

A Regional Mechanism Facilitating Sustainable
Environmental Benefits in River Basins,
Coasts, Islands and Seas

PEMSEA

Partnerships in Environmental Management
for the Seas of East Asia (1994–2010)



PEMSEA: Partnerships in Environmental Management for the Seas of East Asia (1994–2010): A Regional Mechanism Facilitating Sustainable Environmental Benefits in River Basins, Coasts, Islands and Seas.

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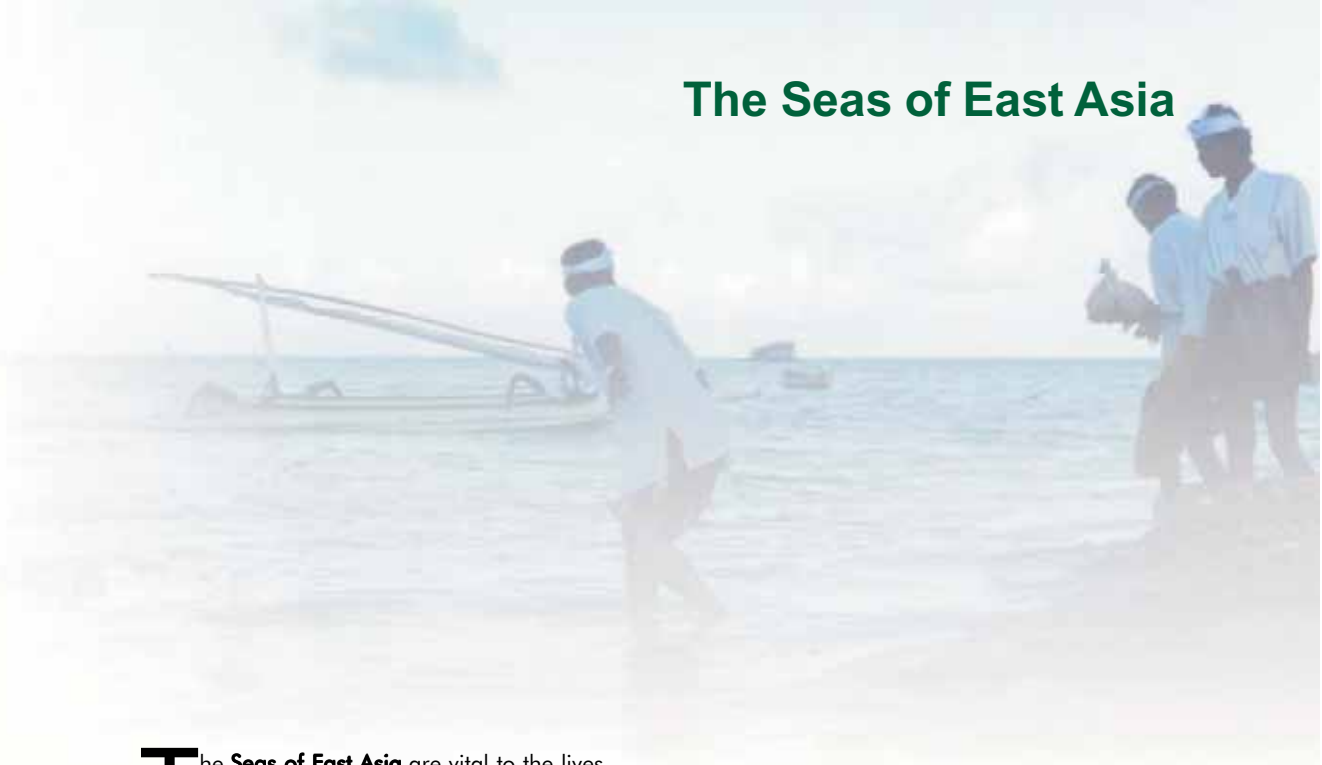
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The Seas of East Asia



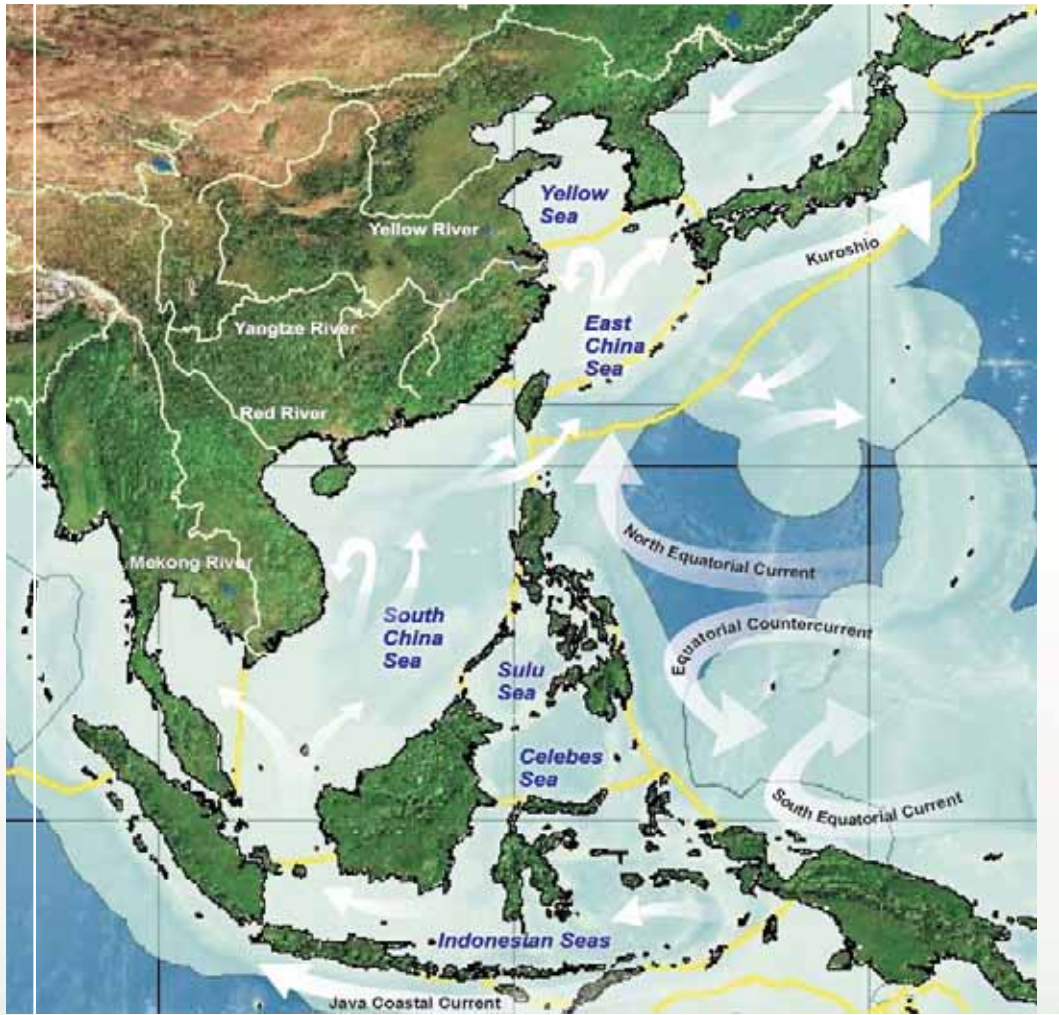
The **Seas of East Asia** are vital to the lives of close to one-third of humankind. To the estimated 1.5 billion people living within a hundred kilometers of the region's coasts, the relevance of the ocean and its impact on daily life are obvious. But the wide array of goods and services that the seas provide for human benefit are not fully appreciated by some people and are often taken for granted. Scientific assessment of the conditions of the seas and oceans show that we are rapidly losing most of the valuable environmental benefits generated from river basin, coastal, island, sea and ocean ecosystems.

Over the past decade, substantial efforts have been directed to addressing the many threats to environmental and economic sustainability of marine and coastal ecosystems by governments and other stakeholders in the East and Southeast Asian region. Many of these initiatives were sustained and

consolidated as a consequence of a series of strategic projects made possible through the support of the Global Environment Facility, United Nations agencies and other bilateral and multilateral donors and financial institutions. Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) is one such initiative. Over its 14-year existence, PEMSEA has evolved from a regional project into a regional operating mechanism focused on the environmental challenges and sustainable development of the Seas of East Asia.

This document is intended to provide readers with a general background and rationale to the various activities undertaken by PEMSEA, as well as its evolution and transformation since 1994. The major activities, outputs and outcomes over the past 14 years serve as the foundation on which new initiatives and action programs are being developed and undertaken from 2007 to 2010.

The Seas of East Asia and major river basins including the major ocean currents.



Challenges and Opportunities

Bordered by China, Japan, the Korean Peninsula in the North and the Southeast Asian nations in the south, the **Seas of East Asia** are made up of six subregional seas including the Yellow, East China, South China, Sulu-Sulawesi and Indonesian seas and the Gulf of Thailand. These subregional seas, or large marine ecosystems (LMEs), are ecologically and economically important both to the region and globally. More importantly, the water resources therein serve as a medium of life flowing from the hilltops to the seas and oceans, crossing political boundaries, nurturing ecosystems, sustaining freshwater and marine resources, and providing food, livelihood and security to the people of the region. They are semi-enclosed with a total sea area of 7 million km², a coastline of 234,000 km, and a total watershed area of about 8.6 million km².

The Seas of East Asia sustain 30 percent of the world's coral reefs and mangroves; produce about 40 percent of the world's fish catch and 84 percent of world aquaculture; and represent one of the world's centers for tropical marine biodiversity. Approximately 2 billion people live in



the region, with this number expected to increase to 3 billion by 2015. The region's coastal cities host an estimated 77 percent of the total population. Clustered around these coastal cities are traditional resource-based activities, such as coastal fisheries, aquaculture, forestry and agriculture, side by side with industry, shipping and tourism. Half of the world's merchant fleet sails through the Malacca and Lombok Straits, while 14 of the 20 largest maritime ports in the world are located in the shipping corridor that stretches from Singapore to Japan.

Growing populations and their migration to coastal areas, dynamic economic growth, and rising global demands for fishery and aquaculture products (met largely by export products from the East Asian Seas), and rapidly increasing shipping traffic collectively exert tremendous pressure on East Asia's marine environment and coastal resources. Even with decades of advocacy, political commitments and conservation efforts at the national and regional levels, reversing the decline of coastal and marine environmental quality in the region is still an urgent task that requires a new approach, a new management paradigm. That paradigm is a strategic partnership of governments, international organizations, donors and stakeholders working together to achieve a shared vision of a sustainable resource system for the Seas of East Asia.

Since the intervention of the Global Environment Facility (GEF) in December 1993, when the first international water project was launched, considerable focus was placed on the prevention and management of marine pollution by: setting up integrated coastal management (ICM) pilot sites in Xiamen (PR China) and Batangas Bay (Philippines); mobilizing subregional efforts (Indonesia, Malaysia and Singapore) to address marine pollution problems in the Straits of Malacca and Straits of Singapore; and strengthening capacity development, especially in developing countries such as Cambodia, People's Republic of China, the Democratic People's Republic of Korea, Indonesia, Philippines, Thailand and Vietnam. The project, known then as the Prevention and Management of Marine Pollution in the East Asian Seas, was implemented by the United Nations Development Programme (UNDP) and executed by the International Maritime Organization (IMO), while the Government of

the Philippines hosted the regional project office within the Department of Environment and Natural Resources (DENR) compound in Quezon City, Metro Manila.

The successful completion of the pilot phase project in September 1999 led to the building of confidence and recognition of the need to develop stakeholder partnerships in addressing the increasing environmental challenges in the seas of East Asia. A second phase project (1999–2007) focusing on building intergovernmental, interagency and multisectoral partnerships in environmental management was supported by GEF, with implementation beginning in October 1999. The thrust of the new project was to **build partnerships**, hence the acronym PEMSEA, to represent the new project initiatives.

The major focus of the PEMSEA project included:

1. Formulation and adoption of integrated approaches to managing land and water uses, from river basins to coastal seas, among participating countries in response to the



Historical Perspective

challenges of climate change, sea level rise, loss of biodiversity, depleting fisheries and marine resources, severe degradation of water quality, and increasing multiple-use conflicts in the coastal and marine areas;

2. Development of human resources in areas of planning and sustainable management of coastal and marine areas through innovative capacity development programs such as promoting horizontal learning among stakeholders, south-south and north-south learning, on-the-job learning, as well as formal and informal training programs;
3. Demonstration of ICM as a systematic and effective approach to managing land and water uses in coastal areas, and scaling up of ICM initiatives; and
4. Development and adoption of a sustainable regional mechanism to augment national and regional commitment to protect and manage the coastal and marine environment of the Seas of East Asia.

In December 2003, participating governments and collaborative partners endorsed the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), a document that outlines a shared vision as well as the collective strategies and approaches to achieve the goals of sustainable development for the region. The implementation of the SDS-SEA requires a long-term commitment, policy reforms, strategic management interventions and significant financial resources. In June 2007, the GEF Council approved Phase I of a 10-year project (2007–2017) to implement the SDS-SEA, which facilitates PEMSEA's transformation into a self-sustaining regional operating mechanism. GEF will provide the necessary financial support to cover the incremental costs of addressing regional environmental issues that are of global significance via implementation of the SDS-SEA.



PEMSEA TIMELINE

Regional Cooperation
and Partnerships



2002 Manila Bay Declaration
Gulf of Thailand launched
Japan officially joined PEMSEA

8th PSC Meeting, Busan, 12 Countries

Regional Network of Local Governments implementing ICM established
ICM Demonstration Sites launched
Sea Sites launched

Practical experience in the application of ICM in the East Asian region over the last 14 years has led to the development of a common framework for sustainable coastal development. This common framework covers a system of governance as well as several issue-specific management systems critical to achieving the overall goals of sustainable development. The ICM framework has become a very useful guide for national and local governments to promote sustainable development initiatives and programs. Key areas of competence addressed in the governance component of the framework include:

Policy, strategies and action plans: establishing and adopting policy reforms, shared visions and missions, long-term strategies and actions plans that express intention, direction, targets and timeframe for managing marine and coastal resources and their sustainable use through an integrated approach.

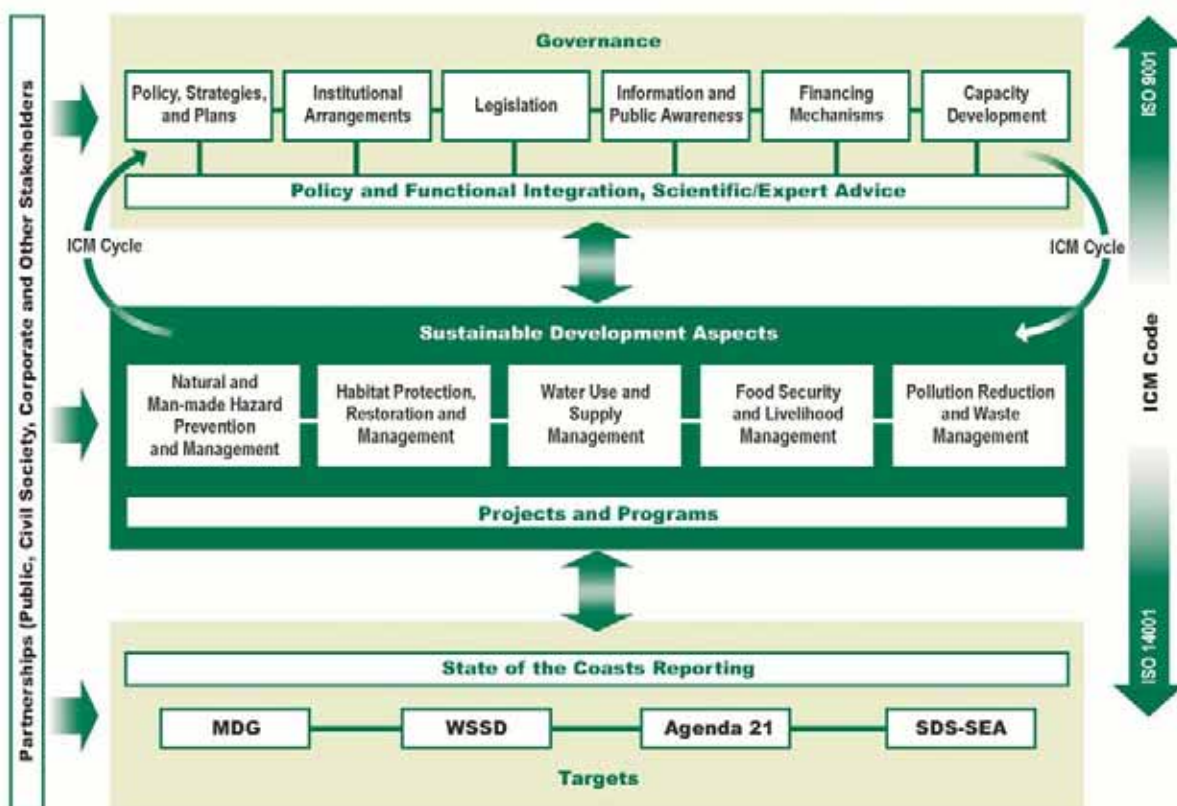
Institutional arrangements: operationalizing interagency and multisectoral coordinating

mechanisms that involve concerned stakeholders in planning, implementing, evaluating and continually improving programs for sustainable development through ICM applications.

Legislation: developing and implementing national legislation and/or local administrative orders, which support new and existing policies that facilitate the effective implementation of ICM, including, for example, interagency and multisectoral institutional arrangements, land- and sea-use zoning schemes, registration and licensing, market-based/revenue generating instruments covering access and use of resources, monitoring and reporting, information sharing, and surveillance and enforcement mechanisms.

Public awareness and information management: putting into operation communication strategies and plans for ensuring that stakeholders are informed of the scope, benefits and threats to their local ecosystems, and the programs that are being developed and implemented to reduce threats and enhance benefits, covering, for example, access to multimedia resource materials, training and educational initiatives, networking and coordination

Process-oriented Common Framework for Sustainable Development of Coastal Areas Thru ICM Implementation.



Framework for Sustainable Coastal Development



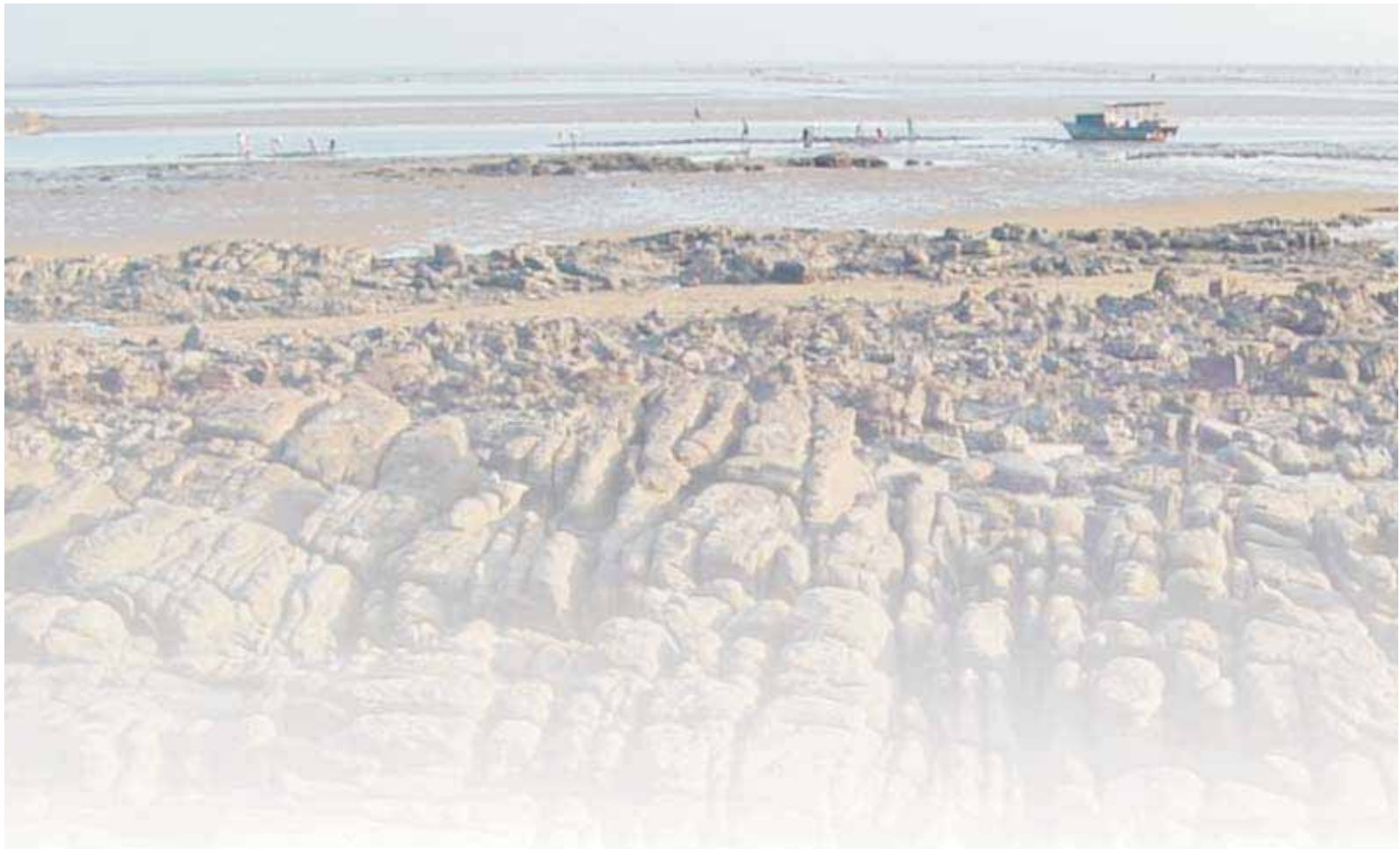
of stakeholders, resource and skills sharing, stakeholder consultation and participation, information management and sharing, feedback mechanisms to assess the satisfaction level of stakeholders including complaints and suggestions, and corrective and preventive actions taken to address problems and complaints.

