

*Marine fisheries of south and southeast Asia:  
a review of the resources and the need for MCS*

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**INTEGRATED COASTAL RESOURCE MANAGEMENT, LIVELIHOOD  
DEVELOPMENT AND MCS – A PHILIPPINE EXAMPLE**

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## LIST OF ABBREVIATIONS

|      |   |
|------|---|
| ADB  | Asian Development Bank                    |
| BFAR | Bureau of Fisheries and Aquatic Resources |
| CRM  | coastal resource management               |
| ICRM | integrated coastal resource management    |
| MCS  | monitoring, control and surveillance      |
| NGO  | non-governmental organizations            |

### 1. INTRODUCTION.

A key to the success of integrated coastal resource management (ICRM) integrated coastal resource management (ICRM) programmes is the ability to address all components of ICRM, including poverty and employment concerns, in parallel with the coastal resource management (CRM) coastal resource management (CRM) coastal resource management (CRM) initiatives (data collection, planning, community organization, zonation, rehabilitation, etc.) as well as the legislation and monitoring, control and surveillance (MCS) monitoring, control and surveillance (MCS) monitoring, control and surveillance (MCS) activities. There is the need to get the coastal inhabitants to accept and “buy into” the management process. Failure to address the poverty and livelihood factors will result in a shift in local priorities back to basic survival, resulting in CRM and MCS activities that will be less than successful. The Government of the Philippines has had numerous CRM initiatives, and all had poverty alleviation, alternative livelihood and supplemental livelihood components. These have totalled in excess of several thousand millions of pesos over the past ten years and, in the majority of cases, been less than successful. The question raised has been: “Why?” The response has been that it is due to several factors, including:

- (i) poor management capacity of local communities and community organizations;
- (ii) the proliferation of new non-governmental organizations (NGOs) non-governmental organizations (NGOs) non-governmental organizations (NGOs) more inclined to self-preservation than to development;
- (iii) confrontation between NGOs and the local government units they were supposed to be supporting;
- (iv) lack of responsible community organizations with the knowledge and integrity for implementation of borrowing and repayment practises, e.g., the attitude of borrowers in these programmes is one of promoting an opportunity to gain access to funding as grants instead of loans;
- (v) the micro-perspective of the livelihood initiatives, without networking for wider market access, e.g., *sari-sari* stores, independent tricycle businesses in a local market where saturation was soon realized and businesses closed; and
- (vi) the lack of flexibility of banking institutions for new and novel lending schemes with careful monitoring to ensure repayment of loans.

Most of these reasons have proven valid, and the continuation over decades of such traditional initiatives has proven time and time again that the lessons have been learnt neither by the donor agencies, the people, nor the banks.

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The lack of success of ICRM and CRM initiatives in the Philippines are examples, even after considerable investment by donor agencies, such as the Asian Development Bank (ADB) Asian Development Bank (ADB) Asian Development Bank (ADB) and Overseas Economic Cooperation Fund providing \$US 155 million for the Fisheries Sector Programme from 1989-1996; the USAID Coastal Resource Programme of \$US 75 million from 1995 to present. The lack of success of these initiatives can in part be attributed to their inability to address the poverty and livelihood components. The community organization, institutional strengthening and MCS components have had varying degrees of success, but lack of political will has hindered their progress to date at the national, regional and local levels.

The Philippines is unique in that while elsewhere in the world countries are discussing community-based management, in the Philippines it has been legislated that each coastal community shall have management responsibility for the area off its shores, out to 15 km. This has been done through the Local Government Code of 1991, and further recognized in the recent passage of the Philippine Fisheries Code of 1998. An example of a local government unit which has taken this responsibility seriously to truly address all the components of ICRM is Puerto Princesa City, in the Province of Palawan.

Sustainable ICRM in areas of sensitivity and high-density fishing depends greatly on planning, legislation, involvement of the clients, and controls on the removals from the coastal fisheries and marine habitat. Many coastal, rural inhabitants, in their daily survival for food, do not have the luxury of looking at medium- and long-term issues when daily survival is of overriding importance. However, poverty is no excuse for destruction of the marine resources. Sustainable management in the coastal area can only be achieved if there is equal importance given to all components: planning; poverty alleviation and livelihood generation; legislation; and MCS. This paper provides an example of a small local government unit implementing its integrated coastal resource programme in the Philippines.

