Policy Brief

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# Integrated Coastal Management (ICM): Revitalizing the Coasts and Oceans Program in the Philippines

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Philippine Coasts and Oceans

| Characteristics | Data |
|---|---|
| Islands | 7,100 |
| Total Land Area | 300,000 km$^2$ |
| Coastline | 36,289 km |
| Territorial waters including Exclusive Economic Zone | 2.2 million km$^2$ |
| Coastal Waters | 226,000 km$^2$ |
| Oceanic Waters | 1.93 million km$^2$ |
| Coastal Provinces | 64 (out of 79) |
| Coastal Municipalities | 832 (out of 1,541) |
| Total Population | 76.9 million (year 2000) |
| Total Coastal Population | 64.7 million (year 2000, 84% of total population) |
| Population density in coastal area | 227 person/km$^2$ (1990)<br>286 person/km$^2$ (2000) |
| Number of inhabitants per km of coastline (2000) | 2,467 persons/km |

Source: World Bank 2005. Philippines Environment Monitor - Marine and Coastal Resource Management. http://www.census.gov.ph.

## The Importance of Coasts and Oceans

The Philippines is an archipelago with more than 7,100 islands and one of the longest coastlines in the world.

The country is confronted with the enormous challenge of finding a suitable path to food security, sustainable livelihood, poverty alleviation and reduction of vulnerability to natural hazards, while protecting ecological integrity and strengthening economic growth. Responding to this challenge, integrated coastal management (ICM) has emerged, through practice, as a better alternative in the governance of coastal and marine areas. In as much as the Philippines is an ocean-dependent country, application of ICM is of vital importance to the country's long-term social and economic development.

The marine waters in the Philippines harbor the world's center for tropical marine biodiversity, characterized by extensive coral reefs, seagrass beds and mangroves, with abundant fisheries and marine life.

The nation's coasts and oceans provide a bountiful supply of goods (i.e., fish, oil, gas, minerals, salt and construction materials) and services (i.e., shoreline protection, biodiversity, water quality improvement, transportation and recreation).

The tourism and recreational value of coastal ecosystems is significant. It is estimated that coral reefs alone contribute at least US$1.064 billion annually to the Philippine economy.

**Marine Habitats in the Philippines**

| Habitats | Total Area (km$^2$) |
|---|---|
| Coral reef | 10,250 – 33,500 |
| Mangrove | 1,380 – 1,607 |
| Seagrass | 343 – 635 |
| Watersheds/wetlands | 196,048 |
| Oceanic | 1,968,210 – 1,991,479 |

Source: Sustainable Philippine Archipelagic Development Framework, DENR 2003

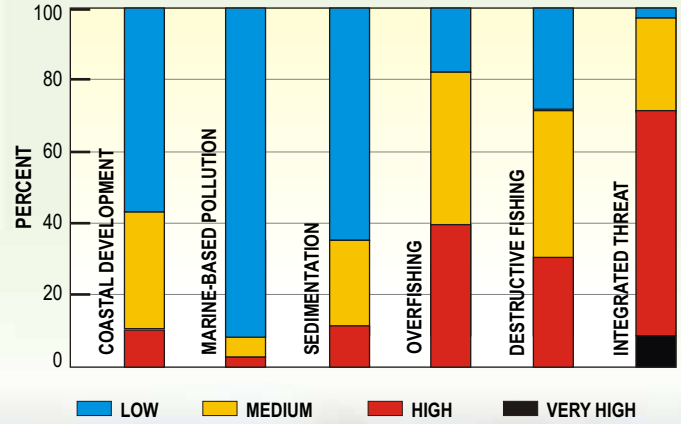
The Philippines is among the largest fish producers in the world. In international trade in fisheries, the Philippines ranked third in the ASEAN region in 2000. Annual total fisheries yield is estimated to be worth around US$2.5 billion or 4.3 percent of the country's gross domestic product (GDP).

Coastal ecosystems as a whole are estimated to contribute, on average, 60 percent of the GDP in the Philippines. It is also a noteworthy prospect that Philippine waters provide excellent conditions for ocean thermal energy conversion systems in sites accessible to populated regions such as Manila and Davao.

## Threats and Issues to Coastal Sustainability

The nation's coastal and marine resources are deteriorating rapidly due to multiple-use conflicts, lack of awareness and understanding, and ineffective management approaches, thus threatening the livelihood of the people and long-term prosperity of the country.

**Reefs at risk in the Philippines**




Source: *Reefs at Risk in Southeast Asia*. 2002. Lauretta Burke (WRI), Liz Selig (WRI), and Mark Spalding (UNEP-WCMC, Cambridge, UK).

