apart from technical considerations related to issues such as boats, gear and seasonality,

there is a need to focus on legal issues to fit rights-based systems into national legal frameworks, and the need to build capacity to integrate fisheries into national and local plans. In dialogue with other relevant bodies, HRD should be implemented to promote alternative and supplementary income opportunities.

HRD would also be needed to look into measures to control and regulate fishing capacity, such as freezing the number of fishing boats. Also in this context, land-tenure and access rights relative to existing legal provisions need to be followed up, especially with regards to small-scale coastal and inland fisheries. For large-scale and commercial vessels, freezing would in principle be more straightforward, and investors would have more opportunities to move their capital elsewhere. The situation in small coastal fisheries is more complex, and schemes to freeze and reduce capacity would need to be considered with packages to facilitate exit, including alternative and supplementary income opportunity to mitigate social and economic effects at the household and village levels. Subsequent and corresponding HRD at different levels and institutions would be needed.

## Integrating fisheries management into habitat management

During the meeting, one group looked specifically at aspects of integrating fisheries management into habitat management. This includes fisheries issues involving habitats such as coral reefs, mangroves, sea grass, and wetlands and floodlands, in particular those used as spawning grounds, nursery grounds, feeding grounds, and fishing grounds, and those located along migratory routes.

**“In priority areas, habitat surveys should be conducted to (...) provide a basis for further development and establishment of *refugia*”**

The points raised by the group, and the consequent need for HRD, echoed much of what was discussed in other groups, pointing to a need to review existing fishing practices, review livelihood patterns, review fishing capacity and fishing patterns, and reduce fishing

pressures through limiting entry and facilitating exit while pointing to the need to identify alternative and supplementary income opportunities.

Being a bit more site-specific, the group looked into aspects to consider when developing schemes for the integration of fisheries management into habitat management in a given area. These aspects included identified needs to:

- Review existing areas and management activities
- Develop criteria for determining the priority areas
- Conduct research and identify commercial species, endangered and threatened species, and migratory and trans-boundary species
- Identify spawning, nursery and feeding grounds
- Select priority areas for fisheries management
- Consult with stakeholders on selection of priority areas and management, and
- Review legal and institutional mechanism for management of priority areas.

In priority areas, habitat surveys should be conducted to determine their function in regards to spawning, feeding, nursery grounds, and connective corridors for important commercial, threatened, and migratory species. The outcomes of the surveys should provide a basis for further development and establishment of *refugia* (areas managed for the maintenance of fish stocks) for each country, and also bilateral or sub-regional *refugia* (in the context of inland fisheries refuge).

In addition to the HRD requirements mentioned above, specific reference was made to the need to establish and build up capacity to conduct surveys; to disseminate knowledge and experience on how to apply the eco-system approach; to build capacity to establish *refugia* for fisheries management; to be trained in land-used management and spatial planning; to raise awareness about sustainable fisheries among all stakeholders; to build capacity in the application of stock enhancement following bio-safety protocol; to build capacity to identify and explore under-exploited

resources; to build capacity to provide alternative employment/ business outside of the fisheries; and to build capacity to conduct resources valuation.

## Incorporating social, legal and environmental aspects

As reflected by the report of the meeting, HRD in fisheries management should be developed at all levels considering:

- **Legislation, law and regulations** – implications of international initiatives and conventions, structures and rules of local management, co-management approaches, functions of right-based fisheries and rights of resource users, institutional roles and responsibilities;
- **Social and economics** – implications of limiting access, reducing and managing fishing capacity, facilitating exit from fisheries, supplementary and alternative livelihoods, co-management concepts, survey and research techniques, including consultation and participation; and
- **Environment** – habitats and reproduction areas, migratory routes and interconnectivity, supplementary and alternative livelihoods.

**“HRD activities should not only focus on different levels and sections of government-related functions but also on other stakeholders such as those engaged in fisheries and fisheries-related activities...”**

In developing HRD in fisheries management, in-country coordination among agencies concerned both at the national level (fisheries, environment, forestry and other authorities as well as and other relevant institutions) and at the local level (local administrative organizations) should be promoted. However, HRD activities should not only focus on different levels and sections of government-related functions but also on other stakeholders such as those engaged in fisheries

and fisheries-related activities, the private sector, NGOs, processing facilities and industries, consumers and other people with an interest in fisheries, aquatic resources and the aquatic environment. The importance of some of these stakeholders needs to be recognized in this context, as they often constitute groups that put political pressure on the authorities to implement restrictions on the fishing sector that actually limit fishing efforts for certain species or specific areas – pressure that sometimes is based more on intuition than scientific evidence.

### About the author

Magnus Torell, a Swedish national, is employed with support from Sida, Sweden, as a Senior Advisor to SEAFDEC. Before joining SEAFDEC in 2003 he was for seven years with ICLARM (now the World Fish Centre). He came to ICLARM from Sida, in Stockholm, employed as a Senior Programme Officer for eight years. He holds two academic degrees, one in Law and one (Ph.D) in Economic Geography.

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## SEAFDEC participates to CITES CoP13's exhibition!

In order to promote the regional approach and positions to aquatic species management and to give a fisheries atmosphere to the exhibition, SEAFDEC operated a booth at the 13th Session of the Conference of the Parties of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). A special focus was given on the management and conservation of shark and marine turtle species in Southeast Asia.



### INVITATION TO CORRESPONDING WRITERS

With several issues of *Fish for the People* already published, we hope that we have given you a good idea of the aims and general tone of the publication. So far, we have relied mostly on contributions by SEAFDEC staff. We are now inviting contributions from other writers interested in promoting relevant issues on fisheries in developing countries. While the publication will continue to focus on the Southeast Asian region, future issues can address relevant issues from other tropical regions.

*Fish for the People* is a policy-orientated publication. It is not a forum for publication of research findings, nor is it intended to provide detailed technical information. The publication targets not only experts or scientists, but also other traditionally less technically-oriented fisheries stakeholders, such as policy-makers, donors, government staff, managers, and more generally, an informed lay public with an interest in how our fisheries are managed.

Readable, accessible articles that address the various issues discussed at the ASEAN-SEAFDEC Millennium Conference are most desired. Articles should focus on newly emerging issues relevant to sustainable regional or tropical fisheries management. They should present important issues with clear regional messages, emphases, thrusts, problem areas, and propositions for improving current situations.

Through *Fish for the People*, we hope that authors will gain the attention and consideration of targeted fisheries stakeholders, and contribute to the future achievement of more sustainable fisheries.

Correspondence related to editorial matters should be sent to [fish@seafdec.org](mailto:fish@seafdec.org)



## Using Indicators for the Sustainable Development and Management of Fisheries in the ASEAN Region

by *Phaik-Ean Chee*

### Introduction

The 'Identification of Indicators for Sustainable Development and Management of Capture Fisheries' is one of the projects formulated under the Special Five-Year Programme of SEAFDEC to support ASEAN Member Countries in the implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region adopted at the Millennium Conference in November 2001. This has already been discussed in articles in two previous issues of *Fish for the People*. This article aims to describe the current implementation of case studies across the region.