## **2. BACKGROUND.**

Puerto Princesa City – whether named for its strategic port location or for the legend of the princess maiden alleged to roam the city at night – is the western-most City of the Philippines, founded in May 1872, and has always been the nerve centre of the province of Palawan. Geographically, it is the second-largest city in the Philippines, with a land area in central Palawan of 253 982 ha. Puerto Princesa borders both the South China Sea on the west and Sulu Sea on the east. It comprises of 66 *barangays* (42 being rural communities) and stretches over 106 km. It has a population in excess of 160 000, with a potential labour force of 100 000 persons from its 29 490 households. The greatest concentration of the population is located in the peninsular area of the City.

The City has a high central ridge of mountains, a large catchment area and diverse agricultural base. It is for these reasons that one cannot approach CRM in a piecemeal fashion, but must instead address this issue in an integrated and holistic manner. CRM must first look at the social factors that influence current practices which are detrimental to the health of the coastal areas and marine resources. It must include a review of the activities in the highlands and upper catchment area that will have an impact, and also those in the coastal/municipal waters, as well as the offshore areas.

## 2.1 Employment.

The occupations of Puerto Princesa citizens as of 1997 are given in Table 1. Note that the fishers category includes both subsistence fishers and registered full-time municipal fishers, of which there were about 2 700.

**Table 1** Occupations of Puerto Princesa Citizens (1997)

| OCCUPATION             | URBAN  | RURAL  | TOTAL  |
|------------------------|--------|--------|--------|
| Farmers                | 225    | 9 147  | 9 372  |
| Fishers                | 3 351  | 5 769  | 9 120  |
| Carpenters             | 998    | 1 912  | 2 910  |
| Govt/Private employees | 9 121  | 17 423 | 26 544 |
| Teachers               | 313    | 523    | 836    |
| Traders/Business       | 3 726  | 6 879  | 10 605 |
| Hired Labourers        | 1 961  | 3 250  | 5 211  |
| Domestic Help          | 124    | 215    | 429    |
| Peddlers               | 293    | 339    | 632    |
| Hostess/Waitress       | 1 003  | 663    | 1 666  |
| Barbers/Beauticians    | 557    | 887    | 1 464  |
| Dressmakers/Tailors    | 559    | 1 375  | 1 934  |
| Housekeepers           | 5 753  | 17 128 | 22 881 |
| Students               | 14 499 | 35 458 | 49 957 |
| Retirees               | 519    | 741    | 1 260  |
| Others                 | 4 539  | 11 257 | 15 796 |

## 2.2 Land use management.

The City's Land Use Ordinance of 1975 is still the basis for zoning and land use planning, with the current main sector being timberland (approximately 50%), followed by agricultural (25%). It is evident that the government and private sector employees dominate the employment market, but the significance of the rural and coastal population, the upland farmers and their practices, cannot be overlooked.

## 2.3 Resource users.

The users therefore comprise the native forest farmers and hunters, coastal farmers/fishers, full-time municipal fishers, visiting tourists, offshore/commercial fishers (both legal and illegal), shippers and coastal developers.

## 2.4 Fisheries.

Focusing closer on the fisheries sector: of the individuals listed above, 2 680 of the fishers were registered in the new computerized licensing system, with a total of 1 432 vessels, of which 1 355 were municipal fishing vessels, as defined in law, i.e., small fishing boats under 3 GRT.

Total official fish landings in 1997 were 15 000 t, and the landings for the first quarter of 1998 were 446 t. Puerto Princesa and Palawan waters provide approximately 60% of all the fish for the Manila markets.

## 2.5 Livelihood.

Until recently, the record of success for City-sponsored livelihood initiatives had been similar to that experienced in the entire Philippines. Livelihood had in many cases been directly linked to the formation of cooperative associations, and then focused on the building of capitalization through credit-driven initiatives, with loans backed by the City Development Fund. This created,

as it has in many other areas, a false economy, whereby the attitude of community organizations was to create a mechanism for gaining access to loan funding from the government, with little or no intention of repaying the loan. This credit-driven livelihood strategy has largely been a failure in the Philippines. New strategies were required, one of which is being tested at the moment in Puerto Princesa City.