Sustainable financing: institutionalizing the measures and means to support conservation of resources and required environmental infrastructure improvements through public- and market-based sources, such as appropriation of annual budget allocations; user fees, tariffs, taxes, penalties and fines; and adoption of a corporate management approach to utilities and resource management.

Capacity development: incorporating capacity development as an indispensable component of all aspects of sustainable development programs,

from inception and implementation to monitoring and evaluation and, in particular, equipping local personnel and managers with the essential technical and management skills to plan and manage coastal areas and resources.

The goals of sustainable development are not achievable by governance alone. It must be accompanied by on-the-ground actions, which integrate policy and functional procedures across (and oftentimes within) sectors into an operating management system. In addition, an important cross-cutting element of the management system is the role of science. Specifically, the focus here is the input by the scientific community at the local, national and regional levels on the state of the environment, the scientific basis and rationale for management decisions, and the scientific assessment of management interventions and their ultimate contribution to the adopted sustainable development targets and objectives.



Furthermore, on-the ground actions imply implementation of projects or programs that address the fundamental threats to the continuous supply of public goods and services generated by the ecosystems, which in turn affect the lives, health and property of the coastal inhabitants. Obviously, each country, local government unit, or stakeholder will have a perspective on what constitutes a threat to sustainable development. The framework identifies five essential aspects of sustainable development of coastal and marine areas and their corresponding management regimes, which represent one or more priorities of local governments depending on environmental conditions within their respective areas of jurisdiction, as follows:

1. **Natural and human-made disaster prevention and response management** — The region is experiencing frequent natural and human-made disasters, including earthquakes, tsunamis, tidal storms, flooding, sea level rise, landslides, red tides, oil and chemical spills, coastal erosion and land reclamation. A first step in the process is to identify and delineate the likelihood of a disaster occurring, the potential risks (social, economic and environmental), the likely consequences, and the

ultimate impact on the lives and property of coastal inhabitants as well as ecosystem health. Prevention and response management programs include, among other aspects: prevention and preparedness procedures and controls; contingency and emergency plans; public education and awareness building; training of response teams; access to adequate resources (equipment and materials, staff and financial resources); and humanitarian and emergency relief.

2. **Natural coastal habitat protection, restoration and management** — Specific habitat management programs, including increasing the vegetation coverage in urban centers, are developed and implemented to provide adequate protection, conservation and restoration of natural environmental assets such as coral reefs, mangroves, seagrass beds, and other wetlands. For example, land- and sea-use zoning schemes help local governments regulate land and sea use,

Framework for Sustainable Coastal Development

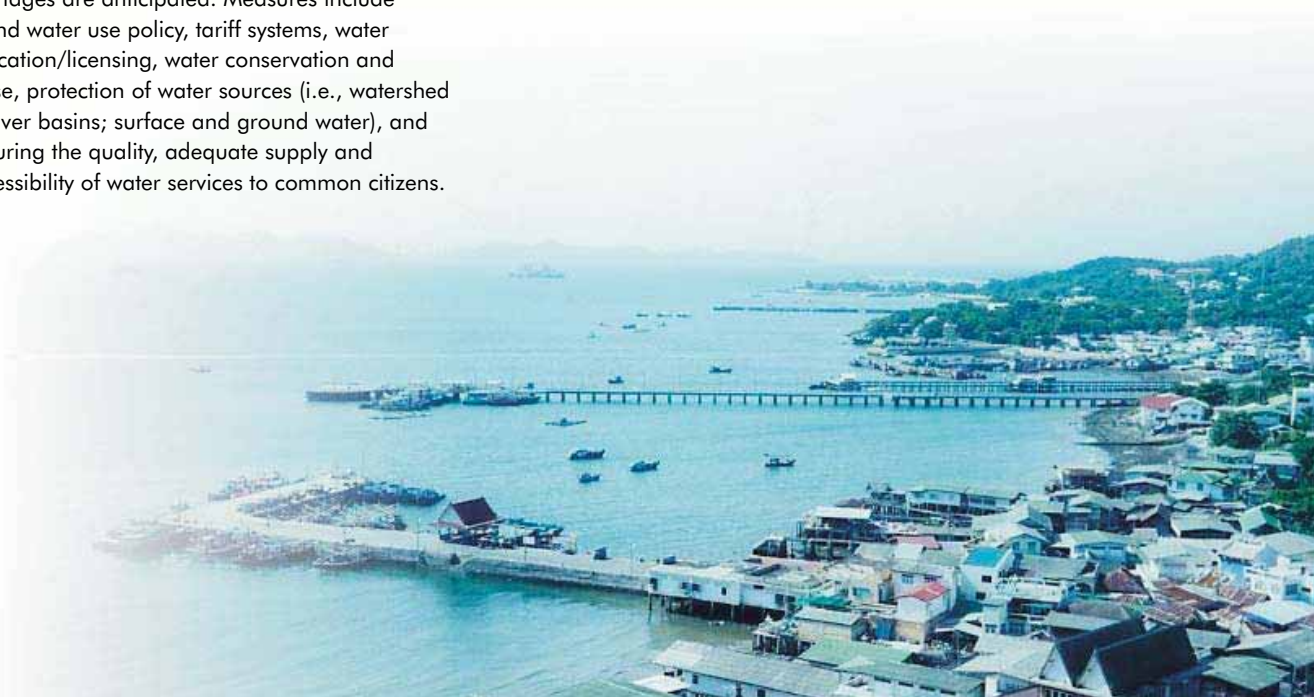


based on functional characteristics, traditional practices, existing national and local laws, and level of development, in accordance with the respective coastal strategy or development plan.

3. **Water use and supply management** — Forward-looking water resource management programs are essential to sustainable development, especially in urban centers where water supply shortages are anticipated. Measures include sound water use policy, tariff systems, water allocation/licensing, water conservation and reuse, protection of water sources (i.e., watershed or river basins; surface and ground water), and ensuring the quality, adequate supply and accessibility of water services to common citizens.

4. **Pollution and waste reduction management** — Pollution reduction and waste management are common challenges for every urban and rural center in order to protect land, air and water (i.e., groundwater, rivers and coastal seas) resources and conserve energy. Sustainable management programs entail an understanding of the sources and characteristics of contaminants and waste materials entering the environment, required societal behavioral shifts to reduce or eliminate pollution, and the introduction of policy reforms, legislation, capacity development, market-based procurement and management instruments, awareness building, and incentive and enforcement mechanisms to promote change.

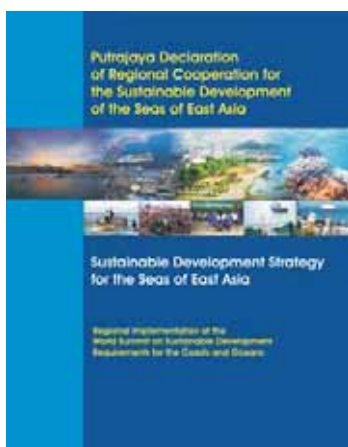
5. **Food security and livelihood management** — The sustainable supply of fisheries, especially from river systems and coastal seas is both a target and an outcome of sustainable development. The fishing sector itself requires management and, in particular, the implementation of the FAO Code of Conduct for Responsible Fisheries is central to achieving this. But all other aspects of sustainable coastal and marine areas affect fisheries, and therefore a sustainable supply of fisheries can also be an outcome of good management of these other issues. It is also important to ensure the accessibility of the poor to fisheries, given its role as a major traditional source of animal protein for the coastal poor. Supplemental livelihood programs for coastal communities can also be set in place to reduce overfishing and to increase income from other sources of living.



Development and Implementation of a Regional Marine Strategy

The preparation of the **Sustainable Development Strategy for the Seas of East Asia (SDS-SEA)** was initiated in 2000 to assist participating governments with the implementation of their major international commitments related to coasts and oceans. The final document was completed and adopted in 2003, after three years of extensive consultations with 12 participating governments and 16 stakeholder partners. The SDS-SEA provides a framework of

actions for achieving the goals of key international agreements and action plans, including the UN Millennium Development Goals (MDGs), the World Summit on Sustainable Development (WSSD) Plan of Implementation, Chapter 17 of Agenda 21 and other international instruments related to coasts, islands and oceans, as well as a platform for regional cooperation.



The SDS-SEA embodies a shared vision among all stakeholders. It provides a clear mission statement for achieving the sustainable use of coastal and marine natural resources, protecting the lives and properties of the coastal population, and sustaining the benefits that are generated by the marine ecosystems. With the desired changes clearly defined, action programs are developed under six major strategies, namely to Sustain, Preserve, Protect, Develop, Implement and Communicate. A total of 27 operational principles, 20 concrete objectives, 50 action programs and 227

activities are identified. The action programs and activities cut across major fields of concern and need, including biodiversity, land- and sea-based pollution, fisheries and aquaculture, maritime transport, financing and investment, scientific research and integrated coastal management (ICM), which includes the management of watersheds, river basins, coastal seas and large marine ecosystems (LMEs), capacity development, and education and awareness.

Implementation of the SDS-SEA is the primary objective of PEMSEA, in supporting governments and stakeholder partners to achieving their shared vision and mission.

Fostering National and Regional Commitments

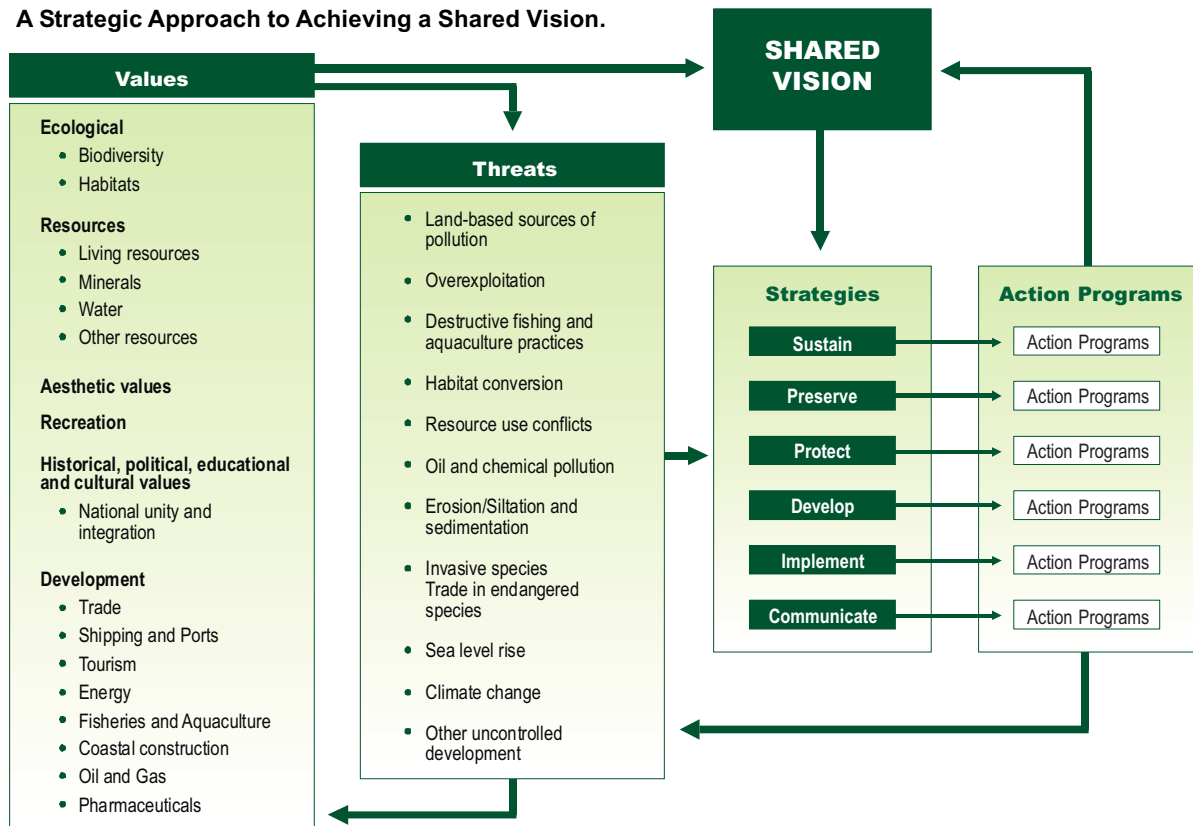
PEMSEA has fostered a number of national, subregional and regional commitments related to coastal and ocean governance that promote political will and policy reforms at national and local levels.

Putrajaya Declaration (2003) — Concerned Ministers of PEMSEA participating countries, including Brunei Darussalam, Cambodia, PR China, DPR Korea, Indonesia, Japan, Malaysia, Philippines, RO Korea, Singapore, Thailand and Vietnam, as well as representatives of other stakeholder entities, adopted the **Putrajaya Declaration of Regional Cooperation for the Sustainable Development of the Seas of East Asia** on 12 December 2003, during the East Asian Seas (EAS) Congress held in Putrajaya, Malaysia. The ministerial declaration formally adopts the SDS-SEA as a regional strategy for achieving sustainable development of the seas of East Asia.

Haikou Partnership Agreement (2006) — The Haikou Partnership Agreement was signed during the second EAS Congress, held in Haikou City, PR China, on 15 December 2006, attended by Ministers from Cambodia, PR China, DPR Korea, Indonesia, Japan, Lao PDR, Philippines, RO Korea, Singapore, Timor-Leste and Vietnam, as well as representatives of various stakeholder partners. This regional Agreement establishes the coordinating and operating mechanisms for implementing the SDS-SEA. The Agreement contains an annex on Partnership Operating Arrangements that spells out the roles and responsibilities of the State and non-State Partners, as well as the make up and functions of the different components of the regional mechanism.

Governance, Policy, Strategies

A Strategic Approach to Achieving a Shared Vision.



Twelve nongovernmental organizations (NGOs) signed the Partnership Operating Arrangements, thereby becoming members of the intergovernmental and multisectoral EAS Partnership Council.

Manila Bay Declaration — The Manila Bay Declaration 2001 is an intergovernmental (i.e., national and local governments) and multi-stakeholder commitment to the implementation of the Manila Bay Coastal Strategy. The Strategy provides a comprehensive environmental management framework for the Bay and its watersheds, directly linked to economic growth and social development of the National Capital Region of the Philippines. This subregional political commitment forms the basis of several project activities currently being developed and implemented by the local and national governments.

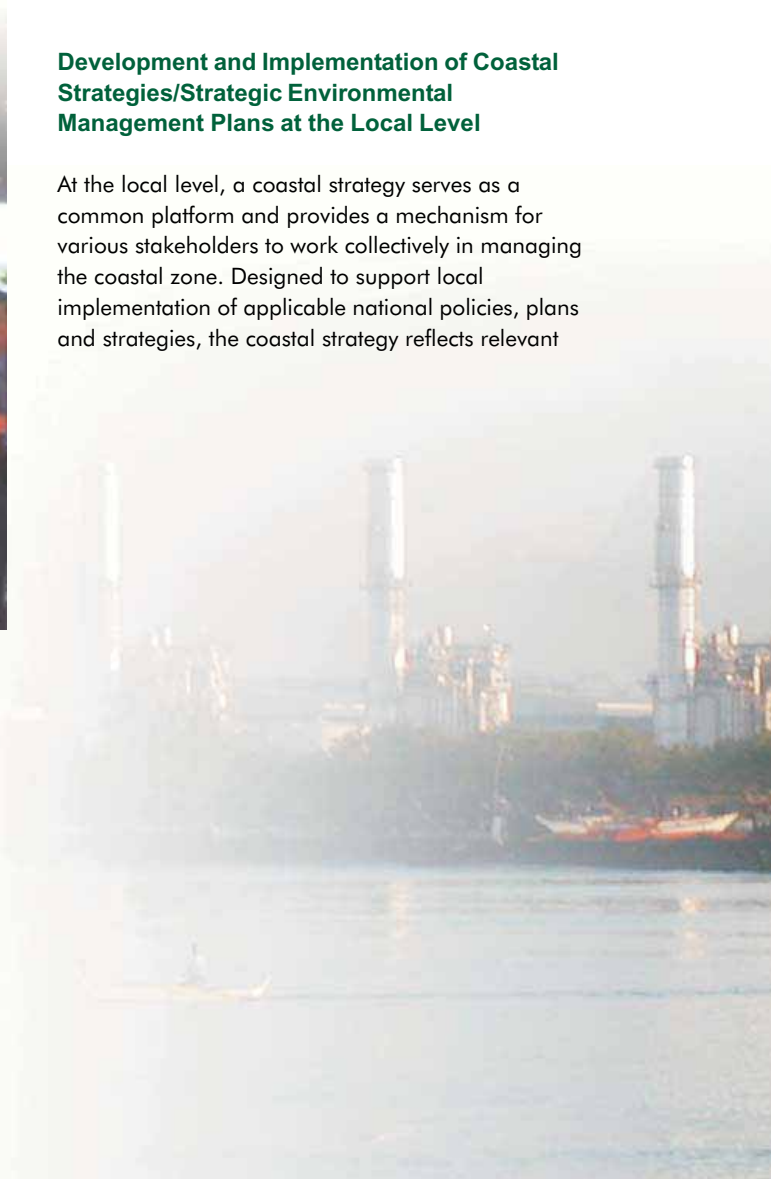
Bohai Sea Declaration — In July 2000, provincial and municipal governors of Liaoning, Hebei, Shandong and Tianjin, together with the Administrator of China's State Oceanic

Administration, signed the Bohai Declaration on Environmental Protection. The Declaration adopts the principles, objectives, policy measures and actions to reduce waste and marine pollution across the administrative boundaries of the adjacent coastal municipalities and provinces. It sets the stage for developing a coordinating mechanism for basin-wide management of environment and natural resources.

Executive Order 533 (Philippines) — The Philippines' commitment to ICM has been enshrined within its national institutional framework. On 6 June 2006, Executive Order 533 was signed by the President of the Philippines declaring ICM as the national strategy for sustainable development of the country's marine and coastal resources. The national ICM strategy provides the platform and coordinating mechanism among agencies, levels of governments and various sectors, their respective roles and responsibilities, and an on-the-ground process for managing land- and sea-based activities that affect the coastal area. It calls for the development of a national ICM Program as a framework guideline for the implementation of ICM.

Development and Implementation of Coastal Strategies/Strategic Environmental Management Plans at the Local Level

At the local level, a coastal strategy serves as a common platform and provides a mechanism for various stakeholders to work collectively in managing the coastal zone. Designed to support local implementation of applicable national policies, plans and strategies, the coastal strategy reflects relevant



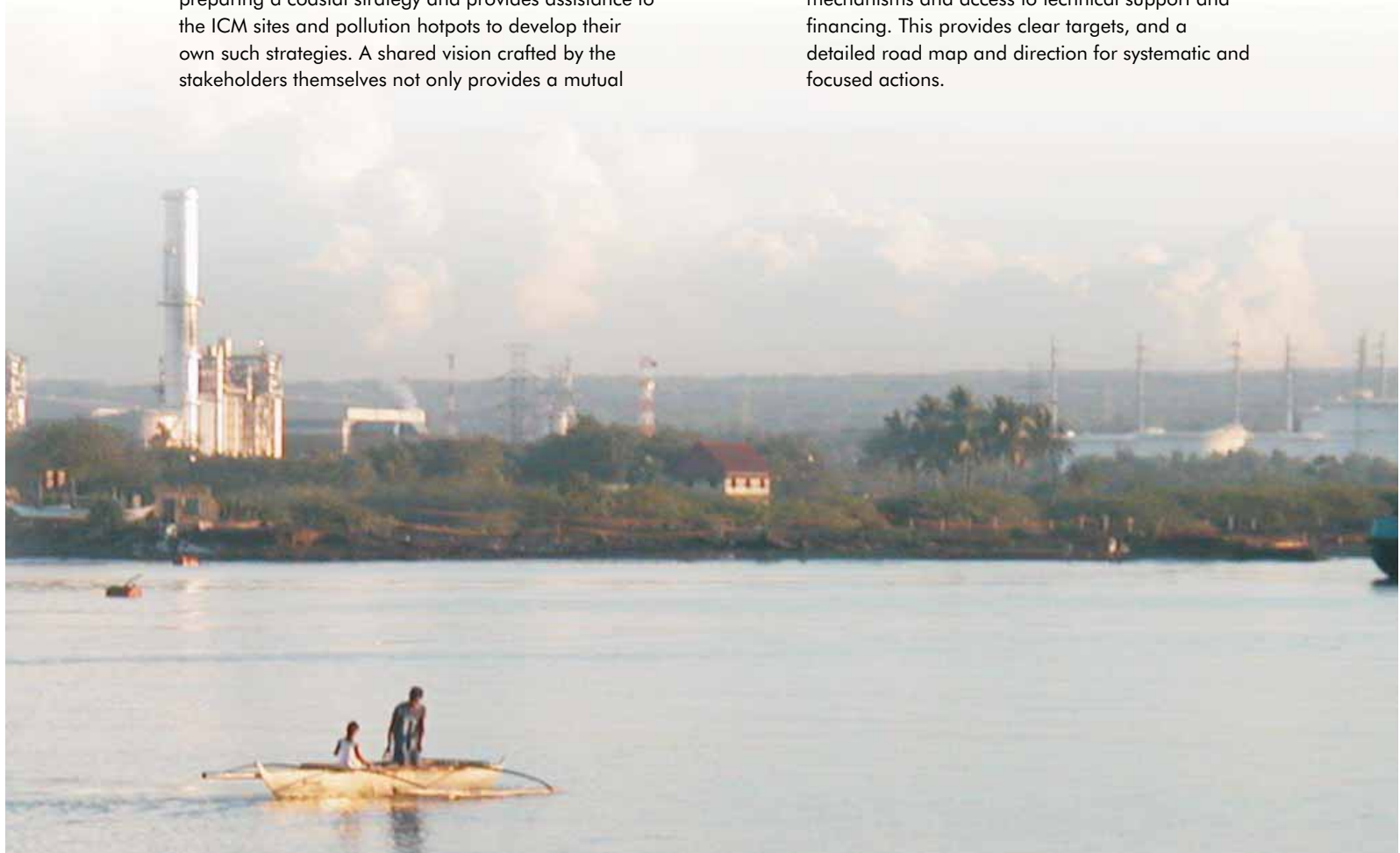
Governance, Policy, Strategies



local conditions, needs and sentiments, all of which are important considerations in pro-active management and decision-making. Extensive stakeholder consultations, preparation by a local team, and official adoption by local governments and stakeholders ensures ownership and accountability for the strategy and greater commitment for its implementation.