The state of fishery resources in the ASEAN region is now compelling Member Countries to seek immediate options to better manage their resources. Alternative methodologies for the assessment of these resources are required that should not depend solely on the use of costly time consuming scientific biological assessment models. Fisheries assessment methodologies that are valid and acceptable to stakeholders, and that are cost-effective and feasible, should be developed to produce knowledge to support management on a sustainable basis.

Yet in developing countries, there is still a need to identify appropriate and relevant indicators to meet the requirements of national fisheries policies, bearing in mind the complexities of the resource base and the limitations of the institutions responsible for fisheries management. A mechanism for the introduction of the use of sustainability indicators in fisheries development and management has to be put in place.

**“The state of fishery resources in the ASEAN region is now compelling Member Countries to seek immediate options to better manage their resources.”**

The use of indicators of sustainability is a tool to monitor and control the development of fisheries in ASEAN. Such indicators should be developed and used by relevant national management authorities. To use indicators in alternative management regimes such as rights-based fisheries effective, one has to gain the active participation of stakeholders. Selection of indicators should be based on available data and information, and indicators should be kept practical,



simple, applicable, and cost-effective, but at the same time, scientifically valid and supported by time series data. This could also be achieved following the technical guidelines proposed by FAO.

**“To use indicators in alternative management regimes such as rights-based fisheries effective, one has to gain the active participation of stakeholders.”**

### A Proposal for the implementation of pilot studies on indicators

At the SEAFDEC-FAO Regional Workshop on the Management of Fishing Capacity, held in Penang in November 2000, the introduction and review of definitions of resource indicators was recommended. The Workshop also suggested that simple indicative assessments, based on existing information to identify minimum data requirements for monitoring, be immediately undertaken. During the more recent First Regional Technical Consultation on the Use of Indicators for the Sustainable Development and Management of Capture Fisheries in the ASEAN Region, held in September 2002, a proposal was made to help ASEAN Member Countries to make practical use of indicators for fisheries management, in particular for the management of specific fisheries at specific sites.

This proposal included initial project formulation, data collection, analysis and interpretation for five pilot studies on indicators. It was anticipated that the type

of data to be collected would be governed largely by the conditions and the management measures implemented for the particular fishery targeted. The mechanism for data collection should ideally be contained or built into existing routine statistical collection networks, which could take into consideration management objectives and requirements. Research support for data collection and the corroboration of results is required, through activities such as the taxonomic identification of species, the standardization of fishing efforts, and the collection of biological information on selected species.

**“a proposal was made to help ASEAN Member Countries to make practical use of indicators for fisheries management, in particular for the management of specific fisheries at specific sites.”**



*Good catch of Moonfish, Mene maculata, from a ringnet vessel at Danao City, Cebu Island, the Philippines.*

understood, accepted and supported by stakeholders. Appropriately selected indicators should help in ensuring good communication and coordination of actions between all stakeholders. The collected data should link objectives and goals with indicators and data categories necessary to generate them. Thus there is a strong need for the preparation of fisheries management plans in the first place, as highlighted in the FAO Code of Conduct for Responsible Fisheries.



## **Fisheries management plans**

A Fishery Management Plan as defined by FAO Technical Guidelines is “a formal or informal arrangement between a fishery authority and interested parties that identifies partners in the fishery and their respective roles, details the agreed objectives for the fishery, specifies the management rules and regulations that apply to it and provides other details about the fishery that are relevant to the task of the management authority, which may include achievement of multiple objectives”. Fisheries management plans should be developed to guide management direction based on clear government policy and vision. It has been realized that fisheries managed following a top-down approach run a high risk of being non-sustainable. Alternatively, a bottom-up approach that includes active stakeholder consultation and participation offers transparency in decision-making for more effective management. In many traditional or artisanal fisheries, traditions and cultures of the fishers who are the major stakeholders need also to be incorporated with other formal management measures.

**“Fisheries management plans should be developed to guide management direction based on clear government policy and vision, following a bottom-up approach”**

Plans are evolutionary and dynamic, and successful management plans are the consequence of commitment and collaboration by all parties concerned. Plans should be subject to regular reviews, and proper indicators are necessary for every goal or objective pursued. Furthermore, fisheries management requires an adequate institutional base including regulations and enforcement frameworks. The development and application of a set of rules and regulations that govern the behaviour of fishers is required since compliance has to be evaluated. These should be outlined in management plans.

For the development of a management plan for a proposed pilot study, a fishery first has to be identified. It is proposed that a fishery that is small, rather localized and selective and involving a small fishing community, be selected. This fishery should be legal and subject to management measures.

During the initial phase, effort should be made to compile available information on the fishery to be studied. A profile workshop involving stakeholders of the selected fishery for the pilot study should be organised. Owing to the general low level of education of fishers in Southeast Asia, the management authority must play a very active role in compiling all existing and current information on the selected fishery (such as description and status of the fishery, and current management measures implemented) and document the information that must finally be presented back to the stakeholders for discussion. During this discussion, the stakeholders should be brought to understand the need for fisheries management. Current issues within the fishery that have not been addressed should be raised by the stakeholders.

**“During this discussion, the stakeholders should be brought to understand the need for fisheries management.”**

The fishery manager should then organize sessions to draft the plan guided by the discussions and issues raised at the first meeting with stakeholders. The initial structure of the plan should be developed thereafter. Most importantly, the plan should focus on achievable objectives and on mechanisms for the regular review of the plan. Indicators should link defined objectives with management actions, and specific indicators should be identified to evaluate the effectiveness of the plan and management measures. These will provide the feedback necessary for further improvement of the plan. This review should also include the effectiveness of agreed indicators as well as agreement by the stakeholders to provide the necessary data on indicators.

The draft plan should be circulated to stakeholders for comments at another consultation. Comments by stakeholders can again be incorporated into the plan. Then, the final draft of the plan should be accepted for implementation in the pilot study. Both the draft management plan and the development of the process in the formulation of the plan should be part of the final output of this pilot study, as emphasized by FAO.

## Implementation of pilot projects in SEAFDEC Member Countries

After more than a year of pilot project implementation, a Second Regional Technical Consultation on the use of indicators was held in March 2004, as presented in the last issue of *Fish for the People*, during which the progress of the project implementation and the preliminary results were discussed. These are presented as follow.

### Brunei Darussalam

The project started in September 2003, when the project team was formed to carry out the study. The project proposal was refined, focusing on important aspects of the pilot study such as the identification of possible indicators of sustainable development from the trawl fishery and how these will be used. To start with, the fisheries management plan was formulated as a directive approach to this project, involving the Department of Fisheries and the stakeholders who play a vital role in capture fisheries.

The goal pursued for marine capture fisheries in Brunei Darussalam is to develop activities towards the maximum economic yield. The main objective of the pilot project is to achieve sustainable development in capture fisheries using indicators as a tool that provides information on the condition and status of fisheries resources.

The fisheries management plan, including the identified indicators, was then discussed with stakeholders in order to get their response and, above all, to encourage active participation in bringing capture fisheries to the maximum sustainable yield. Cooperation from the stakeholders was also sought to obtain the information required (on fish production, income, and expenditure) that would be used as indicators in the study of the trawl fishery.