### Population, Poverty and Multiple-Use Conflicts

Rapid population growth of more than 2.3 percent annually due, in part, to migration to coastal areas, imposes great pressure on coastal ecosystems causing conflicts among competing coastal and marine resource uses. Moreover, widespread poverty in coastal areas aggravates the situation of resource depletion, as the poor depend heavily on natural resources especially in times of acute economic stress. A recent study (DENR-PAWB, 2004) shows close links between rapid, uncontrolled population growth, environmental degradation and the loss of biodiversity. Increasing population concentration in coastal and marine areas of the Philippines, and the competition for limited resources and space as a consequence, are manifested as different types of multiple-use conflicts, including the conflict between municipal and commercial fisheries, adverse impacts by coastal mining and quarrying activities on critical marine habitats, and the social equity issues created by massive tourism development on a narrow strip of coastal waterfront. Such environmental and resource management issues are often transformed into serious social problems, when they are compounded by local poverty and livelihood issues. Likewise, jurisdictional responsibilities among national government agencies, such as DA, DENR, DOTC, etc, as well as between local and national governments, further complicates the situation and hampers effective management of marine and coastal resources.

**Overfishing** Most fishing areas in the country are fully- or over-exploited. For example, catch per unit of effort (CPUE) in Lingayen Gulf has decreased by 80 percent. It is forecasted that fish consumption/capita per year will be reduced to 10 kg/person by 2010, from the 40 kg/person recorded in the past.

**Habitat Degradation** Coral reef destruction is mainly caused by destructive fishing, pollution, sedimentation and coastal development. Over 70 percent of the coral reefs in the country are rated at high or very high risk of loss and degradation. Areal coverage of mangroves has been reduced by 75 percent over the past 70 years, primarily due to coastal development, land reclamation, aquaculture development, and harvesting of wood. Fifty percent of seagrass beds, which are an important link in the marine food chain, have been lost or degraded. All of these conditions have a direct impact on living resources, leading to low productivity, and resulting in decreases in the CPUE of fishers. Similarly, because of habitat degradation and destruction, other concerns, such as saltwater intrusion into coastal agriculture lands and potable water sources, are becoming more frequent, as are "unnatural" disasters, i.e., those incidents (e.g., storm surges, flooding and landslides) made more severe because of loss or degradation of natural defenses.

**Pollution** Pollution of the land, water and air ultimately ends up in the ocean, affecting the health of coastal and marine ecosystems. Coastal development, which is often related to population levels and the presence of built-up areas, are perceived to be the main source. This is particularly evident in the Philippines, in enclosed and semi-enclosed water bodies and near shore areas, as a result of improper handling of wastes, including sewage, solid and hazardous wastes, etc. Organic and nutrient pollution triggers harmful algal blooms, leading to seafood poisoning, fish kills and human health risks.

## Revitalizing Coasts and Oceans Programs through ICM

Over the past few years, various initiatives have been undertaken at the national and local levels, in collaboration with donor agencies such as UNDP, GEF and USAID, international financial institutions such as The World Bank and ADB, and international NGOs such as WWF and CI, with regard to coastal and marine areas. While these efforts have contributed to the increased awareness of the importance and need for an integrated approach to managing marine and coastal resources, nationwide application has been hampered by lack of a national policy and programmatic framework for ICM.

### What is ICM?

Integrated coastal management is a continuous and dynamic process of planning and managing the coastal area, which employs integrated, holistic and interactive approaches. ICM addresses a variety of threats challenging the sustainability of the coastal area, such as fishery resources depletion, habitat loss and degradation, sea-level rise, natural hazards, multiple-use conflicts, pollution, and poverty of coastal communities. ICM is designed to overcome the fragmentation inherent in the sectoral approach to resource management and the splits in jurisdiction among levels of government at the land-water interface. A key to successful ICM therefore lies in the design of an institutional process that allows interagency and multisectoral coordination and harmonization in a politically acceptable manner.

ICM has emerged as the framework for realizing goals and objectives of sustainable ocean and coastal development in many different international forums, such as the United Nations Conference on Environment and Development (UNCED) 1992 and the World Summit on Sustainable Development (WSSD) 2002. ICM also facilitates the achievement of the United Nations Millennium

ICM Project Development and Implementation Cycle


Development Goals (MDGs) in coasts and seas. The Sustainable Development Strategy for the Seas of East Asia, which was signed by 12 countries of the East Asian region, including the Philippines, in December 2003 emphasizes the use of ICM as an effective management framework to achieve sustainable development of marine and coastal resources.

### Demonstration and Replication of the ICM Working Model

Over the past six years, the Government of the Philippines has partnered with 11 other countries in the region, as part of a GEF/UNDP project (i.e., Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia or PEMSEA). The focus of the project has been to help strengthen local coastal governance, and a generic framework of developing and implementing local ICM programs has evolved. This framework has proven to be effective in operationalizing the ICM concept in many demonstration sites throughout the region, including Batangas Bay in the Philippines and Xiamen in PR China. Both sites have been implementing ICM programs since 1994, and have made significant progress in terms of management capacity and socioeconomic benefits.