PEMSEA developed the framework and guidelines for preparing a coastal strategy and provides assistance to the ICM sites and pollution hotspots to develop their own such strategies. A shared vision crafted by the stakeholders themselves not only provides a mutual

goal and impetus for concerted action but also encourages greater participation in addressing identified priority risks and other major environmental and socioeconomic concerns in the coastal, adjacent watershed and marine areas. Following the adoption of a coastal strategy, an implementation plan is prepared in consideration of priority risks identified through risk assessment, local capacity for implementation, capacity-building mechanisms and access to technical support and financing. This provides clear targets, and a detailed road map and direction for systematic and focused actions.



Multiple models and different experiences in developing and implementing coastal strategies are shared and applied to coastal areas, in support of the SDS-SEA target of ICM replication and scaling up in the East Asian region. Coastal strategies and strategic environmental management plans have been developed in Bali and Sukabumi (Indonesia); Bataan, Cavite, Manila Bay and Batangas Bay (Philippines); Nampho (DPR Korea); Sihanoukville (Cambodia); Klang (Malaysia); Chonburi (Thailand); Danang (Vietnam); and Xiamen and Bohai Sea (PR China). It is a best practice for each local government implementing an ICM program to develop a coastal strategy that sets a common vision for the sustainable development of the coastal area.

Development and Implementation of Management Strategies for Pollution Hotspots

Environmental risk assessment and risk management processes are applied to address transboundary environmental issues and priority risks in hotspots and subregional sea areas under stress. This approach allows managers, decision-makers and stakeholders to select actions that strike a balance between benefits and costs in pursuing policies on sustainable development.

Marine pollution is a priority environmental concern in the **Malacca Straits** and the **Gulf of Thailand**, and risk management initiatives have focused on the protection of coastal and marine resources from sea-based pollution. A Marine Electronic Highway

project, now being supported by GEF and implemented by the World Bank and IMO, in partnership with the three littoral States of the Malacca Straits and the shipping industry, serves not only as a navigational aid, but also prevents accidents that may cause damage to coastal and marine resources, coastal industries and sources of livelihood. In the Gulf of Thailand, a joint statement was signed by the Governments of Cambodia, Thailand and Vietnam, committing the three countries to a partnership and framework program for protection against serious threats posed by oil pollution incidents involving ships, offshore oil and gas units and seaports in the Gulf.

POLICY BRIEF
Partnership Opportunities for Enhancing GPA Implementation in the East Asian Region (2007-2011)

UNEP East Asian Seas Regional Coordinating Unit (EASRU/CESEA) | UNEP/WHO Regional Programme on Partnership in Environmental Management for the Seas of East Asia (PRMSEA)

Introduction

The East Asian region has been achieving impressive rates of poverty reduction, at around 25 million people annually for the past 15 years or more. While there are still significant problems with entrenched poverty in the region, millions of people now have a chance to experience life beyond basic survival. For example, the sustained growth rates of 10 percent or more in China have helped reduce the number of people residing on less than one dollar per day from 477 million in 1990 to 206 million in 2001. The Chinese Academy of Social Affairs estimates that 11 percent of China's 1.3 billion, or about 250 million people, are now considered middle class — living in households with annual incomes of between \$18,000 and \$26,000. In further estimates that if this middle class keeps growing by 1 percent each year, after 42 percent of China's population — almost 500 million people — will reach this status by 2020. Other sources indicate that there are now more middle-to-high income earners, whom UNEP defines as those earning in excess of \$2,000 per annum, in Asia and the Pacific than in America and Europe combined!

But this remarkable growth is not without its challenges, especially when considering changes that are occurring in the region's ecosystems. The region's environment is under significant stress. As illustrated in Figures 1 and 2, the ecological footprint in the Asia-Pacific region has risen by more than 130 percent since 1981, now requiring 1.3 global hectares of biologically productive area per person. With a supply of only 0.7 global hectares per person, the region is now seeing growing impacts of ecological scarcity, degraded ecosystems, and an increasing portion of the population living in degraded environments!

Growing populations and their migration to coastal areas, dynamic economic growth, and rising global demands for fishery and aquaculture products, largely met by export products from the East Asian Seas, and rapidly increasing shipping in ports, have combined to exert tremendous pressure on East Asia's marine environment and natural resources, through depletion of fisheries and destruction of mangroves, coral reefs, seagrass beds and other habitats. Studies warn that at the current rates of degradation, the region's coral reefs face total collapse within 20 years, while mangroves could be gone within 30 years.

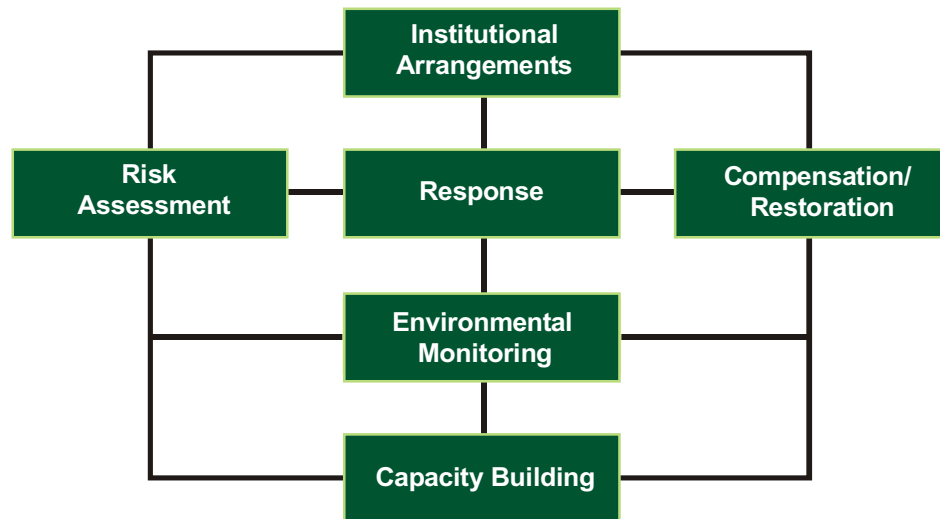
Figure 1: Humanity's Ecological Footprint, 1981-2001.

Year	Asia-Pacific's Ecological Footprint (Global Hectares per person)	Humanity's Ecological Capacity (Global Hectares per person)
1981	~0.5	~0.7
1985	~0.6	~0.7
1990	~0.7	~0.7
1995	~0.8	~0.7
2000	~1.0	~0.7
2001	~1.1	~0.7

Figure 2: Asia-Pacific's Ecological Footprint, 1981-2001.

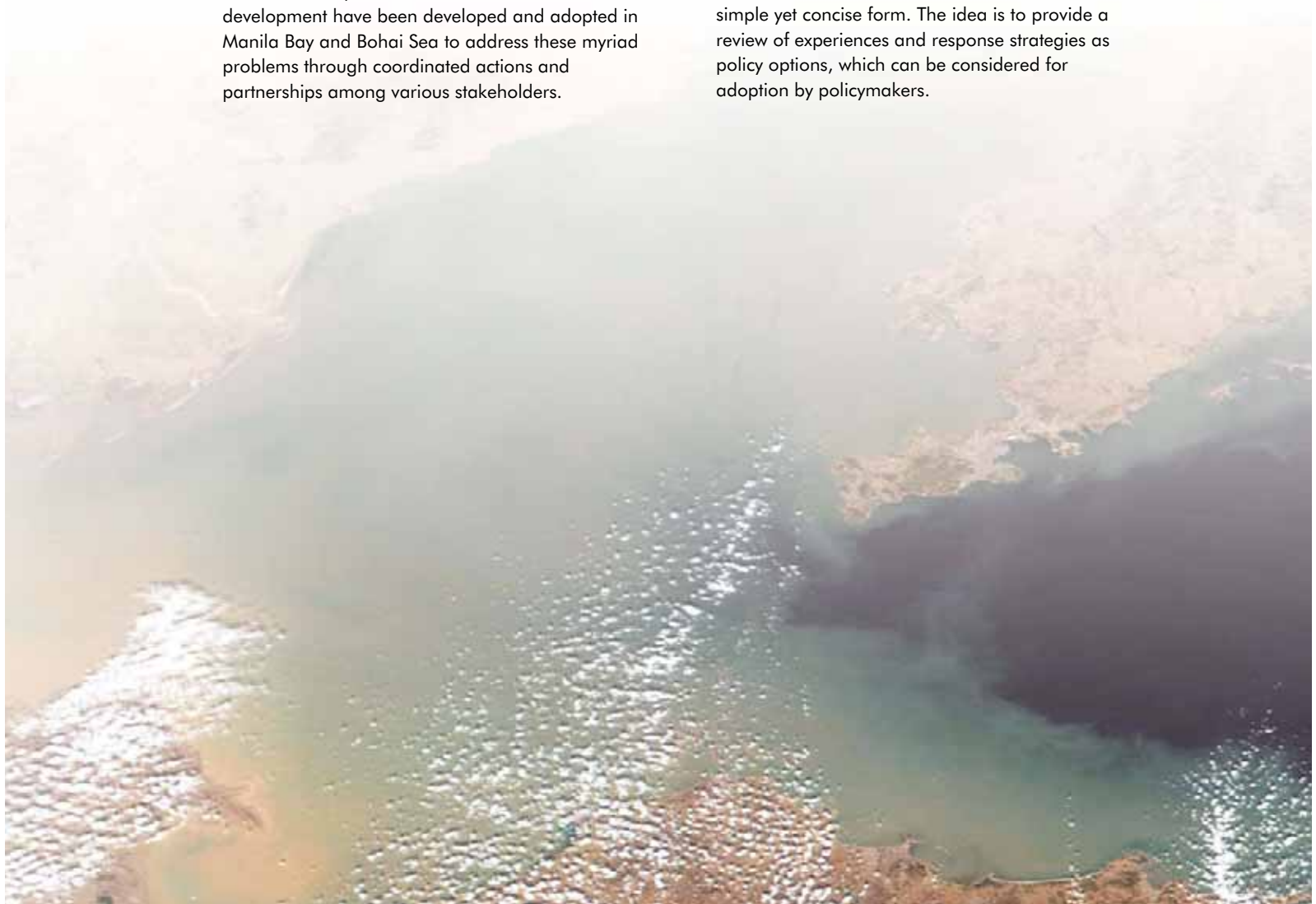
Year	Asia-Pacific's Ecological Footprint (Global Hectares per person)	Asia-Pacific's Ecological Capacity (Global Hectares per person)
1981	~0.5	~0.7
1985	~0.6	~0.7
1990	~0.7	~0.7
1995	~0.8	~0.7
2000	~1.0	~0.7
2001	~1.1	~0.7

Excerpted in whole from: Asia-Pacific 2009: The Ecological Footprint and Natural Wealth 1



In the **Bohai Sea** and **Manila Bay**, pollution from both land- and sea-based activities, degradation of habitats, overexploitation of resources, and multiple-use conflicts are seen as the major threats to sustainability. Comprehensive strategies for environmental protection and sustainable development have been developed and adopted in Manila Bay and Bohai Sea to address these myriad problems through coordinated actions and partnerships among various stakeholders.

Policy Briefs are developed and used as sources of information for policymakers, providing them with a better understanding of the environmental issues that require policy interventions. These policy materials are prepared following a thorough review of topical subjects, which are then translated in simple yet concise form. The idea is to provide a review of experiences and response strategies as policy options, which can be considered for adoption by policymakers.





PEMSEA's Transformation into a Coordinating Mechanism for SDS-SEA Implementation

Sustainable development, in particular the implementation of the SDS-SEA, is a long-term endeavor. It requires an efficient regional coordinating mechanism that will place concerted efforts in developing, coordinating and nurturing the various efforts of governments and stakeholder partners towards achieving the shared visions. The PEMSEA regional mechanism, which was established with the signing of the Haikou Partnership Agreement on 15 December 2006, consists of the following key components:

The EAS Partnership Council features two constituents of governance pertaining to the implementation of activities related to SDS-SEA. The **Intergovernmental Session** is composed of PEMSEA member countries and is chaired by a member elected by the participating countries. It primarily provides policy guidance, reviews work programs, approves budgetary allocations and monitors progress, outcomes and impacts of SDS-SEA implementation. Composed of all member governments

and stakeholder partners, the **Technical Session** receives technical and scientific reports from the Partners, identifies and evaluates projects and work programs, provides technical advice and information, and promotes partnership interactions on subjects of common interest. The Technical Session Chair is elected by all members of the Council, as is the Council Chair.

The Council Chair serves as the chair of the Executive Committee and oversees the execution of Council functions.

The Executive Committee operates between Council meetings, primarily for the purpose of addressing business issues requiring the continuous attention of the Council. The Committee is composed of the three Council chairs, the Executive Director and the immediate former Executive Director as ex-official.

The PEMSEA Resource Facility (PRF) provides secretariat and technical services related to SDS-SEA implementation to the Council and the participating partners. The **PRF Secretariat Services** is financially supported through contributions from the Governments of PR China, Japan and RO Korea, as well as the Government of the Philippines, and partially through GEF. The **PRF Technical Services** executes the technical projects of GEF, the World Bank, and other donors and collaborative programs and projects of stakeholder partners related to the SDS-SEA.

Institutional Arrangements

The Philippine Government, as the host country for the PEMSEA Regional Programme Office for the past 14 years, has extended its support by constructing a new two-storey building to serve as the office for the PRF.

The PEMSEA Partnership Fund is a mechanism for receiving financial contributions from donors, collaborative projects and programs, as well as proceeds from the sale of goods (i.e., publications, software) and services (i.e., training, project execution, etc.). The Fund is designed to ensure the sustainability of the regional mechanism to operate on a self-sustaining basis.

The Ministerial Forum is a triennial policy dialogue event, participated by the concerned government ministers of the region. The Ministerial Forum receives reports from the EAS Partnership Council and the recommendations of the triennial East Asian Seas Congress. The Ministerial Forum provides policy direction pertaining to key concerns for regional cooperation and expresses the fulfillment of their international commitments related to sustainable development. Ministerial Forums were conducted in Putrajaya, Malaysia, in 2003 and Haikou City,

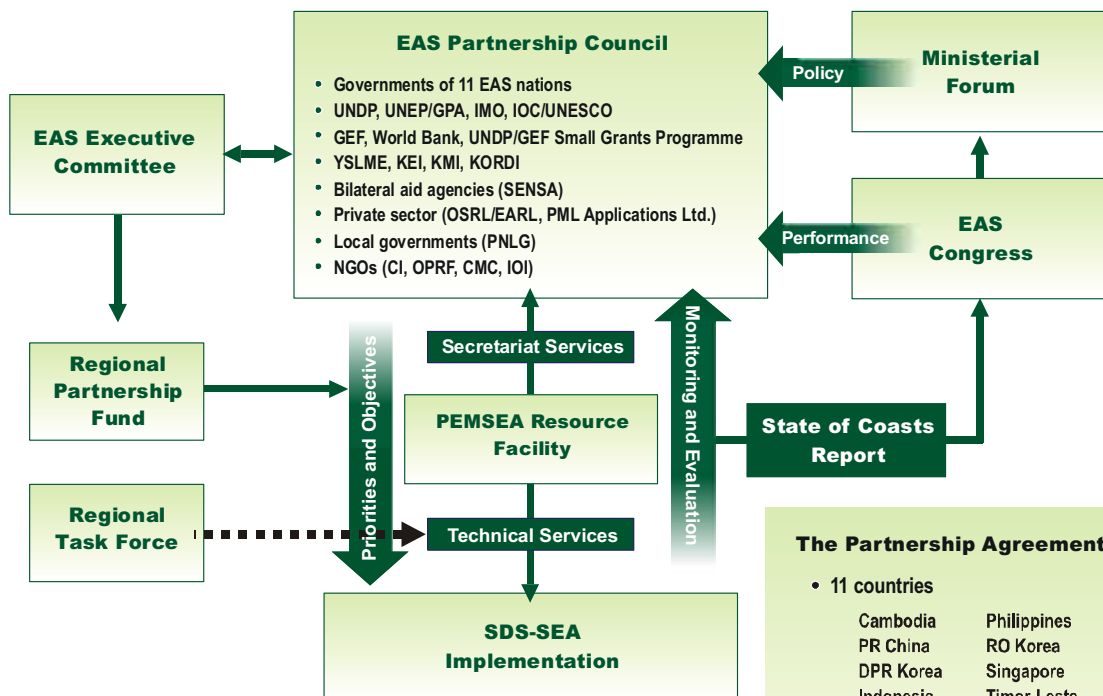
PR China, in 2006 resulting in the endorsement of the Putrajaya Declaration and the Haikou Partnership Agreement respectively.

The East Asian Seas (EAS) Congress serves as the intellectual marketplace for knowledge and experience sharing, and a forum for dialogues between policymakers, environmental and natural resource managers, business communities, academic communities, NGOs, local governments, and grass-roots organizations. This triennial event has broken conventional grounds by enabling stakeholder partners to work together in organizing seminars and workshops under a common theme. The number of collaborators in the EAS Congress has increased from eight in 2003 to forty-five in 2006. The number of participants has also grown from 400 in 2003 to more than 800 in 2006. The Philippine Government will host the 2009 Congress in Manila.

Major Features:

- Ministerial Forum
- Partnership Council Meeting
- International Conference
- PEMSEA Network of Local Governments
- Youth Forum
- Exhibition
- Field Visits
- Other Side Events/Meetings

EAS Partnership Operating Arrangements.



The Partnership Agreement

- 11 countries

Cambodia	Philippines
PR China	RO Korea
DPR Korea	Singapore
Indonesia	Timor-Leste
Japan	Vietnam
Lao PDR	
- 14 non-State Partners



Signing of the Bohai Sea Declaration.

Fostering National Governance Arrangements

Several governments have made significant efforts to streamline national policy and structural reforms that strengthen national coastal and ocean governance. Following are some of the examples of their achievements:

Cambodia has started several initiatives related to SDS-SEA implementation by integrating the implementation of several of its national action plans and strategies, including the National Environmental Action Plan, New Social Policy Agenda, National Biodiversity Strategy and Action Plan, Socioeconomic Development Plan 2001–2005 and National Poverty Reduction Strategy 2003–2005.

China has established a comprehensive ocean management system along with a comprehensive legal system that deals with Exclusive Economic Zones (EEZs) and the continental shelf, and functional sea-use and coastal-use zoning schemes.

In **Indonesia**, the new Department of Marine Affairs and Fisheries (MOMAF) is looking at an appropriate organizational structure to strengthen national

sovereignty and jurisdiction based on management issues within and construed by archipelagic contexts and national thrusts, such as decentralization. A national ICM law has been enacted including the management of the islands.

In 2007, **Japan** upgraded its Ocean Policy Division into an Ocean Policy Bureau, demonstrating the importance given to ocean management. An Ocean Basic Law was enacted by the Japanese Parliament, which came into force on 17 July 2007.

Malaysia has also strengthened its marine enforcement capacity by establishing a Malaysian Coast Guard. A national coastal policy has been drafted and is awaiting its approval.

The **Philippines** has prepared a Framework for Sustainable Philippine Archipelagic Development (ArcDev) in 2004, in order to seek ways of improving implementation mechanisms and harmonizing various resource use and access arrangements. Executive Order No. 533 was signed on 6 June 2006, officially adopting ICM as the national strategy and establishing a national supporting mechanism for implementation (see Fostering National and Regional Commitments). Also, Executive Order No. 510 was signed, creating the River Basin Control Office, attached to the Department of Environment and Natural Resources, and tasked with integrating water resource management in river basins and coastal areas of the country.

The success of the institutional arrangements in the **Republic of Korea** is noteworthy. The formulation of a national ocean policy (Ocean Korea 21) and the creation of the Ministry of Maritime Affairs and Fisheries in 1996 have strengthened capacities and institutional mechanisms in integrated ocean and coastal governance. In 2007, the Marine Environmental Division of MOMAF was upgraded into a Marine Environmental Policy Bureau.

In **Thailand**, a newly-established agency, the Department of Marine and Coastal Resources, is currently drafting a new law concerning coastal management, especially targeting improved enforcement.