### **3. CHALLENGES TO ICRM IN PUERTO PRINCESA.**

The challenges facing the Puerto Princesa coastal resource base are similar to those facing most communities:

- (i) pollution of the coastal area from coastal residents/squatters, agricultural initiatives, tourism, developers, mining activities, shipping, and fishing activities;
- (ii) pollution in the catchment area;
- (iii) illegal forestry activities resulting in stripping of the higher mountain areas and an increase in the erosion factor, with its associated complications and loss of good topsoil for reforestation, as well as pollution of highland water supplies and downstream to the coastal areas;
- (iv) illegal “kaingin farming” with its sometimes unfortunate results of not only removing the nutrients from the soils and denuding the forest areas, but also losses as a result of forest fires;
- (v) agriculture in the coastal areas, including the use of pesticides and chemicals which get into the water table and leach to the coastal areas;
- (vi) the increasing population in the city, further complicated by migration from coastal areas to the urban areas, and the associated pressures on an already fragile infrastructure in terms of addressing basic needs for water supply, electricity, sewage and wastewater management;
- (vii) the illegal use of the mangrove areas, thereby reducing nature's nurseries for many marine species, and eliminating buffer zones in the flow of sediment and deleterious substances into the rich coastal areas;
- (viii) uncontrolled coastal development by coastal residents/squatters and tourism developers;
- (ix) illegal fishing by both local fishers, outside fishers from other provinces, and also uncontrolled foreign fishers;
- (x) shipping and associated pollution resulting from the lack of surveillance and controls for safety-at-sea and marine pollution; and
- (xi) legal and political authority overlaps between authorities and government levels (Palawan Council for Sustainable Development, the Provincial Government, Department of Environment and Natural Resources, Department of Agriculture, etc.) and differences of opinions regarding the ICRM concept and its associated benefits.

Puerto Princesa City Government has taken very progressive steps, many of these on its own – without external assistance – to address each of these problem areas through education, careful control of proposed development activities and initiatives, seeking external specialist assistance and mobilizing the community at large to take responsibility for the stewardship role of its central, inland, coastal areas and of its marine resources.

#### **4. CRM-RELATED ACTIONS OF THE CITY OF PUERTO PRINCESA.**

As noted earlier, it is necessary to address all related ICRM components to successfully implement this type of programme at the local level. The City of Puerto Princesa Executive and its Administration recognized early in its first term that the future of Puerto Princesa lay solidly in the agri-marine and tourism sectors, and set out to build a base from which to expand the development potential in these areas.

##### **4.1 *Oplan Linis* (1992) – Operation clean.**

Clearly, the first action was to create an attitude change in the populace to encourage and gain acceptance and pride in the City as a “clean and green” tourist destination. This was initiated through the introduction of the *Oplan Linis* to educate the local citizens, especially the future generations, in the values of cleanliness. *Oplan Linis* is a six-component initiative: cleanliness, beautification, sanitation, *sagip-dagat* (rehabilitate the sea), *sagip-hangin* (clean air), and information and education. The success of this programme in mobilizing the people to take pride in their City is an example for other municipalities. In 1994, the City first won the Cleanest and Greenest Component City Award and has continued to do so in every succeeding year. The mobilization strategy for this programme became that used to address other environmental initiatives: *Bantay Puerto* (combining *Bantay Dagat* – Baywatch – and *Bantay Gubat* – Forest Watch) and *Pista y ang Kageban* (Feast of the Forest).

##### **4.2 Housing programme.**

A major concern of the City of Puerto Princesa was the large number of immigrants who were attracted to the City due to its vast area and rich terrestrial and marine resources. These squatters occupied large areas, the majority being fishers and therefore squatting near the sea, creating major environmental pollution and sanitation problems. The City took positive action to locate the squatters, identify them and register them for relocation to other, more suitable, areas where they would have the appropriate infrastructure and services, and hence reduce the pollution. The long-term stated intent remained: to create an environmental buffer zone along the foreshore of the City. The City took action to stop the influx of squatters, sought assistance from other programmes and used its own resources to secure land and services to relocate these squatters. The housing programme was successful in: (i) finding financial support for housing assistance for families from available national programmes; (ii) controlling the numbers of squatters; (iii) establishing site development for new housing facilities; and (iv) instilling pride of ownership in the new relocation areas.

##### **4.3 MCS – *Bantay Puerto* (Protect Puerto).**

The key thrust for *Bantay Puerto* is to Protect, Rehabilitate and Plan: Protect what is there; Rehabilitate what has been destroyed; and Plan so that the resources are used diligently. The *Bantay Puerto* Programme is two-pronged: *Bantay Gubat* (Forest Watch) to address forestry sector concerns, and *Bantay Dagat* (Bay Watch) to address illegal blast and cyanide fishing; illegal fishing; and general destruction of the coastal areas.