Stakeholders were selected according to the types of fishing gear they use, in this case trawls, and by fishing zone (classified according to the distance to the coast, with zone 3 the farther). Nine out of 18 stakeholders invited from Zone 2 responded, while all three stakeholders from Zone 3 attended. No trawlers are allowed to fish in Zone 1, which is reserved for small-scale fishermen. Thus, a total of 12 stakeholders participated in the meeting. The proposed indicators were discussed and accepted by the stakeholders. They include *harvest indicators* (landings, catch per unit effort,



*Landing site at Wonokerto, near Pekalongan, Central Java. Will the baskets be full of fish?*

CPUE, total value), *fishing effort indicators* (number of vessels and fishers, fishing time), *harvest capacity indicators* (gross tonnage and horsepower), *net return indicators* (profit-rent, net return and investment) and *catch structure indicators* (catch composition, size of fish). A further stakeholder meeting is planned.

### Indonesia

The north coast of Central Java was selected as an appropriate and cost-effective site location. The aim is to study the exploitation of demersal and shrimp fishery resources by small-scale fishing boats that are less than 30 GT. Observations and interviews with fishers at the landing sites indicated that some historical data on these fisheries were available. Licensing of fishing vessels is

completely under the control of the local authority, and the actual fishing effort is not well known or documented, although it is believed to be very large. There is a general feeling that small-scale demersal and shrimp fisheries are “already hopeless and uncontrollable.” Since these are also multi-gear fisheries, there is seasonal movement in and out of the main fishing grounds, making the situation even more complex.

The pilot project started in May 2003 and is supported by funding from the national budget. Several indicators are being considered, including CPUE, catch data, species composition, and mean size of fish and spawners. Field sampling was designed to be carried out on a monthly basis, and the following activities have been conducted:

1. Collecting and evaluating data for small-scale demersal fisheries
2. Collecting and reviewing all existing research data
3. Collecting biological data *in situ* such as catch composition and reproductive stages of fish
4. Collecting catch-effort data *in situ*, and including the actual fishing effort
5. Collecting existing data on the share system practiced (this refers to the system practiced in the distribution of earnings between fishermen from the sale of catch usually in some fixed ratio agreed upon before venturing at sea)
6. Studying the licensing system
7. Studying the mobility of fishing boats, and
8. Conducting experimental fishing using Juvenile and Trash Fish Excluder Devices (JTED).

## Malaysia

The long term management objective for trawl fisheries in the coastal area, which has been targeted in the pilot study, is to sustain production at present levels. This is important in order to meet the national obligation for ensuring sufficient future supplies of fish, and can be achieved through optimising fishing capacity to match sustainable use of the stock. Management of fisheries in Malaysia is the responsibility of the

Department of Fisheries. In the past, stakeholders were not involved much, but recently efforts are being made to consult them as often as possible on management issues and mitigation measures implemented.

The project started in January 2003 with the implementation of several activities in the planning stage. These activities included the preparation of the project proposal, the assessment of the status of fishery resources in the study area, and the preparation for paper presentation to the stakeholders. The two major achievements up to now are the National Conference on Management of Coastal Fisheries in Malaysia and the formation of the National Steering Committee for the Management of Coastal Fisheries in the country.

The core group formed for the pilot project on indicators comprises 20 researchers and managers from the Department of Fisheries. The group first met in June 2003 to prepare the scope, framework, criteria, objectives, potential indicators and reference points for Zone B trawl fisheries in the states of Kedah and Perlis on the northwest coast of Peninsular Malaysia. Zone B refers to the fishing zone from 5-12 nautical miles from the shore, with Zone B trawlers not authorized to fish in areas closer than 5 nm. Many potential indicators, including resource, environment, socio-economic, and fleet indicators were proposed.

A National Expert Meeting was organized in July 2003 to review the proposed indicators identified by the core group. The experts included researchers, managers and officials from various fishery-related agencies in Kedah and Perlis. The meeting finalized the scope, framework, criteria, objectives, potential indicators and reference points for trawl fisheries in the two states. The outputs were presented at a First Stakeholders Consultative Workshop, held in August 2003, and attended by about 60 participants, half of whom were local stakeholders. The workshop discussed the potential indicators and agreed to update information on these before finally selecting and testing the best of them during the Second Stakeholders Consultative Workshop held in mid 2004.

Next, a socio-economic survey on Zone B trawl fishers in Kedah and Perlis was jointly conducted with the Fisheries Development Authority of Malaysia (FDAM) from December 2003 to February 2004. This



survey was conducted to compile missing socio-economic data and to update existing data. A total of 443 respondents were interviewed on a wide spectrum of questions, from social status and income to understanding of fisheries management. In addition, a fishery resource survey in Zone B (12 – 30 nm) off Kedah and Perlis was conducted using a commercial trawler in February 2004. During this survey, data on selected environmental parameters were also collected.

**“The use of indicators should be integrated into fisheries management plans, and there should be a clear linkage between indicators and management objectives, with special consideration given to the reduction of excess fishing capacity.”**

#### Philippines

The main objective identified for the pilot project was to determine the status and trend of ring net fishery as a basis for its sustainable management. Other objectives are to develop a biological and economic database and to provide scientific information for formulating a fisheries management plan for the ring net fishery. The main indicators proposed include CPUE, species composition, mean size of fish and spawners.

Two stakeholder meetings were held in Cebu City, in December 2002 and in January 2003. Other activities planned include:

1. Determination of species composition, change in species composition and catch per unit effort of the ring net fishery in Camotes Sea.
2. Determination of the size and percentage of spawners of selected commercially dominant pelagic species in the ring net catch.
3. Determination of changes in the mean length of species from ring net catch.
4. Collection of primary data for catch and effort, length and weight measurements, sex and gonad maturity
5. Collection of secondary data for time series of

catch and effort and length measurements

6. Monitoring of ring net landings every two days (giving a total of 10-11 days sampling a month) at the two landing sites at Looc and Taboc-looc, Danao City
7. Conducting biological studies on nine commercially important and dominant species of roundscads (*Decapterus macrosoma*, *D. tabl* and *D. kurroides*), mackerels (*Rastrelliger faughni* and *R. kanagurta*), bullet tuna (*Auxis rochei*), frigate tuna (*A. thazard*), big eyed scad (*Selar crumenphthalmus*) and moonfish (*Mene maculata*).

An initial analysis of data from 1983 to 2003 shows that there is an increasing trend for the mean annual CPUE for the ring net fishery in the Camotes Sea. These data are encouraging, and may possibly demonstrate that the co-management approach adopted by the regional Fisheries Management authority has been successful here. Another stakeholder meeting is planned for mid 2004.

#### Thailand

The otter board trawl fishery of Pran Buri district was selected for study in the pilot project. The main objective of the pilot project was to improve the stock status in this area. Small otter board trawlers of overall length (LOA) less than 14m are usually operated here by local fishers and hired labour from other regions in Thailand. Fishers in Pran Buri district earn lower income than fishers from other areas. Some of these trawlers operate illegally within 3km of the shore. Almost all fishers at the site have been willing to cooperate. This was a good start, and will hopefully contribute to a productive outcome to further facilitate the management of fisheries in the district.

During the initial phase, the project site was surveyed, and the basic knowledge available was reviewed. A Consultation Meeting was held with stakeholders (fishers, processors, local authorities and local government officers), during which the pilot project and its objectives were explained, and stakeholders discussed related problems. Several indicators were proposed, such as catch rates, catch composition, mean size of spawners, mean size of fish and shrimps, and some socio-economic indicators.