In **Vietnam**, a new division for integrated coastal zone and river basin management has been established under the Vietnam Environment Protection Agency to consolidate and support various ICM initiatives

throughout the country. The division is taking the lead in streamlining the approach for a national ICM program, starting with 14 coastal provinces. In 2006, the Ministry of Natural Resources and Environment successfully launched the Master Plan on Basic Survey and Management of Marine Resources and Environment until 2010 and Vision until 2020, which includes a specific action on developing a Sustainable Development Strategy for Vietnam's coastal and marine areas.

Several countries have developed marine-related research agencies to undertake policy research related to coasts and oceans. These include the Chinese Institute of Marine Affairs (CIMA), Malaysian Institute of Maritime Affairs (MIMA), Korean Maritime Institute (KMI), Philippine Center for Marine Affairs (PHILMAR) and Indonesian Institute on Laws of the Seas.

Strengthening Interagency, Multisectoral Coordination at Local Levels

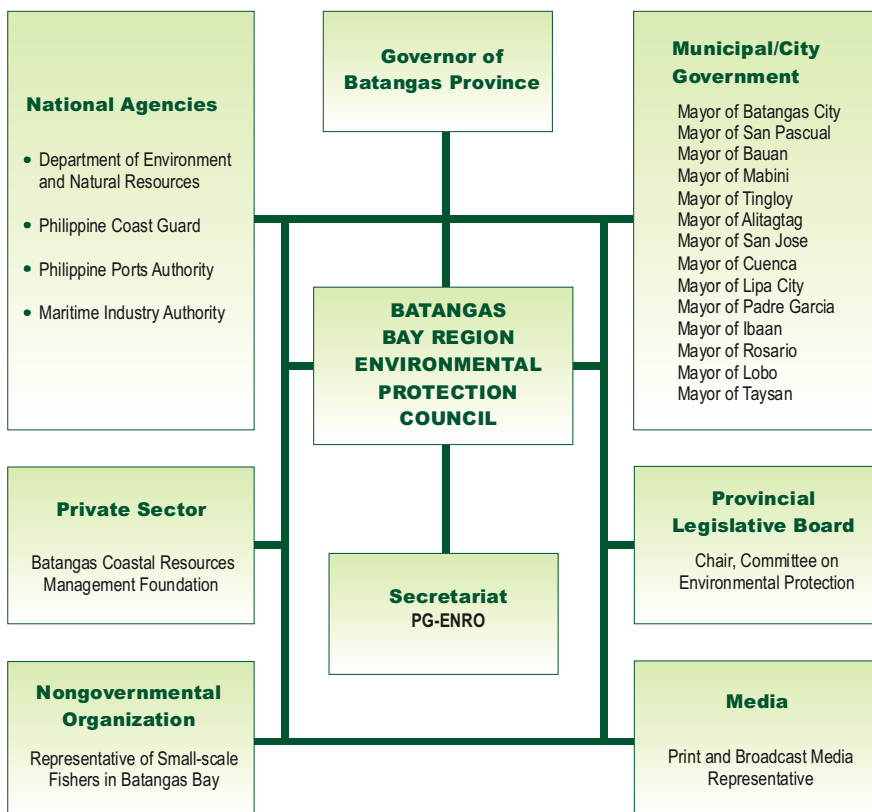
Essential in the implementation of ICM is a functional coordinating body or mechanism that harmonizes overlapping responsibilities and stakeholder interests, and ensures that the policies and management interventions are integrated. Specifically, it provides policy direction

and coordinates interagency and multistakeholder involvement in ICM program implementation.

Local coordinating mechanisms may take different forms. One example is the Xiamen Marine Management and Coordination Committee (MMCC), which was established in 1995 and institutionalized in 1999 within the City Government as the Marine Management Coordination Office (MMCO). In 2002, the MMCO was merged with the Fisheries Bureau to form the Xiamen Oceans and Fisheries Bureau, with an annual allocation of RMB35 million (\$4.6 million) to fund their operations as well as other coastal and ocean related activities.

The Batangas Bay Region Environmental Protection Council (BBREPC) of the Province of Batangas, Philippines, was established in 1995 as the coordinating body chaired by the Governor of Batangas and consisting of representatives of national and local governments, academe, the private sector, media and community organizations as members. The BBREPC's secretariat is the Provincial Government Environment and Natural Resource Office (PG-ENRO), which is also responsible for the day-to-day operations for the ICM program. The BBREPC has expanded over time to include other local government units and stakeholders, as the ICM program has scaled up to cover the entire coastline of the province. The BBREPC has recently been renamed the Batangas Environmental Protection Council.

The Coordinating Mechanism for ICM Program Implementation in Batangas Bay.



In Nampho, the ICM Project Coordinating Committee is composed of representatives from the relevant marine and coastal agencies. The Project Management Office (PMO) was established at the West Sea Oceanographic Research Institute and was institutionalized as a permanent structure under the Land and Environmental Protection Department, People's Committee of Nampho City.

The coordinating mechanisms described above are essential to successful implementation of ICM. Similar coordinating mechanisms of varying structures and sizes have been established in other PEMSEA ICM demonstration sites, and are also emulated in parallel sites.

Many countries of the region have committed to sustainable development and to the prevention and reduction of environmental degradation by ratifying various multilateral environmental agreements (MEAs). However, many countries lack the capacity to fulfill the obligations that are specified in the MEAs. With the implementation of the SDS-SEA, PEMSEA participating countries are able to leverage the synergies from local action, national legislation, and the regional management framework to collectively contribute to the commitments and targets of the concerned MEAs. Capacity development initiatives under the PEMSEA program facilitate assistance in drafting maritime legislation, and substantiate the integration of international instruments into relevant environmental improvement programs at the different scales. National and local implementation of the international instruments are also aided by training personnel, organizing study tours and the provision of technical manuals and guidelines covering case studies of “good practices” and lessons learned.

Fostering Implementation of MEAs and Development of National Legislation

Gulf of Thailand Joint Statement — On 12 January 2006, ministers, senior government officials and various other stakeholders from Cambodia, Thailand and Vietnam gathered in Hanoi, Vietnam, and issued a Joint Statement on Partnership in Oil Spill Preparedness and Response Cooperation (OPRC) in the Gulf of Thailand. The Joint Statement contains a tripartite intergovernmental agreement, which commits participating countries to mutual support and assistance in combating oil spills in the Gulf of Thailand region.

In addition, the Joint Statement endorses a Framework Programme for Joint Oil Spill Preparedness and Response in the Gulf of Thailand, specifying obligations and responsibilities of the participating countries, as well as coordinating mechanisms and arrangements for the implementation of the Framework Programme. The Joint Statement and Framework Programme are regarded by the participating countries as an important legal basis for the multilateral cooperation in oil spill preparedness and response in the Gulf of Thailand. The Framework

Technical Assistance and Knowledge Sharing

Technical support to PEMSEA participating governments interested in developing national legislation and streamlining national administrative procedures for the implementation of international instruments. For example, a sub-decree on OPRC has been developed and is being submitted to the Council of Ministers for endorsement in Cambodia. Technical advice was also facilitated to the Working Committee of the Philippine Senate pertaining to the enactment of the appropriate national legislation for the implementation of the International Convention for the Prevention of Pollution from Ships 73/78 (MARPOL 73/78).

Knowledge-sharing among PEMSEA partners and collaborating organizations is continually promoted through the monthly electronic newsletter *PEMSEA E-Updates* and the biannual magazine *Tropical Coasts*. For example, articles on the Republic of Korea’s enactment of the Coastal Management Act and Wetland Conservation Act (1999), the Marine Ecosystem Conservation Act (2005), and Marine Environment Management Act (2006), as well as the recent enactment of the Basic Ocean Law in Japan, which resulted in the Japanese Ocean Policy (2007), are useful references to other governments interested in strengthening their legislation to achieve effective management of their coasts and oceans.

Programme integrates the implementation of the OPRC convention, the 1971 Fund Convention and the 1969 Civil Liability Convention (CLC) as related to damage compensation, and serves as a working model for integrated implementation of the relevant international instruments at the subregional level.

Bohai Sea Legislation — The signing of the Bohai Declaration on environmental protection in July 2000 set the stage for developing a coordinating mechanism for basin-wide management of the environment and natural resources. Tabled for endorsement at the National People’s Congress, the Bohai Sea Management Law focuses on strengthening the management regime on total pollution load control, developing a sustainable financing mechanism to catalyze environmental investment, and undertaking scientific research to support management decisions and knowledge sharing. The law will effectively guide the establishment and facilitate effective functioning of inter-provincial and cross-sector coordinating mechanisms and processes, as well as the implementation of the vision, mission and action programs set out in the Bohai Sea Sustainable Development Strategy.

Implementing International Instruments and Legislation

Xiamen Legislation on Integrated Management of Sea Uses — In Xiamen, China, the city government developed a municipal ordinance for the integrated management of sea uses. The local ordinance contains a legal framework for interagency review and permitting mechanisms and procedures to implement the adopted sea-use zoning scheme, including collection and management of user fees. The zoning scheme was developed with broad-based public participation, providing greater insight into the various impacts arising from multiple coastal use conflicts and the adopted strategic environmental management plan for the coastal area. The consultative approach led to better interagency dialogue and collaboration, enhanced awareness and support for pollution mitigation and restoration of habitats, and the creation of alternative livelihood programs for the displaced local communities that were affected by the zoning law. The ICM best practices provided a solid foundation for the local legislative initiative. The city government adopted the sea use management ordinance in 1997, the first of its kind in China.

National Legislation on Sea Area Management Law, China (2002) — In the late 1990s, the Chinese Government undertook a series of field studies and stakeholder consultations regarding national

legislation to address multiple sea-use conflicts, alleviate marine environmental stress and implement legislative measures that would contribute to achieving sustainable ocean development. The success of integrated management approaches demonstrated by Xiamen and other projects and the failure of the conventional, single sector-based management approach in resolving cross-sector issues were well recognized in the studies carried out by the National People's Congress. This largely contributed to the national consensus on the establishment of a new legal framework for managing sea uses. In October 2001, the Standing Committee of the National People's Congress adopted the Sea Area Use Management Law of the People's Republic of China.





Disparities in capacity among countries of the region represents a significant barrier to the sustainable development of the East Asian seas and to effective coastal and ocean governance. The challenge is being addressed through capacity-building programs that not only focus on the technical skills of ICM practitioners, but also develop managerial capacity in terms of planning, implementing and reprogramming ICM at the local, national and subregional levels. A hands-on approach is the foundation of PEMSEA's capacity development strategy, adhering to the belief that people can learn more effectively through actual experiences, supplemented by coherent management frameworks, scientific tools and innovative methodologies that are being continuously developed and updated to remain relevant to the needs of communities, governments and the private sector.

Special Skills Training Programs

A total of 79 specialized training workshops, 17 internships, 11 study tours and 2 fellowships were conducted from 1999 to 2007, with over 1,858 individuals benefiting. Major regional training workshops covered diverse topics, such as: ICM Program Development and Implementation; Oil Pollution Preparedness, Response and Cooperation (OPRC); Development, Implementation and

Management of Coastal and Marine Environmental Projects; Environmental Risk Assessment; Integrated Environmental Impact Assessment; Development and Implementation of a Coastal Use Zoning Plan and Institutional Framework; Leadership Development on Ocean and Coastal Governance; Oil Spill Claims Recovery and Contingency Planning; Port Safety, Health and Environmental Management System (PSHEMS); Port Auditing; Integrated Information Management System (IIMS); and Integrated Environmental Monitoring. Several of these training initiatives have been conducted jointly with scientific and technical institutions and NGOs from within and outside the region.

The capacity-building component of the Regional Programme has led to:

1. better understanding of environmental issues and challenges, thereby encouraging greater support for the various projects;
2. enhanced capacity to implement activities that support SDS-SEA objectives at the local, national and subregional levels;
3. knowledge dissemination and skills transfer through regional and specialized PEMSEA internships, fellowships, training and study tours;

Capacity Development

4. formation of a pool of trainers and resource persons from both within and outside the region; and
5. establishment of a critical mass of trained professionals in specialized areas of coastal and environmental management.

Such efforts have served the region well in terms of building its intellectual capital, and sustaining the efficacy and effectiveness of ICM programs.

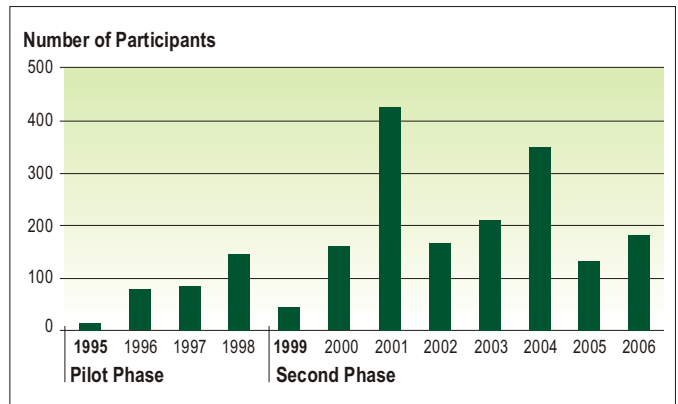
Study Tours to ICM demonstration sites, such as Xiamen, Batangas, Danang and Bataan, are designed for local and national leaders to gain valuable experience from the region. Notable results of these study tours include stronger political support for projects and increased involvement by the participants in initiating or implementing ICM in their respective countries. This also encouraged locally-funded cross-site visits among participating countries, in order to share knowledge and experiences in ICM implementation.

Internship and Fellowship Programs provide opportunities for young professionals to work in the PEMSEA Regional Programme Office. An objective of the program is to expose the interns to a variety of project management and development skills, for them to gain direct experience in the vision, philosophy and strategies for developing and expanding coastal management at the local and national levels.

Leadership Seminars are conducted for senior and executive level personnel from national and local governments, exposing them to the roles and responsibilities that they play in implementing an effective ICM program, and turning them into advocates or champions of coastal management. These seminars have helped promote stronger commitment among mayors, governors, vice ministers and ministers for ICM implementation.

An **ICM Graduate Program** is being explored in collaboration with academic institutions in the region to provide the next generation of leaders with needed knowledge and skills to plan and manage the coasts and the seas.

Number of Country Participants Trained by the Regional Programme (1995-2006).



ICM Demonstration Sites: Learning by Doing

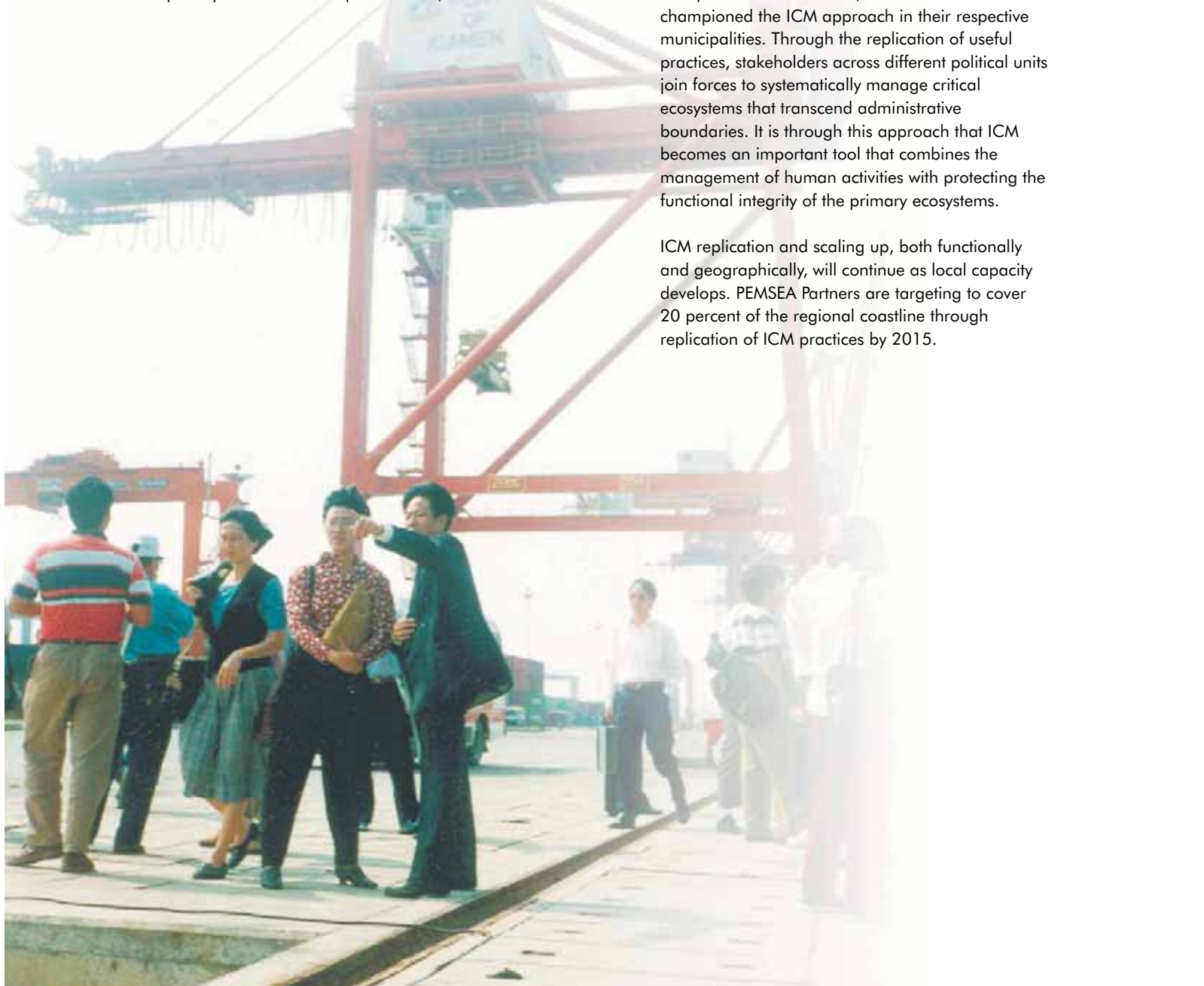
Recognizing the variation in the socioeconomic, political, cultural and ecological conditions among participating countries, while also realizing common coastal management concerns across the region, a series of ICM demonstration projects and parallel learning sites have been established in order to encourage local governments to adopt the comprehensive integrated management framework and process. The purpose is to help local governments move away from conventional sectoral approaches of environment and natural resource management, towards an integrated ecosystem approach in coastal governance.

Eight demonstration sites have been established covering a total 917 km of coastline and 15,118 km² of land and sea areas. These sites embrace the integrated management approach in developing and implementing coastal and marine management programs, benefiting more than 7 million stakeholders in the respective areas. The inherent flexibility of ICM enables it to be re-created and adopted by local communities, as well as larger administrative regions, to fit the complexity and urgency of issues being addressed. Learning from the experience of the demonstration sites, 18 other local government units (LGUs) in the region have begun to replicate the ICM programs. These are known as ICM parallel sites, which apply the best practices of the demonstration sites, using their own resources. As a consequence of the participation of 18 ICM parallel sites, a total of

1,674 km of coastline and 27,508 km² of land and sea area have now been covered by ICM, with over 11 million inhabitants.

ICM provides a practical framework for sustainable development, as it expands from coastal and marine management to encompass watersheds, river basins and other associated ecosystems. For example, in Batangas, Philippines, the ICM program started with five municipalities and one city in Batangas Bay. It has now been replicated to cover the entire watershed, coastal areas and bays of the province, through the efforts of the province in coordination with 34 local governments, agencies and donors. Recent developments in Vietnam and Thailand also point to ICM's growing resilience. Fourteen coastal provinces in Central Vietnam are targeted by the government to adopt ICM practices. In Thailand, 21 LGUs have championed the ICM approach in their respective municipalities. Through the replication of useful practices, stakeholders across different political units join forces to systematically manage critical ecosystems that transcend administrative boundaries. It is through this approach that ICM becomes an important tool that combines the management of human activities with protecting the functional integrity of the primary ecosystems.

ICM replication and scaling up, both functionally and geographically, will continue as local capacity develops. PEMSEA Partners are targeting to cover 20 percent of the regional coastline through replication of ICM practices by 2015.





Applied Learning in Subregional Seas and Pollution Hotspot Management

Risk Assessment-Risk Management (RA/RM) is an innovative approach to managing subregional marine areas and semi-enclosed bodies of water that receive high pollution loadings and have complex transboundary environmental and jurisdictional characteristics. To understand the framework and make it operational on the ground, demonstration projects were established in three pollution hotspots, namely Manila Bay, Bohai Sea, and the Gulf of Thailand. As part of the undertaking, the respective national and local staff, who form the Technical Working Group (TWG) at each site, were provided with special skills training in the RA/RM methodology, supplemented by on-the-job training and coaching throughout the implementation of each project.

The capacity of the TWG members was further concretized with their direct participation in multidisciplinary, intersectoral teams tasked with implementing the projects. The outputs from each project were the products of the TWG members, thereby establishing ownership and understanding of the results. Furthermore, this hands-on approach helped form a core of scientific, technical and management expertise, adding to the region's pool of intellectual capital.

Networking

Connecting People, Interests, Concerns, Initiatives and Commitments – PEMSEA continues to innovate and expand its various regional networks in support of the implementation of the Sustainable Development Strategy for the Seas of East Asia. Building on 14 years of experience, in which individuals, organizations and public and private entities have been engaged in advancing knowledge and technology transfer, information exchange, and skills training, a number of new arrangements and networking approaches have been developed.