Six additional ICM demonstration sites have also been established in Cambodia, DPR Korea, Indonesia, Malaysia, Thailand and Vietnam. The success of these demonstration sites has prompted the development of locally funded ICM programs in 18 other coastal municipalities and provinces in nine countries across the region, including Bataan and Cavite in the Philippines.

**How does ICM work?**

ICM helps strengthen local coastal governance by providing a framework and processes for:

- Multisectoral and interagency coordination
- Engaging multistakeholders and various partners
- Addressing local concerns
- Promoting environmental investment


- Developing local capacity in integrated planning and management
- Applying sea-use zoning and area-based management
- Enhancing local implementation of international conventions and other environmental instruments
- Linking upstream and downstream concerns
- Building public and private partnerships

The Bataan ICM program is a rather unique example, in that it demonstrates successful engagement of the private sector in the planning and management of a local coastal area, not only as a donor, but also as a partner and implementer of ICM. Such initiatives are very progressive, as voluntary efforts of local governments and their partners to develop and implement ICM programs emphasize the "local sustainability" in achieving the objectives and targets of international environmental agreements, such as Agenda 21, WSSD and the MDGs.

The strength of the ICM process is its reliance on scientific knowledge and information. This would be often the only way in which controversial decisions, related to the multiple uses of coastal and marine resources, can be implemented and enforced.

ICM thus enhances the interface between science and policy by providing various scientific tools, which are responsive and sensitive to management needs, including:

- Rapid appraisal and coastal profiling
- Environmental database and information management
- Environmental risk assessment and risk management
- Integrated environmental monitoring
- Coastal-use zoning and spatial planning
- Economic valuation of natural resources
- Socioeconomic benefits and costs assessment

## Box 1. Batangas, Philippines: From Demonstration to Replication

The Province of Batangas started applying the ICM framework for managing the development of Batangas Bay in 1994. The demonstration project was funded by GEF, and resulted in the development and implementation of the Strategic Environmental Management Plan (SEMP) consisting of six major action areas: legal and institutional mechanisms, integrated policy and planning systems, integrated management systems and technical interventions, management and technical skills improvement, information base improvement and sustainable financing development. From 1999 to the present, technical, institutional and financial support has been provided through regular allocation from the Provincial budget.

Having realized the benefits and the value of ICM as demonstrated in Batangas Bay, the Provincial Government replicated ICM in Balayan Bay and adjacent bays of the province.

While Batangas Bay is located in a rapidly industrializing area, the Balayan Bay region is more for tourism and agro-industrial activities. Successful ICM replication in the Balayan Bay region has motivated the local government to replicate ICM in all bays in the province. In 2004, the Provincial Government developed an SEMP covering Batangas, Balayan and Tayabas Bays. The Provincial Government has also proposed to expand its institutional support to ICM through the establishment of a province-wide environmental protection council.

## Box 2. Bataan, Philippines: Public and Private Sector Partnerships in ICM.

The Bataan Provincial Government has adopted an innovative and farsighted approach to the implementation of ICM. The Province has formed a partnership with the local private sector – the Bataan Coastal Care Foundation, Inc. (BCCFI), composed of 19 companies – for the development of its ICM program. The BCCFI aims to act as a catalyst and provide counterpart funding for the Bataan Integrated Coastal Management Program (BICMP) to build better coastal governance, explore ways for a dynamic and sustainable public-private partnership in environmental management, increase awareness, and promote community participation in coastal resources management. Together, the public and private sectors have implemented various ICM activities on a self-reliant and self-sustaining basis.

Among the key achievements are:

- Bataan Coastal Strategy, adopted in 2002 and updated in 2006 to reflect current efforts of the stakeholders in actually carrying out on-the-ground actions;


- a coastal-use zoning plan, which aims to create a mechanism for addressing multiple-use conflicts and harmonizing development and environmental management plans and programs;
- transformation of an ad hoc Project Management Office into a permanent office under the Provincial Planning and Development Office; and
- establishment of an interagency and multisectoral Program Steering Committee, to provide leadership and policy direction, as well as a mechanism for sharing resources and venue for stakeholder consultations and consensus building regarding coastal management.

Other activities include regular public awareness and coastal cleanup, habitat rehabilitation (mangroves), implementation of anti-illegal fishing program, alternative livelihoods (mussel culture, mudcrab fattening, etc.), and providing support to coastal management initiatives of LGUs, NGOs and people's organizations (e.g., marine turtle sanctuary, mangrove nursery, etc.).