Monthly collection of fishery data started in April 2003, mostly to assess the current status and trend of this fishery. A Second Stakeholders Meeting has been planned for mid-2004 to report and discuss the outcomes of the experimental survey and the progress of the pilot project, as well as the proposal for a Fisheries Management Plan. Through the meeting, it is hoped that the fishers will learn and understand more about the present fishery situation, from the various indicators selected, and will participate and comply with fisheries management in their area to help solve related problems. The selected site will first have a management plan limited to small shrimp trawl fisheries as a part of the training. If this pilot project is successful, it will be used as a case study for sustainable fishery management in other areas and other fisheries.

### **Conclusion**

Indicators should be used as tools in fisheries management for effective planning, communication, monitoring and evaluation. The use of indicators should be integrated into fisheries management plans, and there

should be a clear linkage between indicators and management objectives, with special consideration given to the reduction of excess fishing capacity. The active involvement as well as close consultation and communication among the stakeholders – those who contribute to or are influenced by the outcome of the fisheries management process – is crucial and must be promoted throughout. This is to ensure a common understanding, awareness, consensus building and cooperation in selecting and using indicators, thereby enhancing their compliance in fisheries management.

From the implementation of the pilot projects in some ASEAN-SEAFDEC Member Countries, the process of stakeholder consultation has already been established. This is seen as an important step in improving fisheries management, in particular of small-scale fisheries.

In Brunei Darussalam and Thailand, the pilot projects have been developed on the basis of the existing close relationship that the Department of Fisheries has established with the fishers and other stakeholders



<b>Malaysia – a systematic process of consultation</b>	
<b>Development of Process</b>	<b>Activities</b>
Planning stage	<ul style="list-style-type: none"> <li>- Preparation of project proposal</li> <li>- Assessment of status of fishery resources</li> <li>- Preparation of information and data to be presented to stakeholders.</li> </ul>
Convening a national conference	<p>The National Conference on Management of Coastal Fisheries in Malaysia was held with the following objectives:</p> <ul style="list-style-type: none"> <li>a) To present an evaluation of the status of coastal fisheries resources</li> <li>b) To examine the potential use of participatory management)</li> <li>c) To identify key follow-up actions for improved management of coastal fisheries in Malaysia.</li> </ul>
Forming a National Steering Committee	<p>As suggested immediate actions during the national conference, a National Steering Committee on Management of Coastal Fisheries in the country was formed.</p> <p>The Committee comprises representatives of the Fisheries Development Authority of Malaysia (FDAM), the Malaysian Institute for Maritime Affairs (MIMA), the WorldFish Center (WFC) and the Ministry of Agriculture (MOA) and is chaired by the Deputy Director General of the Department of Fisheries (DOF) Malaysia.</p> <p>The task of the committee is to oversee activities implemented towards the management of coastal fisheries, including this indicator project.</p>
Conducting a Core Group Meeting	To prepare the scope, framework, criteria, objectives, potential indicators and reference points for the Zone B trawl fisheries in Kedah and Perlis.
Conducting a National Expert Meeting	The meeting finalized the scope, framework, criteria, objectives, potential indicators and reference points for trawl fisheries in Kedah and Perlis.
Holding the First Stakeholders Consultative Workshop	The output from the National Expert Meeting was presented to stakeholders. The Workshop finalized the choice of potential indicators, and agreed to update information for all the selected potential indicators, to be presented during the Second Stakeholders Consultative Workshop.
Holding The Second Stakeholders Consultative Workshop	To discuss selected potential indicators before testing the “best ones”.



themselves. In Indonesia and the Philippines, contacts with the fishers and other stakeholders were mainly developed through arrangements made at the local level through local fisheries management authorities. In both situations, close connection and consultation between government and fishermen has been established through the implementation of the pilot projects.

In Malaysia, a systematic process of consultation, as outlined in the table below, had so far been achieved through a series of well-organized interactions among stakeholders who include representatives of fishers and the fishing industry, academics, government agencies, non-governmental organizations and the staff of the Department of Fisheries Malaysia.

The results achieved so far from the implementation of pilot projects are positive and encouraging. Furthermore, the pilot projects have also helped through practical hands-on experience for project officers in their respective countries. Through working in various ASEAN Member Countries, it has also provided experience on the management of fisheries in different scenarios with different scale and development levels. It is hoped that the results will provide a basis for the formulation of a document on guidelines for the use of indicators for improved marine and inland fisheries management in the ASEAN region, which will support the promotion and use of indicators for sustainable development and management of capture fisheries. These proposed guidelines will be developed as a major output from this project, as proposed through the tentative framework adopted during the second regional technical consultation on the use of indicators.

#### About the author

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# Learning about Our Fishing Gear and Fish Resources: Overlooked and Scattered Information on Inland Capture Fisheries

*by Jarumon Talawat*



## Introduction

Existing information and data for sustainable development and management of inland fisheries in the ASEAN region is widely recognized as being inadequate. With this concern in mind, the ASEAN Member Countries and SEAFDEC in 2002 initiated a

special five-year project, called 'Information Gathering for Inland Capture Fisheries in ASEAN Countries'. The project aims at strengthening information collection and compilation, considering the importance of inland fisheries to the region as well as the need to get effective

and useful specifics for policy makers and administrators to support the sector.

The project was implemented under the lead of the Marine Fishery Resources Development and Management Department (MFRDMD) of SEAFDEC, with assistance from the Secretariat. Activities on the compilation of inland fishing gear and methods in Southeast Asia were proposed to be conducted in Lao PDR and Myanmar. Using the technical capacity of SEAFDEC, the project aimed to assist these countries in developing proper methodologies for the national survey and collection of information on fishing gear and related operations.

**“Existing information and data for sustainable development and management of inland fisheries in the ASEAN region is widely recognized as being inadequate.”**

In addition, a study on the taxonomy of inland fishes was also considered to help a better understanding of the existence and distribution of fish species in inland water bodies. The taxonomic aspect of the study was proposed to be implemented in Myanmar, as this country has one of the richest fish fauna in the world, with a large abundance of inland fisheries resources. The study would provide a basis for future planning and management of the inland fisheries sector.

## Key questions

To determine appropriate approaches for gathering the required information, two main questions needed to be considered for understanding the situation of inland capture fisheries. These questions are *what are used for capture?* and *what is captured?* The types of gear and fishing methods, as well as the composition and distribution of fish species are the basic information required. The answers to *who, when, where, why* and *how*

will further improve understanding and provide an overall picture of the situation and trends in inland fisheries.

## Compilation of inland fishing gear and methods in Lao PDR and Myanmar

### Background and current situation

Lao PDR is the only landlocked country in Southeast Asia. It is crossed by a web of rivers, which makes the inland fishery sector one of the most important contributors to food security and local people's livelihoods. Despite the importance of the sector, information on inland fisheries is still very limited. Although it is clear that the limited interest in the sector on the part of the government is an important reason for this scarcity of information, limited funds and the large number of fishing gear and methods used in the country, some of which are still to be identified and classified, are making the situation more difficult.