#### 4.3.1 Forests

Bantay Gubat (Forest Watch) was a response to the *kaingin* (slash-and-burn) rice practices and the systematic illegal logging, whereby almost 25% of the virgin forests of Puerto Princesa were cut between 1975 and 1992, or almost 11 ha/day. Efforts of Bantay Gubat have been relatively positive, with over 200 arrests and confiscation of thousands of board feet of illegal lumber, vehicles, chain saws and several species of protected fauna. The development of *Pista y ang Kageban* (Feast of the Forest) came from the efforts of the City Executive to introduce a massive reforestation programme. Since the initial introduction of the Feast of the Forest replanting celebration, which has mobilized in excess of 100 000 persons in the last five years, the City has planted more than 2 million trees, with an 80% survival rate.

The City established initial subsidy programs – “Cash for Work” and rice subsidies – to wean the *kaingin* farmers from their practices, while providing for *carabao* (water buffalo) and tractor pools for the farmers. The education sector and health sector were also assisted by the City through the provision of satellite hospitals and libraries to bring the message of “clean and green”, and conservation to the people. This education and information campaign has been successful and prepared the way for further conservation programmes.

#### 4.3.2 Marine.3.2 Marine.3.2 Marine

The waters of Puerto Princesa and Palawan provide 60% of Manila's marine fish supply. There is an ever-increasing pressure on the resources; consequently the City decided early in its first administration to establish an appropriate Bantay Dagat/Baywatch, or local MCS, to address coastal water concerns. The success of this Programme has been clear: (i) in the preventative aspect, whereby dynamite and cyanide fishing in City waters has been almost completely eradicated amongst municipal citizens; (ii) local fishers contribute to the intelligence gathering concerning illegal activities of visitors; and (iii) in the apprehension of some 1 657 pumpboats, and 40+ fishing vessels (one being a foreign vessel, confiscated by the City), plus in excess of 20 t of live fish illegally caught. Parallel to these efforts have been those that were entered into by the City jointly with the national fisheries authorities.

Puerto Princesa was the first City to fully accept the ADB and CIDA-funded MCS System design, and contributed approximately pesos 3 million to build a Regional Inter-Agency MCS Centre to protect and conserve the fisheries in its municipal and offshore areas.

#### 4.4 Other initiatives.

The City was the first to establish a Cyanide Detection Testing facility in collaboration with the Bureau of Fisheries and Aquatic Resources (BFAR)Bureau of Fisheries and Aquatic Resources (BFAR)Bureau of Fisheries and Aquatic Resources (BFAR); the first to volunteer for field testing of a computerized municipal vessel registration and licensing system; and the first municipality to date which has passed a municipal ordinance which limits access to the fishery resources, this ordinance being a model for discussion at a 1966 national legal seminar to draft a comprehensive municipal ordinance for other communities. The Puerto Princesa Fisheries Ordinance covers licensing, closed seasons and areas, gear restrictions, involvement of fishers through the implementation of FARMCs and fish sanctuaries.

#### 4.5 Alternative and supplemental livelihood and income generation.

As noted earlier, one of the keys to any resource management programme is attention to the social concerns and pressures on the poorer citizens. When day-to-day survival is the key concern of these families, the luxury of long-term environmental awareness and security is difficult to accept. In recognition of this basic fact, the City invested several million pesos in – first – establishing housing for its people, and – second – on community organizing and cooperative livelihood initiatives. Many of these activities have been successful.

One recent initiative, still in its infancy, that is showing progress and success as a potential model for future projects, is worth closer examination.

This activity is a joint City, private sector and cooperative initiative to establish a herbal products processing centre in Puerto Princesa. The Carica K-PLUS Herbal Processing Centre is a venture between a private sector company and four local rural cooperatives from the poorest area of the City, and has received full financial backing from the City Development Fund for its Land Bank of the Philippines loan. The project was seven months old at the time of writing, and providing products to its Manila markets and its international market in Japan. The success experienced to date was attributable to three steps:

- (i) linkage with the private business sector to network to a wider market;
- (ii) the actual pre-testing and securing of the market before entertaining the idea of full production;  
and
- (iii) joint ventures under private sector management to provide, to the local partner, over a period of time, the technology and management skills required to run a sustainable business.

The plant in Puerto Princesa has been producing herbal products from native papaya (a nuisance plant that was being burned and thrown away by farmers), namely 300 000 *carica* (papaya) candies per month; 200 litres weekly of Carica Honey for the local market, and 1 000 kg/month for Japan (these products being good against asthma, respiratory problems, insomnia and malaria); 21 000 tea bags from different flowers and leaves, which are of assistance as diuretics, in hypertension, and to reduce the impact of malaria and cancer, and anti-diarrhoea. This initiative has had a positive impact on approximately 200 families in the social reform agenda area of Puerto Princesa, and provided 25-30 full-time jobs at the processing plant. The cooperatives provided the raw materials and the plant workers and the private sector company provided the management, technology, training and market access.