### Priority Coastal Management Issues in Batangas Bay

- waste generation, collection and disposal/pollution
- decreasing effective fishing area and harvest
- environmentally destructive mining practices
- vessel traffic congestion/collision, oil spill, pollution
- poor health and sanitary conditions, pollution in squatters areas
- lack of effective and sustained participation of stakeholders
- lack of policies, plans, programs, and institutional support

## Box 3. Xiamen, PR China: Reaping socioeconomic and environmental benefits through ICM.

Since the completion of its first stage ICM demonstration project with PEMSEA in 1999, Xiamen has been successful in sustaining the ICM program with its own resources. Xiamen is now expanding its ICM coverage to adjacent watershed areas.

One of the keys to the continued implementation of ICM was the institutionalization of the ICM framework within municipal government structure. The ICM program in Xiamen, which included the adoption of a Strategic Environmental Management Plan, and active involvement of scientists, private sector and other stakeholders, has contributed to the following:

- Setting in place of a coastal-use and zoning plan, an integrated environmental monitoring program, and appropriate legislations and institutional arrangements;
- Intensifying the cleaning up of the Yuandang Lagoon, mitigation of sand mining and coastal erosion, nourishment and rehabilitation of beaches and sandy shores, and landscaping of coastal roads around Xiamen Island;
- Installation and operation of sewage and industrial wastewater treatment plants and solid waste management facilities;
- Resolution of conflicts between fishing and navigation, and cases related to illegal fishing and violations of standards for air and water quality;
- Establishment of preservation zones for egrets, white dolphins and lancelet, mangrove rehabilitation and other measures for resource conservation; and
- Provision of parks and nature-based amenities.

Within six years, the ICM program contributed to the reduction of multiple resource-use conflicts, and risks from pollution and red tide

occurrence. It promoted long-term economic interest rather than short term ones that can have negative impacts on the environment. These have resulted in multiplier effects, and directly or indirectly affected the sustained growth of four major coastal-related economic sectors (e.g., shipping, fisheries, tourism and property). With a prudent macroeconomic and development policy, combined with environmental management strategy, Xiamen continues to attract more investors and tourists.

The present value of ICM net benefits from 1995 to 2001 amounts to more than RMB27 billion (or US$3.3 billion at the exchange rate of US$1 = RMB8.266). In addition, the positive ICM experiences in Xiamen, particularly the functional sea-use zoning scheme, served as the basis for the passage of a national legislation on sea-area use in China in 2001.

## Recommendations for Revitalizing Coasts and Oceans Programs

Recognizing the importance of the nation's oceans and coasts to the long-term prosperity of the Philippines, and in view of the urgent need to enhance and scale-up existing efforts for coastal management in the country, particularly at the local level, the following actions are recommended for the consideration of relevant governments, sectors and stakeholders:

1. **Adopting Integrated Coastal Management as a national policy.**

   Nationwide application and expansion of existing ICM initiatives and efforts requires high-level political commitments and leadership, as well as setting up of a long-term vision and clear guidance, in consideration of national development needs and priorities.

2. **Developing a national ICM program in support of local coastal governance.**

   Lack of adequate managerial, technical and financial capacity at the local level continues to be the major barrier to ensuring coastal and marine sustainability in the Philippines. A coherent and concrete national program and appropriate coordinating mechanism to strengthen local coastal governance should be established, in collaboration with relevant national government agencies and other stakeholders, including the academe, private sector, NGOs, etc.

3. **Strengthening local capacity for integrated coastal planning and management.**

   Various types of education and training efforts should be promoted in order to strengthen human resources and technical capabilities in integrated planning and management of coasts and oceans, such as ICM graduate programs, ICM training for LGUs and specialized training programs (e.g., risk assessment, resource valuation, sea-use planning) to facilitate enhanced scientific input into coastal and marine resource management.

4. **Promoting the development and implementation of local coastal strategies and action plans.**

   Within the policy and framework of a national ICM program, local governments and stakeholders should be encouraged to develop a long-term vision and strategy for sustainable development of their respective coastal areas, and corresponding implementing measures, including action plans to address priority coastal management issues and local concerns.

5. **Mainstreaming the ICM program into the national and local governments' planning and socioeconomic development programs.**

   To ensure sustainable operation of ICM programs and continuous refinement and implementation of local coastal strategies, ICM activities should be incorporated into existing socioeconomic development planning and programming activities at both national and local levels.

6. **Increasing public awareness and understanding of the importance of coastal and marine resources.**

   People's feeling of a shared responsibility for the wellbeing of the next generation, and a long-term stewardship for the nation's coasts and oceans are the key to the success of the implementation of a national ICM policy and programs. Public awareness initiatives, in partnership with NGOs and POs, should be developed and implemented with a view to building a better understanding of the interrelationships between human activities and consumption patterns, and the sustainability of healthy coastal and marine ecosystems.

**For comments and suggestions, please contact:**

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