The Union of Myanmar is the largest country in mainland Southeast Asia and has various major sources of freshwater food fish production, namely lease (or concession) fishery, open fishery and aquaculture. In recent years, inland fisheries have become a profitable enterprise contributing significantly to rural food production and social-cultural aspects. However, Myanmar is currently encountering threats to its inland fishery resources. There is an increasing need for management actions that can be developed through various means of planning. To achieve these, fishery planners need to have available and be informed by good data on inland fisheries. The current lack of statistical data and information for management of inland fisheries, especially data on available fishing gear and practices, is one of the major causes for the current underestimation of total production.



## Objectives

Once properly analyzed and compiled, these scientific inventory surveys on inland capture fishing gear and methods in Lao PDR and Myanmar will provide a significant basis for publications and other information materials on inland fisheries in Lao PDR and Myanmar. This will contribute to building awareness on the need to manage inland fisheries, and to provide first-hand information for planning in the sector.

## Surveys and data collection

Surveys and data collection were conducted based on the standard FAO methodology for fishing gear surveys, taking into consideration the three major habitats of inland fisheries in the two countries, namely reservoirs, rivers and wetland/swamps systems.

The activities can be divided into three parts. First, SEAFDEC staff, accompanied by officials from the Department of Livestock and Fisheries (DLF), Lao PDR, and from the Department of Fisheries (DoF), Myanmar, carried out an initial survey at some sample spots in order to verify the methodology while at the same time building up officials' capacity. Once officials have experience through the initial survey, they can conduct a similar survey in other sampling areas, so remaining data collection activities were conducted solely by the respective government agency in each country. Eventually,

when sampling surveys by the government are completed, a follow-up survey will be carried out to pursue and facilitate activities, so as to review the data collected by the DLF/DOF officials. This will include clarification on the linkage between collected data and management of inland capture fisheries as well as on overcoming obstacles faced during their surveys. SEAFDEC will also provide technical assistance for the preparation of monographs and posters.

## Results of the initial survey

In Lao PDR, an initial survey was conducted in Luang Prabang during the period 25–28 August 2003. The survey team visited eight fishing villages, most of which have small-scale fisheries being operated using a diverse range of inland fishing gear, including hooks and lines, cast nets, gill nets and fish traps. Some of the main target species are pangasius catfish (*Pangasius* spp.), isok barb (*Probarbus jullieni*), common carp (*Cyprinus carpio*), small-scale mud carp (*Cirrhinus microlepis*), black sharkminnow (*Labeo chrysophekadion*) and sheatfish (*Kryptopterus* spp.). Information related to fishing gear and their operations was collected for developing a monograph that can be used for inland fisheries management planning.

### Collaborative On-the-job Training on Graphic Preparation for Fishing Technology Studies

According to the framework for activities, the compiled data will be presented through monographs. However, there is a lack of knowledge and skills for producing such publications. Training was therefore carried out to address this need for capacity building. This was organized by the Secretariat in collaboration with the SEAFDEC Training Department in June 2004 in Thailand.

The training has strengthened basic knowledge on fishing gear and related materials and literature, survey methodology of gill net, fyke net, trap and hook and lines. In terms of graphic software, the training provided basic concepts on computer graphics, drawing isometric figures, calculation and drawing of trap & net panels, development and layout of monographs, as well as additional tools for graphic preparation. It is expected that the current capacity in using graphic software as well as presenting fishing technology will be built up in these countries in the near future.



The team conducted the initial Myanmar survey in Mandalay Division and Inlay Lake of the Shan State, during the period 15–19 September 2003. Various categories of fishing gear and remarkable traditional gear

were noted. Lease fisheries were the largest contributor to national inland fisheries, providing fish traded widely around the country. The team observed seven natural water bodies, and recorded both commercial and small-scale fishing gear found in those sites, including fence filter traps, beach seines, surrounding gill nets, shrimp traps, and the Inlay basket (a plunge basket found only in the Inlay Lake in Myanmar). The major commercial fish observed included common silver barb (*Puntius gonionotus*), striped catfish (*Pangasius hypophthalmus*), grey featherback (*Notopterus notopterus*), and striped snakehead fish (*Channa striata*).

### Future activities

It was proposed that future activities would include follow-up surveys and publications for further use as reference. These will support the management of inland capture fisheries. Some highlighted information will also be published as posters in order to draw public attention to the issue.

## Taxonomy of inland fishes in Myanmar

### Background and current situation

Myanmar is considered to have some of the richest fisheries resources in the world. Yet, a lack of record and study on aquatic animals' taxonomy has caused difficulties for the management and planning of these fisheries, especially on issues related to biodiversity and fish habitats. As a part of a

much needed improvement in the management of inland capture fisheries, a full taxonomy of inland fishes in the country needs to be developed, covering both brackish and freshwater species.

### Objectives

The activity aimed at conducting surveys with collection of fish specimens in Myanmar, and building up relevant staff's technical capacity and expertise on specimen collection and scientific photography as well as species identification. The outcome of the activity will be presented in the form of a 'Handbook of Inland Fishes in Myanmar' for further use as a basis for planning and management of inland water bodies.

#### On-the-job training for curators-to-be

In order to facilitate inland fish taxonomy studies and the establishment of an inland fish museum in Myanmar, on-the-job training for curators on fish specimen cataloguing systems was conducted for five days at the Department of Fisheries in Thailand during January 2004.

The training provided the technical capacity and expertise on general taxonomic identification and classification, specimen collection and photography, preservation and sorting of specimens, fish cataloguing systems and taxonomy study for fish larvae. In addition, arrangements for an inland fish museum in Myanmar will be developed.

### Surveys and data collection

The surveys were designed to collect specimens of fish species for further study, including species identification, and collect related data for the publication. The specimens were collected from fishing grounds, landing places, fishing lots, fish farms and markets, including ornamental species, courtesy of dealers.

To facilitate fish identification, quality photos of collected specimens were taken using high resolution colour. Afterward, specimens were preserved in 10% formalin for two weeks and transferred to 70% ethyl alcohol for long-term preservation and further study in laboratory.



## Results of surveys

The surveys were conducted in the three most important areas of inland fish habitats in the country. Collected specimens were identified by scientific name and family, together with brief descriptions, including elements such as brief diagnostic characters, size, some known biology and distribution in river basins.

The initial inventory survey was carried out in Middle Myanmar in December 2002, in Yangon Division, Mandalay Division and the Inlay Lake of Shan State. More than 280 fish species were found, but only 150 important and more common species were included in the study.

This was followed by another survey in Southern Myanmar in October–November 2003 at Pa-an District of Kayin State and Phyapon District of Ayeyarwady Division. 107 species were found in Pa-an District and 92 in Phyapon District.

The final survey was conducted in March 2004 in Northern Myanmar, at Myitkyina District and Indawgyi Lake of Kachin State. 60 fish species were found in Myitkyina District and 40 fish species at Indawgyi Lake. However, the survey was not able to cover the whole area in these two districts, so these diversity values are likely to be underestimates.

The complete results from the study on fish taxonomy indicate that diversity reached a total of 180 species in the surveyed areas.