A second, similar, initiative was in the developmental stage for a dried-fruit processing plant, through a joint venture with the City, Puerto Princesa Fruit Growers Association, and the private sector. The third-phase expansion of this idea was for the development with the City, local private sector and cooperatives/community organizations and the broader business private sector for the establishment of a Agri-Marine Processing Centre for value-added processing of agricultural and marine products.

The key to the success of the resource management programmes, livelihood initiatives, and MCS programmes was considered to be:

- (i) the personal commitment or “buy-in” by those concerned, the fishers and coastal resource users;
- (ii) political commitment and support from the government at all levels, but especially at the local government level;
- (iii) linkages with the private sector to provide the technological and management services, and access to a wider market; and



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(iv) understanding and support for preventative and full MCS activities to assist coastal inhabitants manage their marine resources.

#### **4.6 Controlled development.**

The City openly welcomed international development programmes, but maintained a clear focus on its development goals. The programme focused on sustainable agri-marine and tourism development that would not have a negative impact on the ecological and environmental balance for the land and sea area under City jurisdiction.

It is noteworthy that recently the City Government took political action to ensure that all development initiatives would be reviewed by a Committee of Heads of Departments responsible for Tourism, Agriculture, Planning, and Natural Resources. Any one of these Heads of Departments had veto power over the proposed initiatives, to protect the City's resource base. This City Resolution demonstrated the commitment the City had to ensuring ecologically sensitive development.

### **5. CURRENT STATUS OF IMPLEMENTATION.**

Citizens of Puerto Princesa have been educated through the many information programmes of the City towards conservation, "clean and green" and responsible City Government, and they are supportive of all the programmes. Public hearings bring out the concerns of all parties and attempt to address them, but in a manner that promotes acceptance of the idea that environmental conservation and preservation are non-negotiable if humanity is to survive. MCS activities are the activities which will implement the comprehensive ICRM plan, but they require the preparatory and ongoing support of other initiatives, as noted above, livelihood, housing, community organization, etc. The legislation, public hearings and the mechanics of implementing these controls is greatly facilitated by these preliminary actions.

In Puerto Princesa City, municipal licensing is being implemented in accordance with the limited-access policies of the Puerto Princesa Municipal Fisheries Ordinance. The limitation on seasons, areas and gears is also in the preliminary stages of implementation and will be assisted through the training and operations programmes for the Coast Watch Programme and Community-Based Law Enforcement activities under an ADB programme that was due to start in late 1998. The fact that Puerto Princesa was chosen as the only site of 18 in the Philippines for full ICRM under the ADB Project will be a challenge for the City, and will also serve as an example and model for similar future municipal initiatives.

Strengths in the City's implementation strategy included the very strong political commitment of the current administration, the education and information programmes of the City which created a positive and receptive atmosphere for conservation and protection of the coastal marine resources, coupled with a holistic approach towards all components of ICRM. Further, support was coming from the National BFAR office, with the implementation of the new Fisheries Code, an activity necessary to realize the eventual cohesive approach to CRM.

## 6. SUMMARY.

The City of Puerto Princesa is a model of an administration committed to good government and responsible management of its interior, coastal and marine resources. Although not completely in place, the City has taken many positive steps to first address the social factors which negatively affect CRM, such as housing, food security, basic services, etc. Further, the City has initiated and actively participated in almost all development initiatives whereby there can be a positive impact on their stated development goals of sustainable and enhanced agri-tourism initiatives for the benefit of its citizens. Puerto Princesa has taken the lead in many management initiatives, including community mobilization; addressing social and livelihood concerns; implementation of comprehensive local fisheries legislation including limited licensing, gear, area and seasonal restrictions; Bantay Dagat and Bantay Gubat Programmes; national and regional MCS initiatives; forestry initiatives (Feast of the Forest, etc.), and ICRM through the ADB FRMP, UNESCO CRM and Integrated Tourism Projects.

Puerto Princesa is an example of the importance of political commitment in achieving success in integrated resource management initiatives, starting with alleviating the social pressures which negatively impact on the use of the resources, then education and community awareness, then introducing good legislation and training of officials in the operations and compliance agencies, and finally community acceptance of their stewardship role and support for the conservation, protection and management activities for their coastal and marine resources to secure their future livelihood.

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