Twinning Arrangements — The creation of the twinning concept is prompted by the need to manage human activities in an integrated fashion using an ecosystem-based approach. Through the forging of

twinning arrangements between and among priority sites within the region and developed sites outside of the region, PEMSEA hopes to build south-south and north-south collaboration in managing river basins and coastal areas. This initiative will also develop stakeholder participatory management mechanisms across legal and administrative boundaries, covering both upstream and downstream activities and impacts of watersheds and

catchments. The twinning program will engage a number of sites, and cover site-specific issues through technical cooperation, transfer of knowledge, skills and technology, staff exchanges, study tours. The idea is to accelerate implementation of the ecosystem-based approach to managing river basins and coastal areas and to leverage increased investments in pollution hotspots of the region.

Twinning Sites/ Programmes:

- Bohai Sea, PR China
- Manila Bay, Philippines
- Gulf of Thailand
- Masan-Chinhae Bay, RO Korea
- Jakarta Bay, Indonesia
- Chesapeake Bay, USA
- Seto Inland Sea, Japan

Twinning Secretariat: Republic of Korea

Activities of PEMSEA Task Force Teams

- Project planning, development and management
- Coastal strategy development and implementation
- Environmental risk assessment
- Integrated information management
- Environmental and resource valuation
- Coastal use zoning
- Integrated environmental monitoring
- Waste management/pollution control
- Performance evaluation
- Coastal and ocean policy and institutional arrangements
- Training and skills development
- Communication and stakeholder mobilization
- Hazard management and prevention

PEMSEA Task Forces — To scale up capacity-building services across the countries of the region, PEMSEA expanded its network of experts through the establishment of the PEMSEA Regional and National Task Forces. The Regional Task Force (RTF) and National Task Force (NTF) are teams of specialists and experts that will serve as the region's knowledge sharing agents and PEMSEA's technical support mechanisms in the implementation of the SDS-SEA. Grounded on the ICM framework and process, the RTF members provide technical assistance at the regional, subregional and national levels, while the NTF members provide support to countries in the application and scaling up of ICM approach in the local language, thereby overcoming communication barriers and constraints and ensuring better transfer of information.

Engaging International NGOs — With the establishment of the East Asian Seas (EAS) Partnership Council, PEMSEA has introduced yet another innovation that provides nongovernmental entities from the national, regional and global levels with the opportunity to work as partners and complements of governments in determining and taking actions towards the sustainable development of the seas of the region. International NGOs are key players in the promotion of sustainable environmental development and its principles. PEMSEA countries have recognized the value of strengthening linkages with these NGOs, and have promoted their engagement through various activities, such as training, workshops and discussions, environmental monitoring and assessments, policy development, project conceptualization and implementation, etc., bringing about a better understanding of interconnectivity and environmental issues in the region.

Building Stronger Local Alliances — The PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG) is the first of its kind in the East Asian Seas region. It is a self-sustaining network of local governments implementing ICM programs. Local government members develop and implement ICM programs using the same framework



and processes. Since its launch in 2001, the PNLG has served as an effective forum for exchanging information and practical experiences, skills and management know-how on ICM practices among its members. In particular, study tours and the PNLG annual forum, which members take turns hosting, provide the necessary vehicles for mutual learning and mentoring within the PNLG network. The recognition that ICM practices lead to improved coastal governance and result in concrete, on-the-ground social, economic and environmental gains in the communities have motivated more local governments to join the network.

The network currently has 23 member local governments and 7 observer local governments from 9 countries across the region. The membership is expected to increase given PEMSEA countries' confirmation to scale up ICM coverage over the next three to six years. The members demonstrated their commitment towards sustaining the network when they adopted the PNLG Charter in Haikou City, PR China, on 13 December 2006 during the EAS Congress.

With the establishment of the PNLG Secretariat, hosted by Xiamen Municipality, (pnlg.secretariat@gmail.com; www.pnlg.org), the PNLG hopes to carry on its mission and serve as a sustainable network. The PNLG is open for membership to all interested LGUs and other stakeholders within and outside the East Asian Seas region.

PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG)

- Sihanoukville, Cambodia
- Dongying, PR China
- Fangchenggang, PR China
- Haikou, PR China
- Quanzhou, PR China
- Xiamen, PR China
- Bali, Indonesia
- Badung, Indonesia
- Buleleng, Indonesia
- Denpasar, Indonesia
- Gianyar, Indonesia
- Karangasem, Indonesia
- Klungkung, Indonesia
- Sukabumi, Indonesia
- Tabanan, Indonesia
- Shihwa, RO Korea
- Port Klang, Malaysia
- Bataan, Philippines
- Batangas, Philippines
- Cavite, Philippines
- Chonburi, Thailand
- Danang, Vietnam
- Quangnam, Vietnam



Observers

- Nampho, DPR Korea
- Leting, PR China
- Lianyungang, PR China
- Panjin, PR China
- Qingdao, PR China
- Wenchang, PR China
- Yangjiang, PR China





An important contribution of the PEMSEA Regional Programme has been the unique knowledge it has developed regarding ICM implementation at the local, national and regional levels. This includes scientific knowledge on understanding complex ecosystems, political knowledge on securing commitment from regional leaders, social knowledge on engaging local communities through stakeholder consultations, cultural knowledge on adapting the ICM framework to different contexts and mobilizing religious tenets for sustainable development, and financial knowledge on securing commitment for public-private partnerships (PPP). Numerous lessons have been generated in each of these areas.

To share and further expand its knowledge, various Knowledge Management principles and approaches have been applied, including: developing routines to replicate ICM experiences at new sites through a "parallel site" initiative; twinning arrangements among pollution hotspots; EAS Congress; Ministerial Forums; PEMSEA Network of Local Governments (PNLG); and PPPs. Effective communication and replication of experience and good practices help to ensure that they are cultivated and embedded into local communities, and codified and shared rather than dissipated so that the same mistakes are not repeated.

Making waves — Viewing the interaction of people, knowledge and environmental factors as a complex adaptive system, over **150 publications** have been produced in the form of technical reports, case studies, policy briefs, conference proceedings, training manuals,

environmental assessments and coastal strategies. Circulated in and around the region to libraries, universities and organizations, and made accessible online, these publications have taken the concept of information sharing to a higher level, adding to the region's intellectual capital.

The materials, including numerous videos, software (IIMS) and CDs constitute a substantial documentation of the knowledge gained during the PEMSEA Regional Programme. **Training manuals** provide details on why and how to conduct port auditing, risk assessments, IIMS, and a wide variety of other topics and issues. They serve as high-quality models that can be used by governments and donor agencies in the region, contributing to improved methodologies, and to codification and certification.

Reaching out to a wider audience — A number of videos about ICM featuring the stories and lessons learned from countries in the region has been produced or co-produced by PEMSEA. In addition, partnerships were established with television and cable TV companies that have aired these videos, reaching millions of viewers in Asia, Australia, New Zealand, Oceania, Middle East and North America. The videos were also packaged with information kits, and aired during capacity-building and training activities to supplement knowledge transfer. Videos have also been provided to different stakeholders upon request.

Widening the portals of knowledge — Data and information from ICM sites, partners and stakeholders have been gathered, consolidated and translated into more accessible and innovative formats by maximizing

Estimated Audience Share and Number of Broadcast of PEMSEA Videos from 2002 to 2007.

PEMSEA Produced/ Co-produced Videos	Year Produced	TV and Cable TV Network	Area Coverage	Estimated Number of Broadcasts	Estimated Audience Share
The PEMSEA Story Monsoon Tale	2002	IBC-13	Philippines	48	496,000
		NBN-4	Philippines	4	248,000
	2002	ZOE TV-11	Philippines	2	no data
		ISLA TV	Philippines	17	no data
Sibuyan Eco-Camp	2002	IBC-13	Philippines	48	496,000
Chonburi Video	2004	no data	no data	no data	no data
Melasti: A Festival of Hope	2003	IBC-13	Philippines	6	496,000
		Living Asia Channel	Asia, Australia and New Zealand, Oceania, The Middle East and North America	85	10,000,000
EAS Congress: Partnerships in Action	2004	IBC-13	Philippines	6	496,000
Danang: A City at the Crossroads	2004	Living Asia Channel	Asia, Australia and New Zealand, Oceania, The Middle East and North America	85	10,000,000
		Danang TV	Danang, Vietnam	8	no data
The Xiamen Story	2005	Living Asia Channel	Asia, Australia and New Zealand, Oceania, The Middle East and North America	146	10,000,000
		Xiamen TV	Xiamen PR China	4	no data
The Future of Our Coasts (Produced by Masan Munhwa Broadcasting Corporation, RO Korea and translated to English by PEMSEA)	2005	Living Asia Channel	Asia, Australia and New Zealand, Oceania, The Middle East and North America	83	10,000,000
		Masan Munhwa Broadcasting Corporation	Republic of Korea	no data	no data
EAS Congress 2006 TV Plug	2006	Living Asia Channel	Asia, Australia and New Zealand, Oceania, The Middle East and North America	294	10,000,000
		Danang TV	Danang, Vietnam	no data	no data

the use of new media, such as the Internet, animation and CD-ROMs. In 2004, a series of training workshops were organized and conducted on website development, culminating in the Coastalink websites created by Project Management Office (PMO) staff from Port Klang, Bali, Danang, Sukabumi and Chonburi. The Coastalink websites strengthen regional "C2C" (Coast to Coast) networking and parallel knowledge sharing on the East Asian seas.

The PEMSEA website, www.pemsea.org, is a repository of information on issues and advice, best practices and lessons learned. The website also caters to such diverse audiences as the youth, media, investors, partners and researchers, and contains details on regional meetings and conferences, (e.g., EAS Congress).

Keeping updated — The role of civil society is emphasized through awareness-raising efforts and by supporting community-based initiatives, such as mangrove planting, coastal cleanups and waste management. As part of awareness building, what is being learned and experienced on the ground is captured and chronicled through a monthly electronic newsletter, *PEMSEA E-Updates*, and in a biannual magazine, *Tropical Coasts*, increasing the responsiveness and resilience of stakeholders, organizations and governments to environmental change.

For more information on PEMSEA publications, visit www.pemsea.org.





By incorporating scientific assessments and tools and management applications within the ICM and RA/RM frameworks, and establishing networks of scientific and technical expertise to support coastal governance at various levels, science serves to guide and increase the transparency and credibility of coastal decision-making and management.

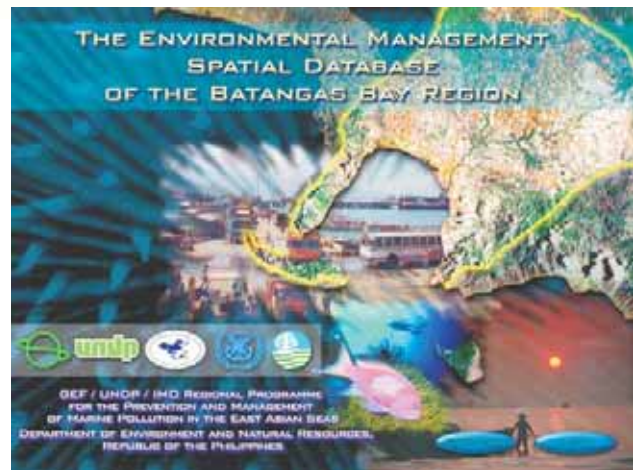
The local scientific communities at PEMSEA sites have been mobilized as partners to undertake scientific assessments and apply scientific tools, such as the Integrated Information Management System and Integrated Environmental Impact Assessment, to reduce complexities and integrate and summarize scientific data and information into more useful formats for the formulation of strategic management programs. Involvement of scientists and policymakers at various phases of the ICM process facilitates communication of management-oriented scientific information.

Leading scientists and young technical professionals in the region have been tapped to undertake various scientific work. The **Multidisciplinary Expert Group (MEG)** has provided critical insights into basic issues including ecosystem carrying capacity, transboundary impacts of national economic activities, tradeoffs between economic development and ecological benefits, reports on the state of the coasts, and the scientific aspects of SDS-SEA implementation.

In Chonburi, local governments and universities have collaborated to:

- establish adverse impacts of sea-based transfer of dusty commodities that catalyzed multiagency and cross-sectoral actions;
- determine causes and cures for sea turtle diseases in conservation ponds and hatcheries;
- undertake seagrass rehabilitation and transplantation;
- assess potential cage culture of local fish species to support coastal livelihoods; and
- establish an artificial habitat for spawning crabs.

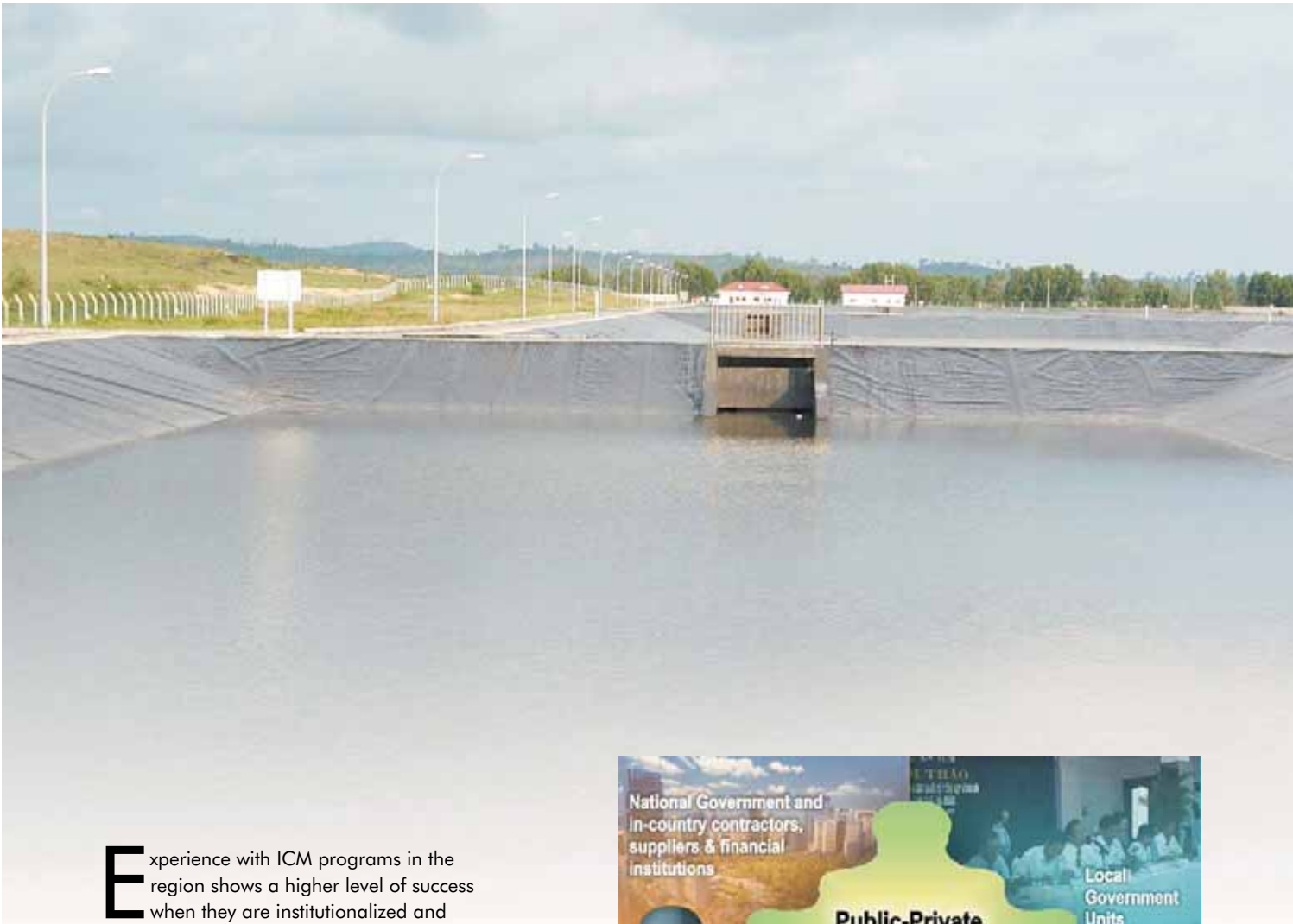
In Xiamen, scientific advice has been mainstreamed through the Marine Expert Group, an integral part of the Xiamen Marine Management and Coordination Committee.



Training programs, workshops, seminars and conferences have been organized to facilitate exchange of scientific information and advice. The International Conferences during the EAS Congress in 2003 and 2006 were open markets of technical and scientific information, spanning the natural, social and economic fields. Links with global and regional scientific programs are continuously being developed to share information and best practices, and ensure complementary approaches in addressing key issues of global, regional and local relevance.

In addition, partnerships are being forged with internationally and regionally recognized **Areas of Excellence (AoEs)** and establishment of a regional network of universities and scientific institutions to augment scientific support for the implementation of the SDS-SEA. This arrangement facilitates south-south cooperation and allows the developing nations to tap intellectual capital from their respective experiences.

Sustainable Financing



Experience with ICM programs in the region shows a higher level of success when they are institutionalized and incorporated into the development plans of local governments. This ensures budget and human resource provisions to sustain the program. This has been experienced in Xiamen and Batangas, where the ICM programs have continued for more than a decade despite the cessation of external funding and leadership changes in the concerned governments. In the ICM parallel sites, such as Bataan and Cavite (Philippines), Sukabumi (Indonesia), and Shihwa Lake (RO Korea), local governments are implementing ICM programs using their own resources — showing that ICM can be put into action within the capacity of local resources.

In some cases, constraints of funding make it difficult for local governments to fully implement key ICM activities. To overcome this difficulty, local governments can supplement their budgets through resource mobilization and strategic partnerships with the private sector, NGOs, civic organizations



and donor agencies. For example, in Bataan, the local government forged a partnership arrangement with industry, whereby implementation of ICM became a joint initiative of the public and private sectors, including cost-sharing of program initiatives.



Unavailable or inadequate financial resources and capacity is often cited for the lack of water supply, sanitation, solid waste and wastewater management facilities. The **public-private partnership (PPP)** approach has been promoted at a number of ICM sites, to allow the public sector to leverage more financial resources and technical and managerial expertise by using the private sector as an intermediary. PEMSEA promotes various mechanisms to facilitate revenue generation. For example, in Sihanoukville (Cambodia), several villages have teamed up with the private sector company responsible for collection and disposal of the municipal solid waste. The villages have agreed to be responsible for primary collection of wastes in areas that are inaccessible to the collection vehicles of the private company, and to collect the fees from the households.



Partners in Coastal Care

In Bataan, the ICM program is being implemented through a functional public-private partnership (PPP) arrangement wherein the provincial government and a group of 17 private companies, which together form the **Bataan Coastal Care Foundation, Inc. (BCCF)**, have committed to share the responsibility for the operation, management and financing aspects of the program. It has brought about the spirit of volunteerism and partnership, with the 12 local government units in the province, civil society groups, communities and stakeholders also contributing their time and resources, whether financial or in-kind, for the implementation of the Bataan Sustainable Development Strategy and ICM activities. The PPP for ICM in Bataan proves that various sectors are able to achieve more when working in partnership, than when acting individually.



Turning Problems into Opportunities

The Municipal Government of Sihanoukville has a 15-year contract with CINTRI Waste Collection Company. Under the contract, CINTRI will collect solid waste from the Mittapheap District and fees from the households and establishments. The government provides an eight-hectare area for the dumpsite in Prey Nup district for which CINTRI pays fees to the government. However, a number of villages are inaccessible to garbage trucks and solid wastes remain uncollected.

To facilitate a more efficient solid waste management system, PEMSEA supported a pilot project which was initiated in Village 1 in Commune (*Sangkat*) 4 of the Mittapheap District. In this project, the village was responsible for primary waste collection from the households while CINTRI collected the wastes from designated transfer points (secondary waste collection) and transported these wastes to the dumpsite. User fees were also collected from the households and were used to pay community workers and CINTRI for the waste collection services. The Municipal Government provided support to the village through training, information campaign, and community-

mobilization activities. To promote recycling, 'Drop in-Buy back' Centers were also set up in Village 1 and Hun Sen Krong Primary School.

Going around the village, the areas where mounds of garbage used to be found are now clean. People have better understanding of the benefits of waste management and their roles and responsibilities.

With the interest from other villages, and learning from the experience during the pilot project, the Municipal Government and CINTRI forged a PPP Agreement to expand the coverage and ensure the proper and self-sustaining solid waste management in five villages in the entire Sangkat 4 that would benefit around 1,155 families. Under this agreement, the municipal government, through the Commune Council, is responsible for the primary waste collection and timely collection of user fees while the CINTRI is responsible for secondary collection and transport to the dumpsite. A portion of the user fees will be set aside to build a solid waste management fund that will be used for future expansion of coverage area and/or scope of services, including sanitation facilities.