## Conclusion

Information on inland fishing gear and methods as well as on inland fish species and distribution in water bodies are considered to be important for both planning and management. This study will provide an overview on the situation and trends of inland capture fisheries for local policy-makers and managers in Lao PDR and Myanmar. Outcomes will be disseminated for further use as a basis for management for sustainable inland capture fisheries in Lao PDR and Myanmar, as well as to provide valuable first hand experience to other ASEAN Member Countries.

### About the author

Jarumon Talawat is currently working as Information Officer at the SEAFDEC Secretariat. She has been involved in the coordination and implementation of the activities under the project on 'Information Gathering for Capture Inland Fisheries in ASEAN Countries.'

### Publications to be produced under the umbrella of the project

1. Inland Fishing Gear and Methods in Southeast Asia: Myanmar
2. Inland Fishing Gear and Methods in Southeast Asia: Lao PDR
3. Handbook of Inland Fishes of Myanmar





# Locally-based Coastal Resources Enhancement in the Province of Aklan, Philippines: A Success Story

by Kai-J. Kühlmann



## The beginning ...

For more than three decades, the rural coastlines of the Philippines, with their once rich near shore coral reefs, fishing grounds, and mangrove belts, have been becoming increasingly depleted due to commercial fishing, migration to coastal areas and, clearing of upland forests. Ongoing near shore commercial fishing and coastal overpopulation have caused heavy competition over remaining food sources and introduced destructive fishing methods, such as fishing with locally produced explosives, fine meshed nets or high density installation of stationary fishing gears. Moreover, clearing of upland forests to export high quality lumber has caused terrestrial run-off, which has led to siltation (“marine snow”), burying coral reefs and making them inhabitable for coral reef fishes.

These major threats have led to the present socio-ecological conflict in rural coastal areas and motivated

the German Development Service (Deutscher Entwicklungsdienst, or DED for short), one of the numerous foreign development organizations at work in the Philippines, to provide extension work for local stakeholders and government units. For more than six years now, DED and its development workers assigned to the Provincial Government of Aklan have attempted to address the threatened socio-ecological situation of the Aklan coastline through the sustainable management of its coastal resources.

*“For more than three decades, the rural coastlines of the Philippines, with their once rich near shore coral reefs, fishing grounds, and mangrove belts, have been becoming increasingly depleted...”*

## Community planning

## Community planning

In the 1990s, in response to the global call for the protection, conservation and sustainable management of coastal resources, the Provincial Government of Aklan initiated efforts for coastal resource management programs along its 155 km long coastline. As early as 1997, the Provincial Government of Aklan established an advisory body on coastal resource management (CRM), known as the Provincial Technical Working Group (PTWG), which is composed of representatives of fishing communities, municipal governments, local non-government organizations (NGOs), fisheries and forestry line agencies, the national police and academics in the province. By convening this group in regular consultative meetings to brainstorm on local CRM issues, the management responsibility has been gradually passed to local government and stakeholders. These participatory efforts have become an important networking tool, rewarded with trust and commitment, and have strengthened the dialogue between local stakeholders and the provincial government (Figure 1).

Arriving at group decisions is often an arduous process. During a series of planning workshops held in 2002 and 2003, the participating local stakeholders, vested with the responsibility for managing their coastal resources, found themselves struggling to make choices, plan activities and resolve CRM issues and conflicts using their own resources and capabilities, within their own local socio-political context. Proposed outputs were further discussed and evaluated in order to prioritize concise actions. Finally, they decided unanimously to give immediate priority to an ecological assessment of 11 stakeholder-selected marine spots of fringing or hilly coral reefs

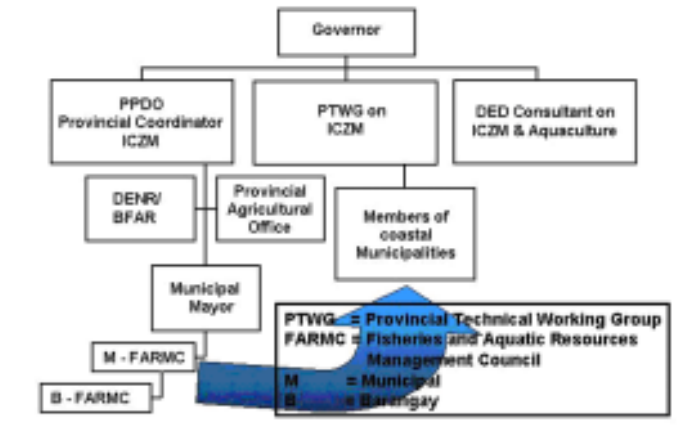


Figure 1: Provincial network in coastal resource management in Aklan, Philippines

spots as marine protected areas (MPAs) by municipal ordinance. This was equivalent to one MPA for each concerned municipality. If managed in a sustainable way, it is expected that there will be a spill-over effect, with coral reef fish migrating to surrounding municipal waters (Figure 3), where they can be caught by traditional fishing methods such as hook and line. It is likewise hoped that this focus on coral reef protection will increase coral reef biodiversity, total biomass and bio-density, and also contribute to the rebuilding of depleted fish stocks.

## The Benefits of Artificial Reefs

While carrying out the ecological assessment exercises, a remarkably high standing fish biomass was observed at a nine-year-old concrete artificial reef (AR) with a sandy bottom in comparison to a 14-year-old rubber-tire AR at another site. Encouraged by this observation, the communities decided to deploy further concrete-made ARs (jackstone and crossbar types) within the core areas of two MPAs in 2003. First coral growth of branching and encrusting coral tissue was observed after one year of deployment.



Figure 2: Project site with proposed marine protected areas (pink) at coastal Municipalities along the Aklan coastline, Philippines





## Ecological Assessment

In 2003, the provincial CRM team together with its DED development worker conducted ecological assessments by manta tow (Figure 4) and transect dives (Figure 5) at the 11 marine spots selected by the PTWG. The results of the assessments revealed promising ecological conditions. Fringing reefs, which are characterized by a spore and grove system of calcareous rocks covered by marine biota, were found in two municipalities, and patch reefs in four others. Marine spots in the five remaining municipalities have only flat and sandy sea bottom.

The surface of the fringing and patch reefs was mainly composed of sand or rubble, followed by hard corals, rock, and soft and dead coral in much smaller quantities. Surface compositions conducted by transect dives, carried out at the selected high biodiversity spots at the proposed MPA sites containing fringing and patch reefs, reflected a hard coral cover combined with rocks, often overgrown by alga. Soft coral, sand and rubble are less common, while only few dead corals and no silt were found.

Generally, a high Condition Index (CI), i.e. the sum of living substrates (such as hard corals, soft corals, alga) quantified (%) and divided by 100 (%) was determined for all transect-dived MPAs. But a high Coral Coverage Index (CCI), i.e. the sum of hard coral tissue coverage directly under the transect line measured in meters, was only obtained for two sites, due to limited alga coverage but remarkable hard coral cover. With the highest reef condition index, these two MPAs were found to have good and very good coral reef conditions, while the others were found to be in fair condition.

Standing coral reef fish biomass estimates for fish of 1–20 cm of total body length, was about 60 tons per square km, an impressive value, with potentially more coral reef fish of smaller size, which doubled the quantity of larger fish. Small coral reef fish were comprised of the taxonomic families of Caesionidae, Labridae, Lutjanidae, Pomacentridae, Scaridae and Serranidae, while Acanthuridae, Caesionidae, Diodontidae, Lutjanidae, Scaridae and Serranidae accounted for the larger reef fish.

In summary, coral cover and fish abundance, although still remarkable, is not as luxuriant as it might have been decades ago. Recent ecological works showed that the Aklan coastline has considerable scope for improving the biodiversity of stakeholder-selected and managed MPAs.



Figure 3: “Spill-over” effect of a marine protected area after 5 to 10 years of protection (“Bangko it isda” mean Fish Bank in the local dialect, Akeanon)



## MPA as nurseries and safeguard to ARs

Although most MPAs appeared to be in a fair ecological condition, two MPAs figured well and very well in terms of surface coverage on all assessed parameters. Moreover, stocks of small coral reef fish occurred in high numbers, which may indicate various breeding grounds and shelters for juveniles at most MPAs. Larger fish however occurred less frequently, while fish over 20 cm in total body length were not found during the assessments.

Deploying ARs in developing countries has often been a critically discussed issue because of the socio-ecological conflict of increasing the scarcity of food supply and the temptation offered to fishers to exploit fish stocks attracted to the ARs. Established within MPAs, ARs can genuinely contribute to increasing fish stocks once local stakeholders have been carefully educated and become aware of their potential long term effects in fish stock enhancement – supported by appropriate MPA and AR management plans.



Top: After one year of deployment, a young stag horn coral (*Acropora sp.*) has settled on the artificial reef made of concrete jackstones at the 2<sup>nd</sup> marine protected area

Below: A school of the False Moorish Idol (*Heniochus diphreutes*) habitats the artificial reef at the 5<sup>th</sup> marine protected area

governments, stakeholder fishers and communities, fishery and forestry agencies, coast guards and local police. These players engage in the rational and sustainable use of coastal resources by raising environmental awareness and enforcing laws and policies related to resource protection. The cohesive network established among stakeholders and government agencies and, led by the PTWG on CRM, may serve as a strong basis for continuous strong efforts through the years.

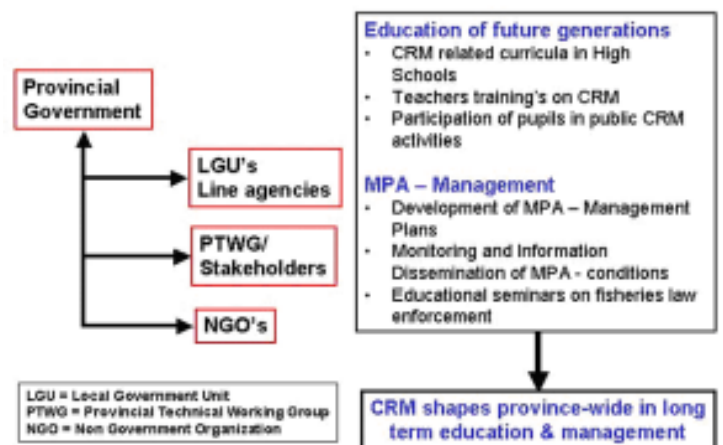
Both strategies, progressively monitored by the CRM team of the provincial government, have inspired, challenged and motivated Aklan's stakeholders to adopt new and innovative CRM approaches. Thus local stakeholders' collective efforts and consensus make

them realize their own potential as individuals and as a dynamic CRM network (Figure 4). Similar observations have already been emphasized, suggesting that strong collaboration between Local Government Units (LGUs) and locally organized CRM-educated groups will empower them to act on their environmental and social

## Stakeholder Networking

The sincere leadership of the Provincial Government of Aklan coupled with legal responsibility for its coastline may foster strong linkages among key players, including local

Figure 4: Outlook of coastal resource management in the Province of Aklan, Philippines



responsibility once local networks between fishing communities, their Municipal Fisheries and Aquatic Resource Management Council, LGUs and NGOs are established.

Additionally, by transforming the biodiversity of MPAs into monetary values, local stakeholders in MPAs have an excellent opportunity to initiate positive development and socio-economic changes, which may be spearheaded by LGUs, fisheries and environmental line agencies.

## Strengthening local management capacity

The sustainability of municipal MPAs is therefore the responsibility of local management. Often, however, no suitable management plans are available because local expertise, appropriate planning activities and funding support, particularly at the LGU or national agency level, are missing. Seeking expertise and assistance from volunteers' organizations is one of several ways to promote strong local MPA management. Here, experts from diverse backgrounds work on the spot for several years under long-term bilateral agreements, and act as local consultants to local-level coastal resource management. They support assessments of local environmental and socio-economic conditions, and assist local governments and stakeholders to formulate and implement locally appropriate CRM plans.

Support to local leadership, fine-tuned to local cultural environments and communication in the local dialect will also contribute substantially to stakeholders' motivation to engage actively in CRM. Moreover, the use of participatory approaches in regular seminars and workshops for local stakeholders will enhance their professionalism and establish a cooperative, supportive and trustworthy working environment among key players, which may contribute to enabling them to create a strong provincial network with a common aim.

Diverse management approaches, such as MPA management plans, artificial reef deployment, public education and environmental awareness raising campaigns are under a strong multi-sectoral cooperation and responsible governance will surely, in the case of Aklan, lead to the emergence of a full grown coastal

alliance, with its municipal MPAs turned into an ecological network system, of benefit not only to coastal communities but to the province as a whole.

### About the author

Kai-J. K hlmann is an expert on aquaculture and coastal resource management, and since 2002 has worked as a DED consultant to the Provincial Government of Aklan. He has seven years experience in aquaculture research and development work in the Philippines, and conducted his Ph.D. thesis on milkfish nutrition and physiology as a University of Hohenheim visiting scientist at SEAFDEC from 1994 to 1995.



The author conducting video-transects (photo courtesy of Eric Ritcher)

### Readings

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## [ Events Calendar ]