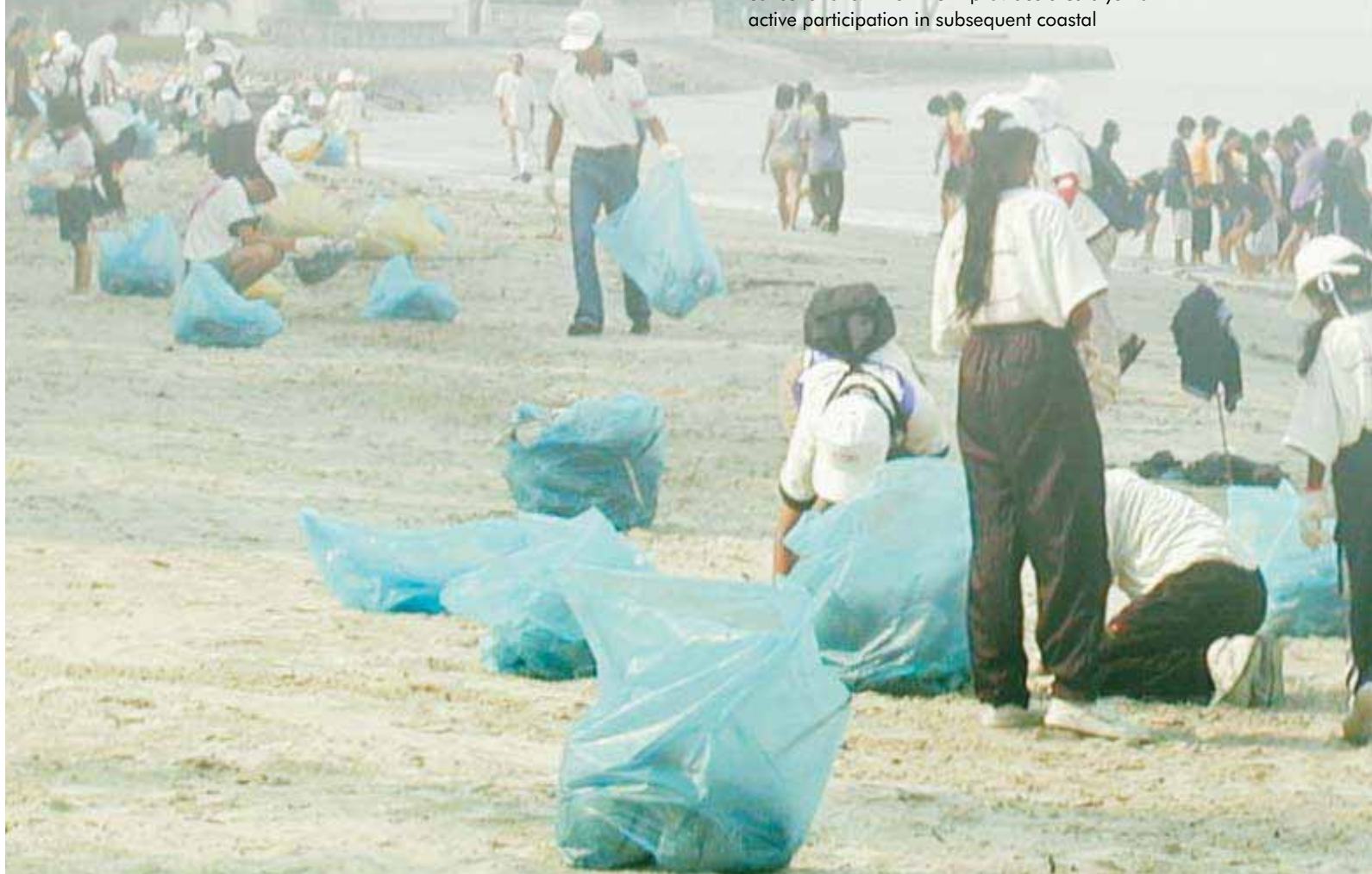


Coastal management initiatives in the region are under tremendous pressure to demonstrate their intended benefits to the relevant stakeholders and the public at large. Plans and projects are often delayed or even cancelled because people are not informed, and those in charge failed to communicate effectively and build consensus among the various stakeholders. Therefore, for the successful implementation of environmental management programs, it is essential to create awareness on the importance of the coastal and marine ecosystem, and translate knowledge and concerns into on-the-ground actions, by mobilizing the strengths and capacities of governments, local communities, private sector, scientific and academic institutions, media, and civil society groups, including women's groups, religious organizations, and indigenous peoples to achieve a lasting positive transformation in behavior.

From Reflection to Action — To meet the challenge of sustainable development of coastal and marine ecosystems, there is a need to create awareness among policymakers, planners, managers and various stakeholders about the causes of

environmental degradation and their likely consequences. Participation in coastal and marine governance is also challenged by the fact that results of conservation and management initiatives are observable only after some time. Stakeholders, therefore need to be convinced that meaningful involvement in coastal and marine management are beneficial investments for the future and worthy of people's efforts and resources. Enjoining and sustaining stakeholder support for marine and coastal governance entail strategic **information-education-communication (IEC)** campaigns to steer public perception, values and practices towards the principles of environmental stewardship. An IEC campaign draws attention to an issue, rallies the stakeholders to change attitude, influences policymaking and management decisions, and improves enforcement of policies and laws.

Seeing Is Believing — PEMSEA's IEC campaigns are founded on the principle that ground-level actions are the most effective public awareness materials. Stakeholder engagement from preparation to implementation of projects not only instills ownership but also creates an action-oriented mindset among the client-beneficiaries. As an initial activity, PEMSEA promotes the development of a shared vision, mission and coastal strategy through stakeholder consultations. This in turn provides a catalyst for active participation in subsequent coastal



Public Awareness

Mobilizing Community Actions

The public awareness campaign in Bataan started with hands-on activities such as coastal cleanups and led to the establishment of the ICM program in the province in partnership with the private sector, the Bataan Coastal Care Foundation, Inc., and also to greater stakeholder involvement and mobilization to protect habitats and resources. Innovative methods are employed to engage the public, such as one local initiative to reduce illegal fishing through a **Text-a-Crime Campaign**.

In Danang, the regular conduct of public awareness activities since 2000 with the involvement of various civil society groups has generated interest and created a domino effect among the communes and districts in participating in environmental activities, notably waste segregation and beach cleanups. The **Green-Clean-Beautiful Sunday Program** is now a regular activity in all districts as a result of public awareness activities.

In Sihanoukville, getting the communities, school children and women to participate in village cleanup, waste collection and recycling is also an important aspect of the solid waste management project, with "Drop in-Buy back" centers for recyclables being operated in the primary schools and in one village.



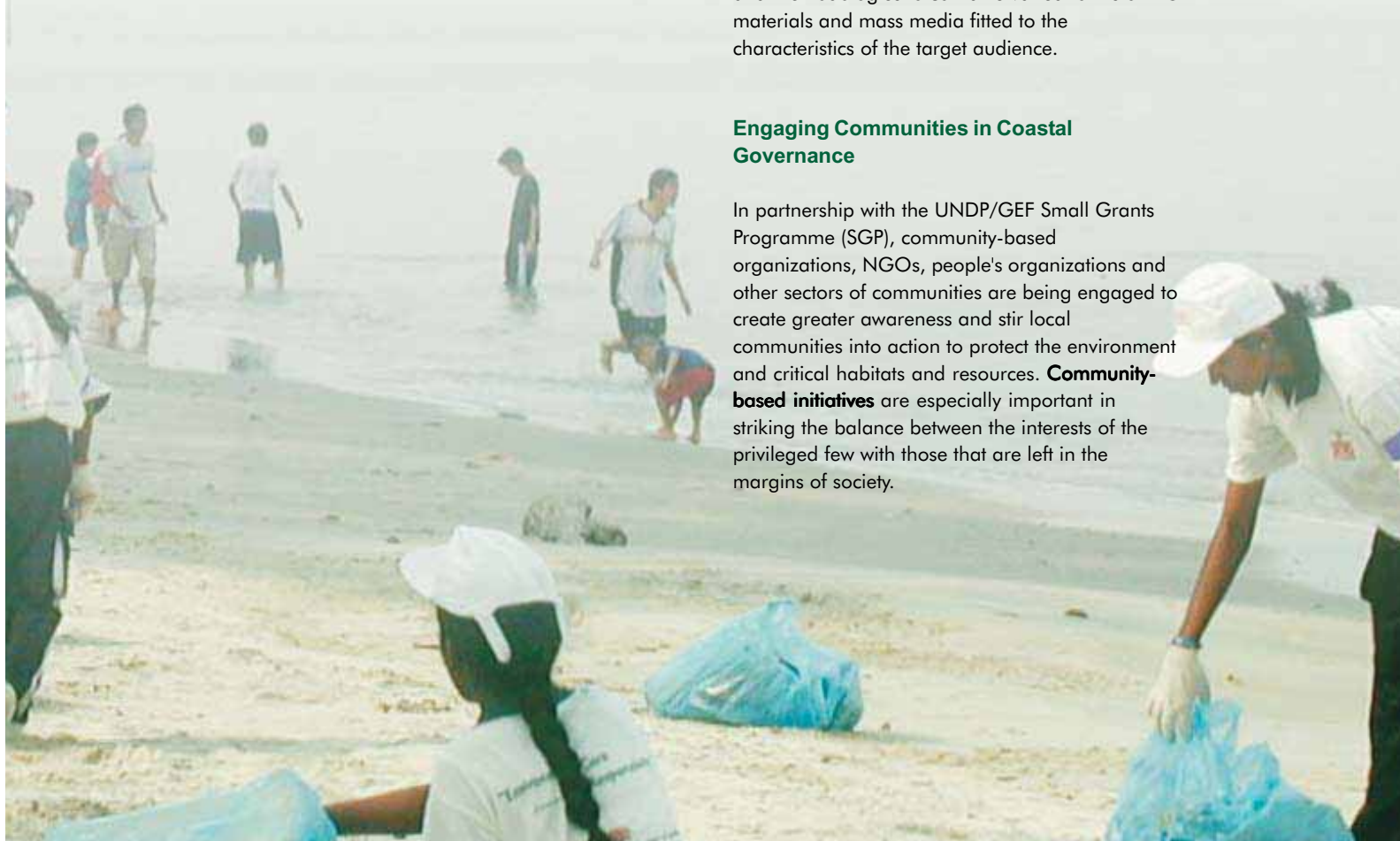
Stakeholder consultation in Bali, Indonesia.

management activities as reflection is translated into action by the stakeholders themselves. Similarly, these actions must be documented and disseminated continually to recognize efforts and best practices as well as sustain coastal and marine management advocacy.

As the awareness level deepens, stakeholders become powerful forces that drive societal change. In consideration to such changes, PEMSEA and the sites continually update and modify their strategies and methodologies to combine varied forms of IEC materials and mass media fitted to the characteristics of the target audience.

Engaging Communities in Coastal Governance

In partnership with the UNDP/GEF Small Grants Programme (SGP), community-based organizations, NGOs, people's organizations and other sectors of communities are being engaged to create greater awareness and stir local communities into action to protect the environment and critical habitats and resources. **Community-based initiatives** are especially important in striking the balance between the interests of the privileged few with those that are left in the margins of society.



Engaging Young People in Sustainable Development

In 2002, a Youth Camp was organized in the Philippines, which led to similar initiatives across the region, such as: the Manila Bay Youth Forum (2002 and 2006); the Coastal Cleanup by the Girl Scouts and Boy Scouts of the Philippines in Bataan; the Batangas Bay Watch Club; and creative recycling activities by young students in Chonburi (Thailand) and Sihanoukville (Cambodia) to name a few. Environment-related themes have also been introduced into school activities in the sites through painting competitions as well as special awareness building on the importance of preserving and rehabilitating the marine environment. An MOU was signed by the Manila Bay 101st Squadron of the Philippine Coast Guard Auxiliary (PCGA) and the Manila Yacht Club for cleanup activities in Manila Bay by students from various schools and universities. A special section in the PEMSEA website has been dedicated to young environmentalists, featuring online quizzes, games, information sheets and links to a variety of opportunities and knowledge centers.

During the EAS Congress 2006, a milestone event for young people of the region took place when the Coastal Management Center and PEMSEA co-organized the first ever **Youth Forum** for the East Asian Seas. Forty-five young leaders were selected from 14 participating countries and gathered for five days to share knowledge and experiences, increase appreciation of their shared marine heritage, understand the dynamics of coastal and marine management, and learn about current trends through discussion and interaction with experts, authorities and fellow young environmentalists.

The continuous empowerment of young people is essential to ensure sustainable development. A youth program has been established to encourage participation by an increasing number of students and young people from project sites and communities, and to support a youth network that will look into realizing the vision of the Youth Agenda for the East Asian Seas.



Empowerment through the Youth Agenda

During the 2006 East Asian Seas Congress, the participants of the Youth Forum signed the Youth Agenda for the East Asian Seas to signify their willingness to contribute their resources and efforts in promoting the sustainability of the Seas of East Asia.

Based on the concept “**I** = **E** or Inform, Inspire, Involve = Empower,” the Youth Agenda outlines simple yet creative actions a young person can do at home, in school, or the community at large, to protect the environment. Prepared by and for young people, the Youth Agenda also suggests the use of modern technology, the Internet and multimedia in inspiring and encouraging young people to get involved in environmental management.

Some of the actions in the Youth Agenda include: for **Inform**, “Use GoogleEarth to input data on local environmental problems and share on the World Wide Web” and “Setup exhibitions in campuses, town centers and streets to provide easy access to environmental information”; for **Inspire**, “Submit articles on environmental activities and success stories to local newspapers, magazines and the Internet”; and for **Involve**, “Organize fun-filled environmental activities and events such as competitions and concerts featuring celebrities who advocate environmental causes” and “volunteer to replant and restore coastal forests and mangroves”.

Since the Youth Forum, the participants actively translate each plan into action, leading other young people to become active guardians of the environment, and by personally applying environment-friendly practices in their way of life.

Management Tools and Methodologies

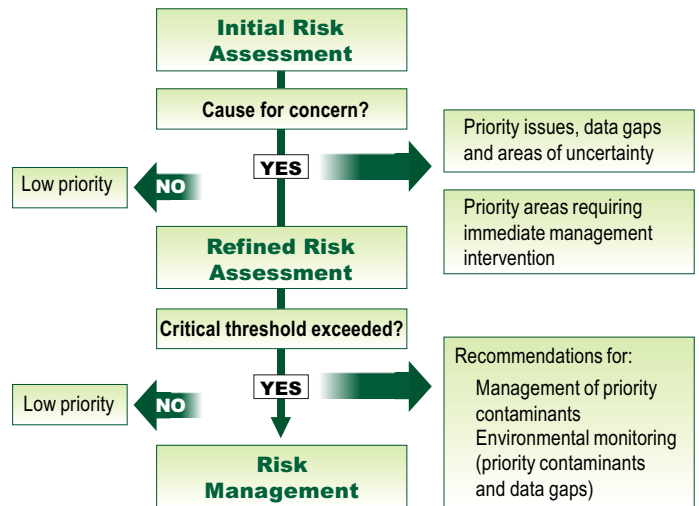
Management of the environment and ecosystems is an all encompassing and multidisciplinary subject, requiring the application of various tools and methodologies, and the involvement and effective participation by a range of key institutions, agencies and stakeholders.

When implementing ICM, the application of specific tools and methodologies entails the integration of scientific and social concerns to enhance governance and strengthen strategic planning and management. Some of the tools and methodologies are discussed below.

Environmental Risk Assessment

Environmental risk assessment involves the estimation of “risk” or the likelihood that harm will occur to a human or ecological target, considering the various factors emanating from human activities that reach their target via the natural environment. This represents an alternative to the conventional management approach based on measurement and stringent control of contaminant levels without due consideration of impacts,

Tiered Approach for Risk Assessment/Risk Management.



Tiered approach starts with a simplified initial risk assessment to identify areas that require immediate management actions and those that need further assessment.

Comparative Risk Assessment for the Water Column in Manila Bay.

AGENT	RQ				
	< 1	1 – 10	10 – 100	100 – 1,000	> 1,000
Total Coliform (MPN/100 mL)					
Fecal Coliform (MPN/100 mL)				—————	
Metals (µg/L)					—————
Cadmium	■				
Cobalt	No PNEC				
Copper	■				
Iron	No PNEC				
Lead	■				
Manganese	No PNEC				
Silver	■				
Zinc	■				
Pesticides (µg/L)					
Haptachlor			—————		
Nutrients (mg/L)					
NO _x -N (mg/L)	—————				
NH ₃ -N (mg/L)	—————				
PO ₃ -P (mg/L)		—————			
Other Contaminants					
DO (mg/L)		—————			
TSS (mg/L)		—————			
PAHs	No data				
Oil and Grease (mg/L)			—————		
Organotins	No data				
Marine Debris	RQ not applicable				
Toxic Algae	No data				

Comparative risk assessment for the water column in Manila Bay presents scientific data in easy to understand format. Risk quotient (RQ) greater than “1” indicates unacceptable risk. Lower end of lines represent average RQs, indicating bay-wide concern, while upper end represents worst-case RQs, indicating hotspots. Acceptable concerns (RQ less than 1) and data gaps are also identified.

which has been shown to have limited usefulness for protecting ecosystem and human health. Environmental risk assessment is in line with the global trend to move from primarily chemical-based approaches to consideration of biological effects.

Environmental risk assessments have been conducted in Chonburi, Danang, Klang, Bali, Manila Bay, Bohai Sea and the Malacca Straits. The results have shown, in varying degrees, the common issues and problem areas as well as the underlying causes of resource decline, habitat loss and degradation and contamination of coastal waters. The associated recommendations from environmental risk assessments have been used as inputs in risk management responses, including coastal strategy development and implementation, coastal use zoning schemes, investments in environmental infrastructure improvements, integrated environmental monitoring, and other issue- and area-specific action programs. Implemented by local expert teams, linkages have been forged among scientific experts from various disciplines, thereby facilitating communication among scientists and managers on priority concerns and the strategies for addressing these concerns.

Coastal Use Zoning

Coastal use zoning provides a plan and regulatory system to allocate the appropriate zones and corresponding uses of an area, based on the functional capability and suitability of the land and water to the desired uses, the level of development envisioned by the stakeholders, existing policies, and ecological and cultural or traditional considerations. The zoning process is not only a technical one that requires scientific inputs, but also a political one requiring effective stakeholder participation and appropriate institutional arrangements for its development and implementation. It passes through an extensive stakeholder consultation exercise, where a consensus on the various zones and corresponding uses are agreed upon. In some cases, the zoning process results in new legislation or in policy reforms to support the coastal use plan.

The coastal use zoning scheme provides local government units with a tool to regulate and manage the various activities in the area so that the negative social, economic and ecological impacts can be mitigated.

PEMSEA sites, including Xiamen, Batangas, Bataan, Bali, Danang, Port Klang and Nampho have developed and approved their respective coastal use zoning schemes through necessary local law, and are being implemented at varying degrees.

Good Zoning Supports Good Environmental Practices

The **Xiamen Functional Zonation Scheme** is a model of a sea-use zoning that is integrated into the city's land-use zoning scheme. This was supported by appropriate city government regulations. Many multiple-use issues were resolved including conflicts between and among human activities such as shipping, ports, aquaculture, tourism and conservation. A permit system was also developed and implemented based on the criteria stated in the Functional Zonation Scheme. Xiamen's experience in the development and implementation of the zoning scheme has contributed significantly to the enactment of a national legislation on sea-space utilization, which mandates all coastal provinces and municipalities to undertake sea-use planning in the entire coastline of China.

The **Sihanoukville Coastal Use Zoning Scheme** presents an example on how to develop and implement a zoning scheme on both land and sea as one planning unit. Covering the land and sea jurisdiction of the city, the uses and zones were integrated so that economic activities are harmonized to lessen their negative impacts to the environment and protect critical areas such as the source of potable water. The scheme was approved by the National Coastal Steering Committee and the concerned districts in 2005 and is now being used as basis for approval of permits or licenses on the uses of the land and the sea.

The **Danang Coastal Use Zoning Scheme** was developed to provide the local government with an effective regulatory tool for managing and allocating spatial uses of Danang's coastal and sea areas and resources. The zoning scheme, which has nine functional zones, was a product of extensive stakeholder consultation which met to discuss and agree on the zoning plan, the institutional arrangements for its implementation, its integration with the Development Plan of the City, and its subsequent adoption and implementation. The local government is now in the process of passing a regulation for the implementation of the zoning plan covering the tourism development zone along the coastal districts where tourism activities are most intensive.