Date/Venue	Events	Organizer
<b>2004</b>		
7 May - 5 Jun Philippines	Training on Management of Sustainable Aquafarming Systems	SEAFDEC/AOD
2 Jun - 16 Jul Philippines	Training on Marine Fish Hatchery	SEAFDEC/AOD
2 Jun - 12 Sep (on-line course)	Training on Principles of Health Management in Aquaculture	SEAFDEC/AOD
3-6 Jun Cambodia	Regional Technical Consultation on Human Resource Development in Fishery Management	Sida-SEAFDEC
7 Jun - 16 Jul Thailand	International Training course in Coastal Fisheries Management and Extension Methodology	SEAFDEC/TD
15-18 Jun Thailand	Second ASEAN-SEAFDEC Regional Technical Consultation on Fishery Statistics	SEAFDEC/Secretariat
5-9 Jul Thailand	Workshop on the Evaluation of Juvenile and Trash Excluder Devices (JTEDs) in Southeast Asia	SEAFDEC/TD
13-15 Jul Thailand	Second ASEAN-SEAFDEC Regional Technical Consultation on Shark Fisheries	SEAFDEC/Secretariat
21 Jul - 31 Oct (on-line course)	Training Course on Basic Principles of Aquaculture Nutrition	SEAFDEC/AOD
27-29 Jul Singapore	First Meeting on the Seafood Safety Information Network	SEAFDEC/MFRD
2-6 Aug Vietnam	Hazards and Controls Workshop	SEAFDEC/MFRD
2 Aug – 12 Nov (on-line course)	Distance Learning Training Course on AquaHealth	SEAFDEC/AOD
2-31 Aug Philippines	Training Course on Responsible Aquaculture	SEAFDEC/AOD
25-27 Aug Philippines	Regional Technical Consultation on the Development of the Regional Code of Conduct for Responsible Aquaculture in Mangrove Areas	SEAFDEC/AOD
31 Aug - 4 Sep Thailand	Third Regional Workshop on Good Laboratory Management Practices and Methods Validation	SEAFDEC/MFRD
7-9 Sep Malaysia	Regional Technical Meeting on Sea Turtle Tagging	SEAFDEC/MFRDMD
7 Sep - 6 Oct Philippines	Training Course on Crab Seed Production	SEAFDEC/AOD
13-16 Sep Malaysia	Third Technical Consultation Meeting on Information Collection for Sustainable Pelagic Fisheries in the South China Sea	SEAFDEC/MFRDMD
14-16 Sep Thailand	Preparatory Expert Meeting on Fishing Capacity and Related Human Resource Development Needs in the ASEAN Region	Sida-SEAFDEC
27 Sep – 15 Oct Singapore	MFA-JICA Regional Training Course in Seafood Safety Management	SEAFDEC/MFRD
23 Oct – 11 Nov Philippines	Training Course in Mangrove-Friendly Shrimp Farming	SEAFDEC/AOD
26-29 Oct Thailand	Regional Technical Consultation on Regionalization of the Code of Conduct for Responsible Fisheries (RCCRF) Phase IV: Post-Harvest Practices and Trade	SEAFDEC/Secretariat and MFRD
8-9 Nov Malaysia	Technical Working Group Meeting on the Indicators for the Sustainable Development and Management of Capture Fisheries in the ASEAN Region	SEAFDEC/MFRDMD
9-12 Nov Thailand	Regional Workshop on Artificial Reefs in Southeast Asia	SEAFDEC/TD



## Southeast Asian Fisheries Development Center (SEAFDEC)

### What is SEAFDEC?

SEAFDEC is an autonomous intergovernmental body established as a regional treaty organization in 1967 to promote fisheries development in Southeast Asia.

### Objectives

SEAFDEC aims specifically to develop fishery potentials in the region through training, research and information services in order to improve food supply through rational utilization of fisheries resources in the region.

### Functions

To achieve its objectives the Center has the following functions:

1. To offer training courses, and to organize workshops and seminars, in fishing technology, marine engineering, extension methodology, post-harvest technology, and aquaculture;
2. To conduct research and development in fishing gear technology, fishing ground surveys, post-harvest technology and aquaculture, to examine problems related to the handling of fish at sea and quality control, and to undertake studies on the fisheries resources in the region; and
3. To arrange for the transfer of technology to the countries in the region and to make available the printed and non-printed media, which include the publication of statistical bulletins for the exchange and dissemination related to fisheries and aquaculture development.

### Membership

SEAFDEC members are the ASEAN Member Countries (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) and Japan.



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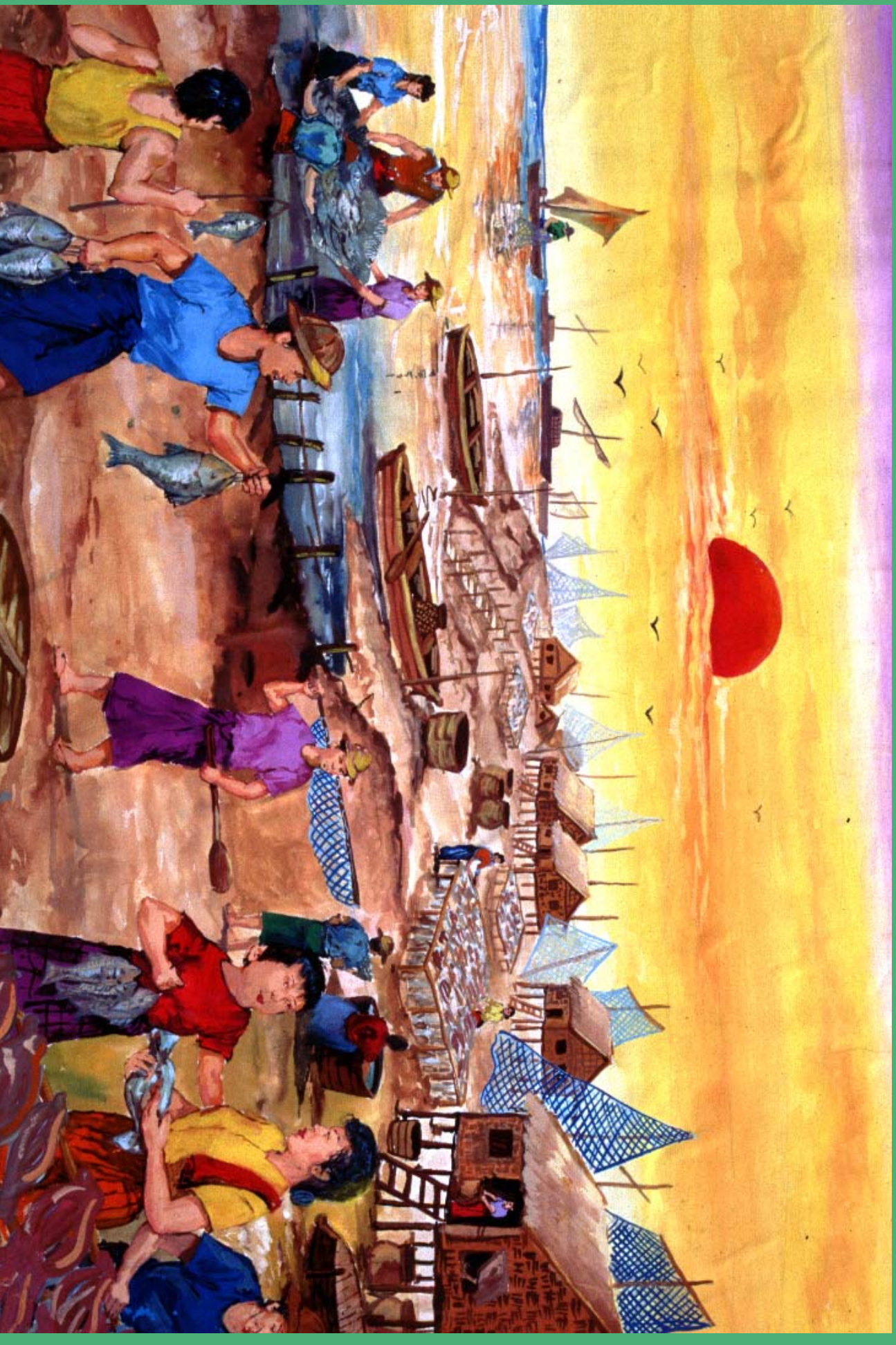
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*In the occasion of the Millennium Conference, a drawing contest was organised for the children among ASEAN-SEA/DEEC Member Countries, on the theme of 'Fish and the Culture'. This is the best drawing from Myanmar.*