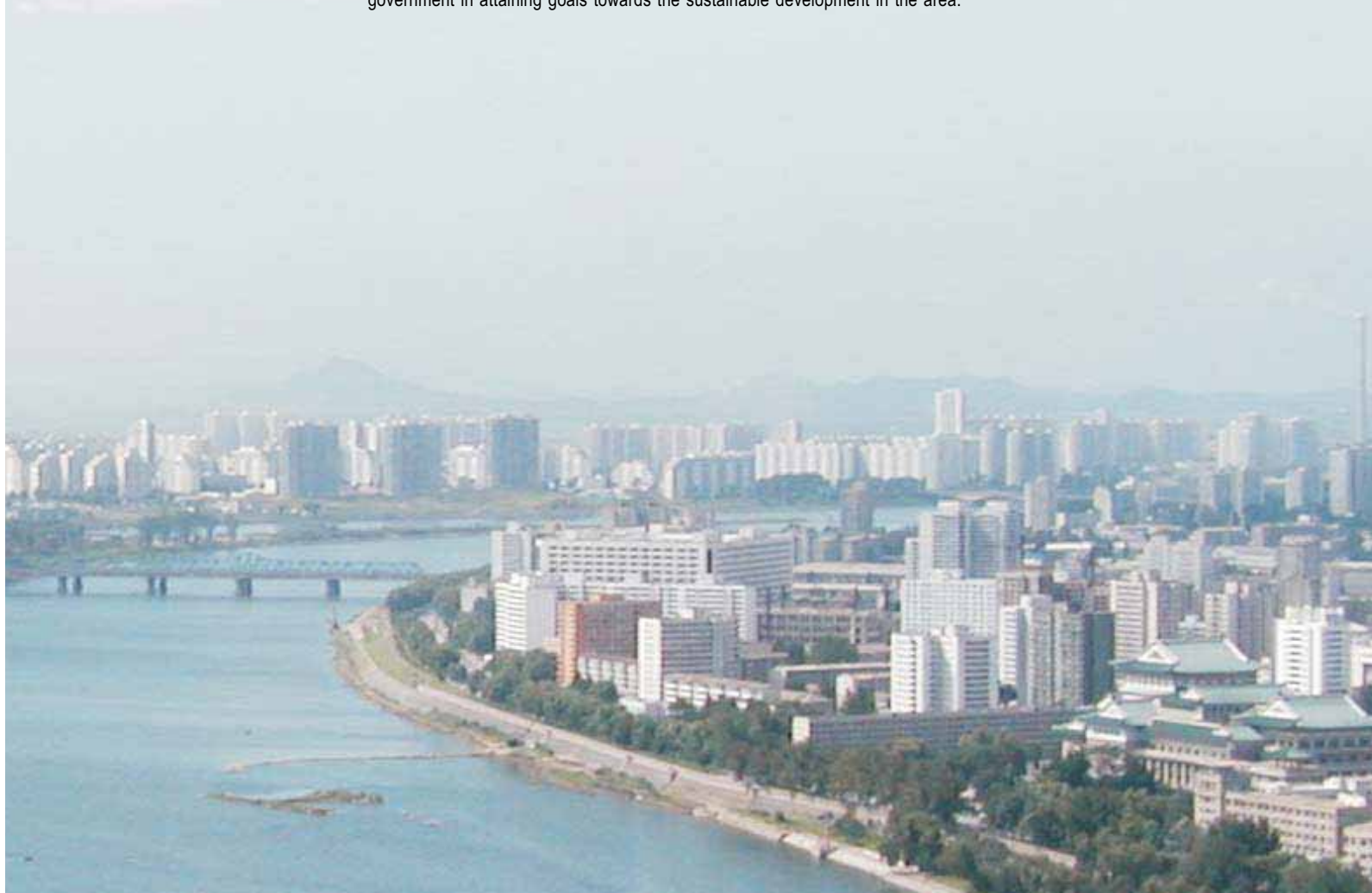


Management Tools and Methodologies

Xiamen Marine Functional Zonation Scheme.



The Sea-use Zonation Scheme of Xiamen has significantly contributed to the city government in attaining goals towards the sustainable development in the area.



Integrated Information Management System for Coastal and Marine Environment

The **Integrated Information Management System for Coastal and Marine Environment (IIMS)** is a unique and efficient system that delivers relevant data storage and management system. In addition, IIMS promotes effective sharing of information among stakeholders, packaged in desktop and web-based versions and translated from English into languages of the region, including Chinese, Vietnamese and Korean.

IIMS facilitates the compilation of environmental profiles at ICM and hotspot sites, using data, information and maps from environmental risk assessments, resource valuations and oil sensitivity studies. In Manila Bay, for example, a comprehensive **environmental management atlas** was prepared, containing all the available data for the basin.

IIMS is operational in Bali, Bataan, Batangas, Bohai Sea, Cavite, Danang, Manila Bay, Nampho, Port Klang and Sihanoukville. Due to its capacity to provide a wide range of data and information necessary for marine and coastal management, IIMS has been adopted by the Philippine Department of Environment and Natural Resources as its database platform, not only for coastal but also for river basin management.

Environmental and Resource Valuation

Environmental and resource valuation promotes the proper identification of goods and services provided by coastal and marine resources and determination of their monetary values. An essential factor in developing plans and policies is recognition of the probable quality of the environment and availability of resources for human use and life-support systems. Unless the value of the natural resources and environment is expressed in monetary units, it will continue to be

Gains and Losses

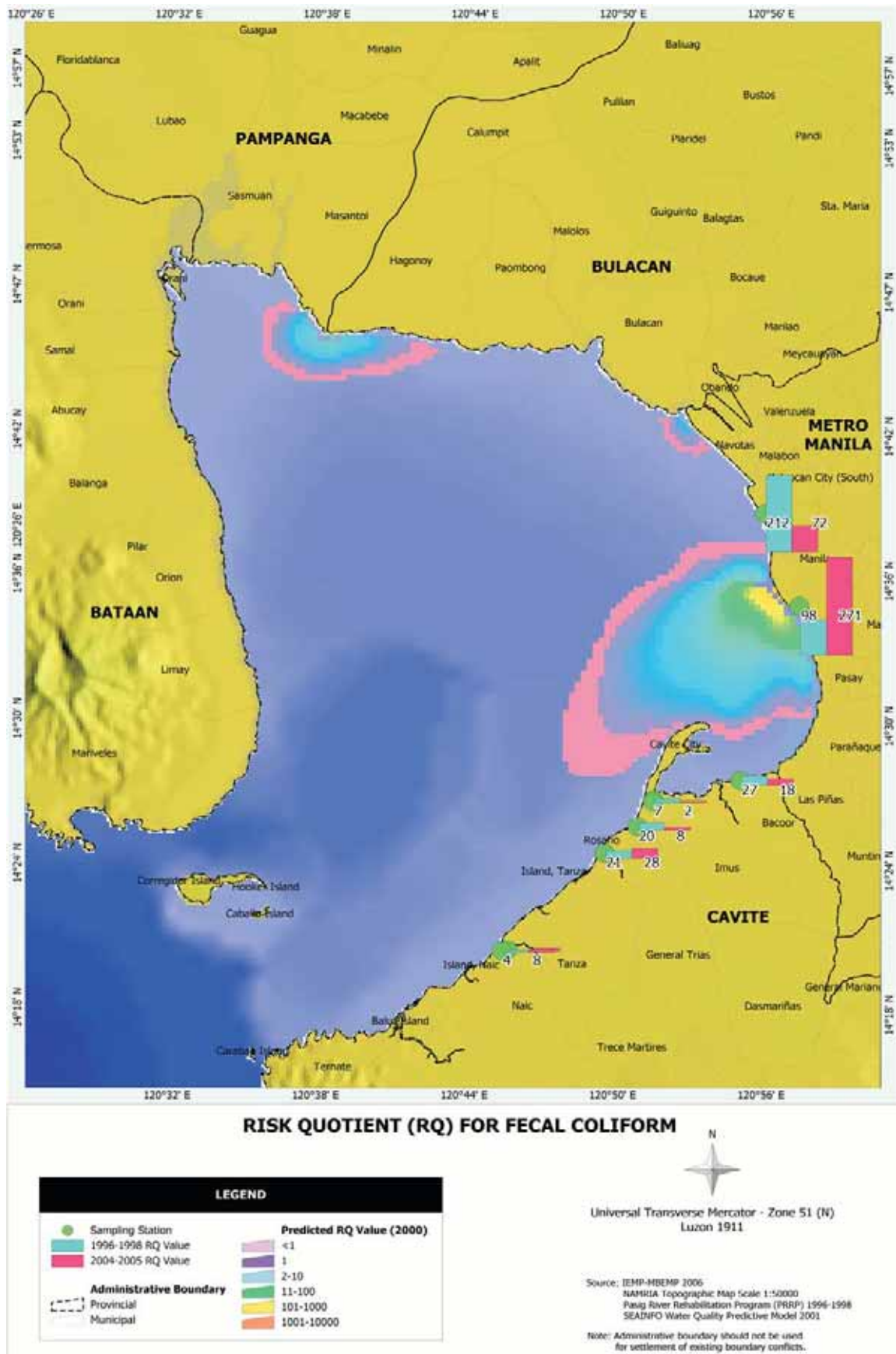
The **Straits of Malacca**, one of the busiest shipping lanes in the world, contains coastal and marine resources with a total economic value estimated to be \$4.5 billion per year. The potential economic losses and damages in the event of an oil spill are significant if the resources are not protected or conserved. The Global Environmental Facility, International Maritime Organization, The World Bank, the three littoral States (Indonesia, Malaysia and Singapore) and the shipping industry have joined forces to promote the investment in a **Marine Electronic Highway (MEH)** for the Straits. The MEH is an innovative navigational aid designed to reduce/avoid shipping accidents, benefiting both the shipping industry and the coastal and marine environment of the Straits.

In **Manila Bay**, the urgency of restoring habitats and mitigating pollution was highlighted with the valuation of coastal resources and environmental damages. The initial economic value of Manila Bay's major uses (fisheries, aquaculture, tourism and shipping) and key habitats (mangroves, mudflats, coral reefs) amounted to PhP8.3 billion (\$159 million) in 2004. However, the valuation of damages to health, ecosystems and economy resulted in the amount of PhP4 billion (\$73 million), or about half of the total use value, a warning sign that a larger amount will be lost if actions are not taken to improve management. With this background, the multisectoral Manila Bay Coordinating Committee adopted the Operational Plan for the Manila Bay Coastal Strategy, the Manila Bay Oil Spill Contingency Plan, the Coastal Use Zoning Plan of Bataan, and the Integrated Environmental Monitoring Program.

assigned a zero value, and often given little weight in policymaking. The undervaluation of resources results in overexploitation and environmental damages, which sometimes are irreversible. Environmental and resource valuation has been an important tool in the proper design of regulatory and market-based instruments, conduct of cost-benefit analysis, and development of risk management interventions, particularly in pollution hotspots in the region, e.g., the Straits of Malacca, Manila Bay, Bohai Sea and the Gulf of Thailand.



Management Tools and Methodologies



This figure packages the information from IIMS, GIS and a predictive model. It provides the status of fecal coliform contamination in Manila Bay in terms of the risk quotient (RQ), which can be used as a basis of action to be taken for addressing human health and sanitation issues since the areas whose contamination exceed the standard are aquaculture areas.



Willingness to Pay

The social acceptability of investments in environmental facilities and services can be evaluated by looking at the preferences of various sectors of society in the community through a willingness-to-pay (WTP) survey, using the contingent valuation method. The WTP survey not only helps to package viable investment options, but also to gauge the level of awareness, social sensitivities and potential constraints to the identified projects, e.g., sewage treatment, solid waste management, or habitat protection. Moreover, potential revenues can also be calculated from the average WTP. The estimated

revenues can then be used in cost-benefit analysis and in assessing the financial viability and economic feasibility of the proposed environmental facilities and services.

Based on WTP surveys conducted in various PEMSEA sites, there is strong public demand for pollution prevention and waste management facilities across the region, with people willing to pay for various services in order to have better living conditions and a cleaner environment. This sends a strong signal to governments, investors and private companies to implement innovative approaches to financing and operating such facilities.

Willingness to Pay (WTP) for Environmental Services.

Site	Project	Average WTP (\$/month)	Sector	Year
Bali (Indonesia)	Solid waste management	0.78	household	2002
	Sewage treatment system	0.92	household	2002
Bataan (Philippines)	Solid waste management	0.71	household	2002
Batangas Bay (Philippines)	Conservation of fishery resources	3.14	person	1997
	Conservation of coral reefs	2.74	person	1997
	Solid waste management	3.02	person	1997
	Sewage treatment system	3.62	person	1997
Danang (Vietnam)	Solid waste management	0.54	household	2002
	Sewage treatment system	0.54	household	2002
Klang and Kuala Langat (Malaysia)	Solid waste management	3.31	household	2002
	Sewage treatment system	2.60	household	2002
Malabon City (Metro Manila, Philippines)	Malabon River System Integrated Development Project			
	Parks and river rehabilitation	0.24	household	2002
	Ferry system	0.34	household	2002
Puerto Galera (Oriental Mindoro, Philippines)	Coastal resource management including sewage treatment system	1.66	local tourists	2006
		13	foreign tourists	2006
		1	household	2006
		3	establishments	2006
San Fernando City (Pampanga, Philippines)	Solid waste management	0.94	household	2002
Xiamen (PR China)	Protection of endangered species and coastal habitats	0.47	person	1998
	Conservation of fishery resources	0.60	person	1998
	Increase in nature-based recreational sites (beaches)	0.78	person	1998
	Improvement of water quality (sewage treatment)	1.02	person	1998



Integrated Environmental Monitoring

Environmental monitoring is conducted to determine the status and trends in the condition of ecosystems, the consequences of management actions (or inaction), and the necessary policies and management interventions to address adverse conditions and changes. Current approaches to environmental monitoring normally entail a number of different government agencies and institutions conducting separate monitoring programs. This fragmented approach fails to provide the comprehensive environmental assessment that is necessary to formulate effective solutions. In some cases, duplication of effort also leads to inefficient use of limited resources.

Integrated environmental monitoring is designed to bring together the different monitoring agencies and institutions in order to:

- agree on priorities and key indicators for monitoring;
- address priorities and data gaps identified through risk assessment and information needs to support implementation and evaluation of coastal strategies;
- streamline and integrate separate monitoring efforts into an integrated multiagency and cross-sectoral environmental monitoring program (IEMP) that will allow better understanding of the linkages between environmental quality, resource and habitat conditions, and human health;
- share information and resources in order to avoid duplication and use available resources more cost-effectively;

- adopt a mechanism for managing and reporting data, conducting periodic risk assessments, enhancing feedback mechanisms for regulatory bodies, decision-makers and policymakers, and evaluating the effectiveness of the monitoring program; and
- adopt institutional and implementation arrangements to sustain the integrated approach to monitoring.

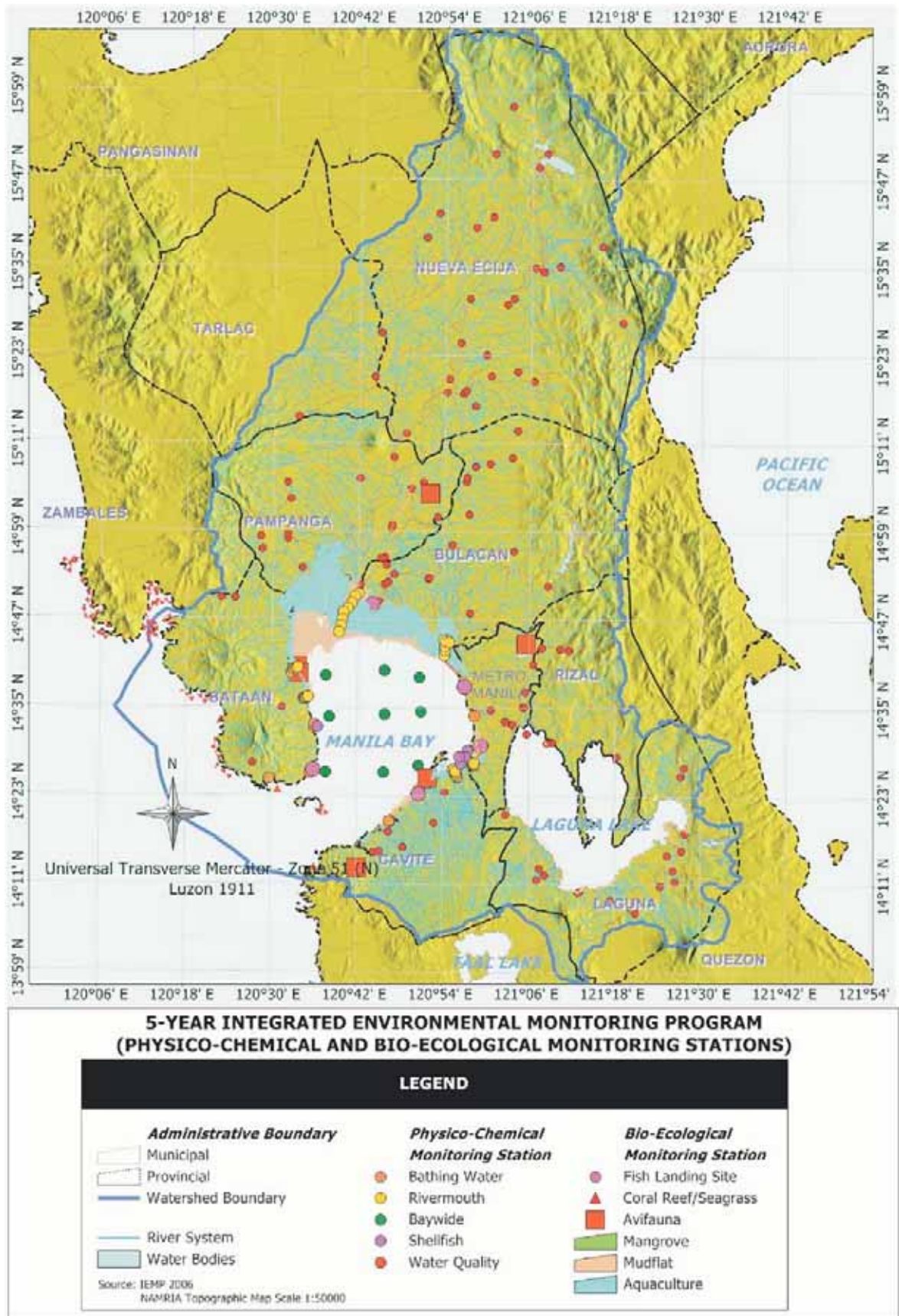
IEMPs are now operational in various ICM and pollution hotspot sites in East Asia. Specialized trainings are organized to enhance the reliability and comparability of data within and among its various sites. Support has also been provided for the establishment and strengthening of marine environment laboratories in Batangas, Sihanoukville and Nampho. The ability to sustain as well as replicate and scale up the IEMP and its implementation arrangements will facilitate monitoring and preparation of state of the coasts reports at the local, national and regional levels.

The Manila Bay Five-year IEMP

- Includes pollution and habitat/resource monitoring
- Focuses initially on the bay area, gradually expanding to cover the tributaries and watershed area
- Involves 7 national government agencies including 25 bureaus, attached agencies and regional offices; 11 local government units; 1 university; and 2 from the private sector/NGO
- Uses PEMSEA's Integrated Information Management System for Coastal and Marine Environment (IIMS)
- Supports implementation of the Operational Plan for the Manila Bay Coastal Strategy
- Costs around PHP6.5 million/year (around \$130,000)

Other Sites with IEMP

- Xiamen and Bohai Sea, PR China
- Batangas Bay, Philippines
- Danang, Vietnam
- Nampho, DPR Korea
- Port Klang, Malaysia
- Bali, Indonesia (for beaches)
- Sihanoukville, Cambodia (for beaches)





Public-Private Partnership (PPP) in Environmental Investments

Partnerships, involving the public, private and civil society sectors, are essential in coastal management. Bringing about partnerships, however, requires a systematic approach including the creation of awareness, policy and institutional reforms, capacity, and trust between and among the concerned sectors.

The term PPP is used to describe a number of possible relationships and contractual arrangements between the public and private sectors for the cooperative provision of environmental infrastructure and services. Selecting the most viable PPP option depends on a variety of environmental, cultural, economic, financial and social considerations.

Developing and implementing investment opportunities entails a behavioral change on the part of government and its various agencies. To be effective, the identification and promotion of investments to the private sector requires a methodical and transparent process, involving local officials, civil society, private companies, financial institutions, donors and other interested parties, depending on the local situation. A methodical process provides stakeholders the chance to participate in the formulation of the project, including the assessment of the technical and financial options, the selection of the private partner, and the determination of the affordability and social acceptability of the project. Transparency is essential.

Governments that have market-oriented policies (e.g., user pays/polluter pays, and incentives for sustainable development and use of natural resources) are more likely to engage in PPP. Moreover PPP projects are more likely to succeed in jurisdictions with strong and effective political and legal institutions, and where the legal code protects investor's rights.

Puerto Galera: Paradise lost... Paradise regained

Located along the Verde Passage and in the Sulu-Sulawesi Marine Ecosystem, which is considered the center of marine biodiversity, Puerto Galera consists of coastal forests, beaches and coves surrounded by coral reefs.

The main income of the municipality comes from tourism and related activities. The large influx of tourists and the extensive tourism development, however, has resulted in a number of problems, such as destruction of ecosystems, declining environmental quality and multiple-use conflicts – seriously affecting the sustainability of Puerto Galera's ecological, recreational and production values.

A primary goal of the Puerto Galera Municipal Government is to achieve a lead position among tourist sites in the Philippines in terms of effective and efficient implementation of its coastal resource management plan, including sanitation and wastewater treatment facilities. However, it is evident that developing and financing such facilities is beyond the current capacity of the local government acting on its own.

The Municipality of Puerto Galera therefore is forming a partnership with a private sector company that has the experience and capacity to design, finance, construct and operate the sewage collection and treatment system in a cost-effective, affordable and sustainable manner. In return, to cover the capital and operating and maintenance costs, the municipality will implement various revenue-generating mechanisms, e.g., environmental users fees (EUF) to be collected from tourists, and user service fees to be collected from households and establishments. An ordinance establishing the EUF system, including setting up a trust fund for the collected fees, has been adopted. Through this project, the municipality hopes to reverse the trend, and preserve its prominence as one of the most beautiful bays in the world.

Integrated Industrial Wastewater and Hazardous Waste Treatment System in Danang

The People's Committee of Danang City adopted the Coastal Strategy of Danang City in 2001. Among the commitments under the strategy include increased financial investments for environmental management, and the institutionalization of a comprehensive environmental management system with effective regulatory and enforcement programs.

The proposed project, under a joint venture program, involves implementation of effective in-situ hazardous waste segregation system and operation of a model waste management facilities, which comprise of:

- a modern industrial wastewater treatment facility to treat industrial wastewater generated in the Hoa Khanh Industrial Park;
- a centralized hazardous waste management system to be located in the Khanh Son dumpsite; and
- a hazardous waste storage and transportation network.

To implement this project, Danang plans to form a partnership between the City and the private sector to plan, finance, construct, operate and manage the proposed facilities on a self-sustaining basis. The main source of revenue will be the user charges collected from the firms inside the industrial park and hazardous waste generators in the city.

Under the public-private partnership mechanism, not only will there be resource pooling but risk sharing as well. The private sector is expected to bring the technical know-how and the necessary infusion of capital while the public sector partners, as represented by Urban Environment Company (URENCO) and Danang Industrial Park Infrastructure Development and Exploitation Company (DAIZICO), complements these in terms of familiarity with local conditions and guaranteeing manpower resources.

The installed system will serve to mitigate risks to the environment, protect human health, attract new investments to the area, facilitate ISO 14001 certification of existing industry and commercial enterprises, and enhance the social and economic well-being of the people of Danang City.



A relatively new and promising area with regard to ICM implementation is the development of an ICM Code, which is considered a central element in operationalizing the certification and recognition of ICM programs. Codification becomes necessary to systematize both the good practices in ICM implementation as well as the procedures and operational processes already tested by PEMSEA over the past decade. The implementation of the Code guides any interested local government in verifying the conformance of daily operations to good management practices, thereby improving local governance in the process. The development of a Port Safety, Health and Environmental Management (PSHEM) Code is a related initiative that provides a voluntary standard against which a port can measure the performance of its operations with regard to health, safety and the protection of the environment. Both the ICM Code and PSHEM Code combine several international standards into their frameworks, thus reinforcing the best practices put in place by the international community (i.e., ISO).



Codification and Recognition



Integrated Coastal Management (ICM) Code

With over a decade of practical experience in ICM, the key basic elements and processes have been identified that are central to achieving sustainable coastal development. These core elements and requirements, which have been tested in various ICM sites around the region, enable the codification of ICM practices. The ICM Code takes into account the requirements of ISO 14001 (Environmental Management) and ISO 9001 (Quality Management) in terms of the delivery of quality products and services by the local government to its people. The ICM Code is applicable to all types and sizes of local governments, and will accommodate the diverse geographical, cultural, political and social conditions of the region. It is a generic code which can be implemented by any local government.

The ICM Code will serve as the guide and quality control for the replication and scaling up of ICM across the region. The Code will continue to be developed, tested and applied, accompanied by an audit guide and training program.

Port Safety, Health and Environmental Management System (PSHEMS)

Ports and harbors are an integral part of the majority of coastal communities in the East Asia region. They serve as the center of economic development and activity and as the doorway to domestic, regional and international markets. Port authorities and operators face a number of challenges with respect to their role and impact in ICM programs and sustainable development of coastal areas. The development and adoption of international safety, environment and security standards by global bodies such as the IMO and International Labour Organization (ILO) have emphasized that an effective management system must not only encompass operational activities, but also build quality, safety, health and environmental objectives and procedures into each process.

Over the past two years, with financial support from IMO and in collaboration with a number of international associations and organizations with mandates in the effective management and efficient operation of ports and harbors, a Port Safety, Health and Environmental Management (PSHEM) Code has been developed and demonstrated. The Code is aimed at providing port authorities or any other company operating within the port, whose activities may have an effect on the health and safety of people, the environment, cargoes, and port installations, with a standard against which to measure the performance of its operations. The Code is based on key elements of recognized international standards, namely ISO 9001, ISO 14001, and OHS 18001 (Occupational Health and Safety).

The PSHEM Code has been successfully tested at the Bangkok Port (Thailand) and the Port of Tanjung Pelepas (Malaysia). The ports were awarded a certificate of recognition by PEMSEA at the EAS Congress 2006. Future efforts of PEMSEA will be focused on promoting the wider application of this comprehensive approach to port operations and management.

National and local governments have developed a number of strategic response plans based on their respective coastal strategies and environmental risk assessments. Depending on the priorities, preventive and mitigating measures are prepared to achieve overall and specific objectives identified. Such response plans define objectives, targets, resources, timeframe, monitoring procedures and expected outputs or outcomes.

Natural and Human-made Hazard Management

East Asia is situated in an extremely risky area, where natural and human-made hazards pose a significant threat. Prior to the onslaught of the Indian Ocean tsunami in 2004, ICM programs focused largely on managing the impacts of human-induced hazards, such as overexploitation of resources, habitat conversion, pollution, oil and chemical spills, harmful algal blooms, floods and landslides. Although natural hazards have been brought up in specific site coastal strategies, implementation of associated management measures have not been treated with much urgency. The Indian Ocean tsunami brought devastation to the lives of people around the world and to coastal cities in India, Indonesia, Malaysia, the Maldives, Myanmar, Sri Lanka, Thailand, and even as far away as Somalia, in particular. And although national and local efforts to mitigate the effects of other natural hazards, such as typhoons and earthquakes, have been vigorously instituted, these too seem inadequate given the frequency and severity of these disaster agents in recent years. The link between ecological degradation by human activities and the increasing vulnerability to, and impacts of, natural hazards is increasingly being validated.

Preventing and Managing Disasters

The **Manila Bay Oil Spill Contingency Plan** was developed by various local government units and national government agencies in partnership with oil and shipping companies and other stakeholders with technical assistance from PEMSEA. The plan delineates roles and responsibilities among the various agencies and stakeholders, identifies response mechanisms, and establishes institutional arrangements to strengthen coordination and better integrate resources and ultimately build capacity in the area to efficiently cope with and reduce damage to the marine environment.

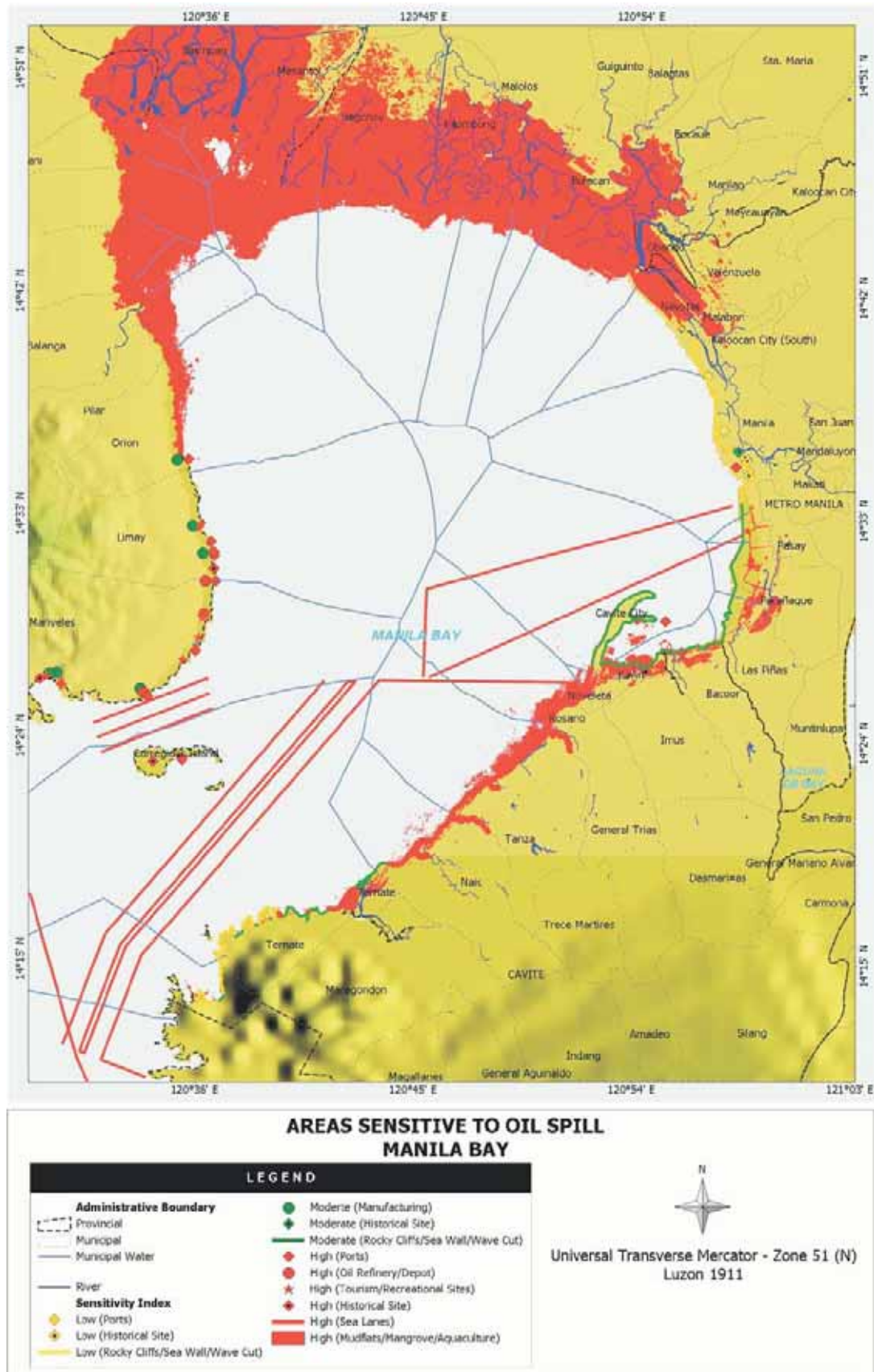
Forward planning can also be seen in the integration of Red Tides/Harmful Algal Blooms Response Plans into the strategic action plans of a number of ICM demonstration sites including the Bohai Sea, Xiamen, Manila Bay, and Bataan. Significant decrease in red tide frequency in Xiamen is attributed to government efforts in reducing the level of nutrient inputs into the sea, however, the frequency and geographical coverage of red tide occurrence in the Bohai Sea are still increasing, indicating the need for continued effort and enhanced measures to combat this problem.

Local communities have also successfully implemented initiatives of their own to deal with various hazards. One example of this is in Sriracha Municipality, in Chonburi, Thailand, where fishers and youths and local communities organized a Marine Environmental Protection Volunteer (MEPV) group in partnership with the private and government sectors. The group assists in oil and chemical spill monitoring and reporting and other coastal management activities. The Marine Department and private oil companies provided free training on basic oil spill cleanup techniques to the MEPV and other government officers.

The link between environmental management and disaster reduction and mitigation requires strengthening. The integration of risk assessment and mitigation into coastal area planning and into the outlooks of planners and managers is the key. In particular, strengthening the ICM framework and process, through risk assessment, contingency planning and integrated land- and sea-use planning ensures that local governments are able to respond to disasters by instituting the culture of safety before hazards wreak havoc.

Effective disaster response plans have been implemented in a number of PEMSEA sites, including Xiamen, Danang and Batangas.

Strategic Action Programmes



This map is based on information and data gathered by the Manila Bay Environmental Management Project as part of efforts for the Manila Bay Oil Spill Contingency Plan and the compilation of the Manila Bay Area Environmental Atlas.



A reed marsh, also known as the "red carpet" wetland in Shuangdaizi Estuary, north of Bohai Sea.

Natural Habitat Protection, Restoration and Management

The ecological importance of the East Asian Seas region's natural habitats can sometimes be overshadowed by its grandeur and the benefits its people derive from it. Development-related pressures compounded by a changing climate and its adverse effects on land, water and air exert tremendous pressure on the environmental carrying capacity of these ecosystems and pose serious threats to biodiversity and the steady stream of goods and services they provide. Greater awareness and clear evidence of the impacts of climate change provides countries with renewed impetus to take the threats to marine ecosystems more seriously than before.

Local Initiatives to Mitigate Global Threats

Significant progress has been made in Sriracha Bay in Chonburi, where a Sea Turtle Conservation Program has been initiated. Under this program, the local municipality and the Thai Royal Navy have taken an active role in sea turtle conservation. They set up a sea turtle hatchery and encouraged local fishers to rescue sea turtles caught by fishing nets, providing collection ponds in the city park where the turtles are fed and treated for wounds and diseases. Turtles from the hatchery and from the parks are then released back to the wild. The annual release of sea turtles has been designed to enhance stakeholder awareness and participation in coastal resource conservation, attracting the participation of local fishers and citizens, private sector, academe, government agencies and administrative units, as well as the media.

In addition to these activities, a number of other protection and restoration activities have been implemented, including mangrove reforestation in Manila Bay, coral reef rehabilitation in Bali, and protection and conservation of reef marshes in the Bohai Sea. Clear evidence of the impacts of climate change and other human activities on coastal and marine ecosystems has pushed such issues to the forefront of the agendas of many countries. A key action program in the SDS-SEA, ICM offers a holistic and integrated approach to protecting, restoring and managing natural habitats for biodiversity conservation.

To achieve the goal of sustainable development, PEMSEA ICM sites place considerable emphasis in the management of coastal and marine habitats, such as mangroves, coral reefs, seagrass beds and other wetlands. Each ICM site and pollution hotspot has identified the critical threats to their natural habitats as a priority concern, and were able to address these threats by developing and implementing various levels of action programs to protect, restore and manage natural habitats. Through such actions, ICM sites aim to conserve biodiversity and sustain the goods and services generated by their respective coastal ecosystems.



Water Use and Supply Management

Water plays a vital role in life sustenance on earth, and will become increasingly critical in the future given the continuing population growth and economic development. There is growing and conflicting demand for water for domestic, agricultural and industrial purposes in the face of water scarcity, inadequate infrastructure and limited access to water, and habitat destruction and pollution, all of which affect water quality and quantity. The availability of

Water — A Catalyst for Cooperation

Water issues have become a topic for regular dialogues among mayors and senior officials of urban cities in the region. At the 2004 mayor dialogue hosted by Xiamen Municipality, concerned mayors and senior officials discussed the threats of water shortage and signed the Xiamen Declaration expressing their concerns and commitment in addressing water resources problems. The water issue will continue to be a topic of concern in the World Ocean Week (WOW) to be held in November 2007 and subsequent WOW events in Xiamen.

In the Philippines, a River Basin Control Office (RBCO) has been set up under the Department of Environment and Natural Resources (DENR) to coordinate and oversee water-related programs and projects in the country, and effectively manage the multiple uses of water and other natural resources from the river basins to coastal seas. A Philippine Integrated River Basin Development and Management Masterplan has been developed. In the Manila Bay area, the RBCO is focusing on the two major river basins of Pampanga River and Pasig River-Laguna de Bay. PEMSEA is currently providing technical assistance and working with the DENR and other stakeholders to strengthen the RBCO in terms of institutional arrangements and operating mechanism for integrated river basin and coastal area management; provide recommendations on policies required; develop and demonstrate a methodology for preparing an integrated river basin-coastal area investment plan for pollution reduction (pilot site in a sub-basin of the Pampanga River Basin); develop a river basin module in the Integrated Information Management System for Coastal and Marine Environment (IIMS) and strengthen the Manila Bay Information Network (MBIN).

PEMSEA has been supporting local governments on several water-related initiatives and promoting an integrated management approach in addressing the use and supply of water resources. In Sihanoukville, Cambodia, protection of water sources is being done through coastal use zoning. Water sources are rehabilitated through reforestation efforts and vigilance against illegal construction near the area.

In Lao People's Democratic Republic, the Xedone Integrated River Basin Management Project (XIRBMP) is a community-based integrated water resource management (IWRM) demonstration project that involves the participation of the provinces of Saravanne, Seikong and Champasack. Through the project, it is hoped that public awareness and technical competence will be increased to improve management capacity of local government officials and communities in managing multiple use of water resources. Among the activities slated under this project are capacity-building initiatives for strategic planning, reduction of water pollution, and creation of small-scale livelihood projects.

and access to water has become one of the most important challenges that countries face today, and water resource management has become a major priority in most countries where water supply shortage is threatening their development.

The goal of the water use and supply management program is to increase the amount of water available to users while protecting water resources, water-dependent natural systems and interrelated habitats. The ecosystem-based management approach ensures an integrated and holistic approach to the management of river basins down to the coastal and marine areas. This involves protection of forests, watersheds, wetlands, surface water (rivers, lakes, streams) and groundwater aquifers to ensure adequate water supply and acceptable water quality. Greater attention is also given to the promotion of water reuse, recycling and other conservation measures as well as the upgrading of water supply and distribution systems to reduce losses, and improving cost-effective technology such as in desalination of seawater to increase available water supply. Access to safe water at a convenient distance and at an affordable price provides a boost to human health and productivity.

While many PEMSEA countries are located in comparatively water-rich Southeast Asia, they all unfortunately face the same problem of water shortage due to decades of water misuse, destruction of tropical rainforest especially catchment areas, severe water pollution, excessive extraction of groundwater, and poor and unregulated land resource management. Given the many agencies involved in water management and with overlapping functions, institutional arrangements have to be streamlined, with proper delineation of roles and responsibilities. Policies and programs are also needed to be set in place for the regulation of use and extraction, including proper allocation among various users; pollution reduction to mitigate contamination of surface water and groundwater; water tariff restructuring and application of market-based instruments, such as user fees, to reflect the full value of water as a resource; and regular monitoring of surface water and groundwater quality and quantity.

Pollution and Waste Management

Land-based pollution of marine and coastal environments eventually makes its way back to and concentrates along coastal areas, affecting and degrading rich natural resources. Countries and their coastal communities are highly dependent on natural resources provided by these coastal environments, and it is important to mainstream pollution management into local and national coastal planning strategies.

Strategic action plans for pollution reduction have been developed in all PEMSEA ICM sites. Most local governments have given priority to address nutrient reduction and other waste management problems to reduce the negative impacts of eutrophication, marine litter, urban garbage and hospital wastes, which affect the health and economic well-being of urban centers.

Among the examples are the Operational Plan for the Manila Bay Coastal Strategy, adopted by the Manila Bay Project Coordination Committee (PCC) and the Philippine Department of Environment and Natural Resources, which set the stage for the development and implementation of the World Bank/GEF Manila Third Sewerage Project with a grant of \$5 million and loans amounting to \$67 million.

In China, the findings on the Total Load Study of Sewage Discharged into Bohai Sea served as the rationale for the Blue Sea Action Plan (2001–2010), which has a financial commitment of over \$6 billion. The Plan entails the construction of three new sewage treatment plants in Shenyang, Liaoning Province, providing treatment capacity for one million tons/day of municipal sewage. In Fujian, the radical improvements brought about by the cleanup and rehabilitation of Xiamen's Yuan Dang Lagoon inspired the provincial government to invest RMB3 billion (\$395 million) in water pollution control and ecological management, resulting in substantial reductions in total discharge of pollutants in the basin.



Strategic Action Programmes

Grassroots, or 'bottom-up' action from local communities are also important and can often help solve difficult problems with simple actions. A pilot implementation for community-based solid waste management project in Sihanoukville, Cambodia, provided an initial step to involve local communities in solid waste management. Supported through the ICM Project in the area, the municipal government, the Ministry of Environment and the Commune Council, worked with community members and the CINTRI Waste Company to reduce the volume of stockpiled domestic wastes. The project fostered improved local capacity to deal with solid wastes through training, awareness campaigns, and household involvement in cleanup and waste segregation. The project also fostered greater cohesion among neighboring families and established a strong alliance between the community and the private sector company, both of which resulted in a greater appreciation of each party on their respective roles in improving community sanitation and promoting waste management as an economic opportunity for the village. Learning from the experience of the pilot implementation, the project is now being scaled up to cover 1,155 families in the entire Sangkat (Commune). Part of the scaling up process includes beefing up the revolving fund component of the project to create a self-sustaining mechanism for the project in the long run.



Stakeholders in Sihanoukville, Cambodia.

Food Security and Livelihood Management

A major direct benefit of goods and services generated by marine and coastal ecosystems in the region comes in the form of fishery and aquatic resources, which generate important livelihood opportunities in fishing, farming and the post-harvest economic sector. However, uncontrolled economic development and a high dependence of the poor on natural resources for their livelihood have resulted in the degradation of habitats and resources and loss of biodiversity. As a result, the capacity of the ecosystems in several countries in the region to provide goods and services, such as adequate and safe food supply, clean air and water, protection from natural and human-made disasters, and livelihood opportunities have been negatively affected.

The challenge lies on how to stop or slow the rapid rate of overexploitation of resources, destruction of habitats that serve as spawning and nursery grounds, and degradation of the quality of the environment. Many countries have initiated efforts to address food security and livelihood management issues, such as those associated with fishing, farming, the post-harvest industries and ecotourism activities. Through the ICM framework, PEMSEA countries, in collaboration with relevant international and regional organizations, are in the process of developing strategic action programmes for sustainable fisheries and aquaculture by combating illegal fishing, reducing the number of fisherfolk and the



overcapitalization of fishing fleets, maintaining fishing within the maximum sustainable yield level, and implementing the FAO Code of Conduct for Responsible Fisheries.

The ICM framework and processes provide an appropriate overall governance framework for the management of fisheries and aquaculture. Fisheries and aquaculture management can benefit from the overall governance framework that can address externalities. Fisheries and aquaculture management has been incorporated into the strategic action plans in several ICM sites including Bali, Bataan, Batangas, Cavite, Chonburi, Danang, Sukabumi, Xiamen and the Manila Bay and Bohai Sea.

A number of other strategies and activities have been facilitated to enhance food security and manage livelihoods, including reduction in illegal fishing practices through strengthened monitoring and regulatory bodies; empowering communities by providing greater control in managing and protecting their resources; and technical assistance to promote more efficient fishery and aquaculture production methods.

Securing the Future through Livelihood Opportunities

In Bataan, the provision of microfinancing has helped fishers supplement their livelihood and improve their income. Fishers from nine fisherfolk associations (FAs) received financial assistance in the form of soft loans as start-up capital to establish mussel culture areas in November 2002. As early as the end of 2003, all partner FAs reported a good harvest, enabling the fishers to partially pay the soft loans. Members also reported gaining as much as 30 percent more income from this new activity, enabling them to engage in entrepreneurial activities. Many of these farmers have now established their own mussel culture farms, instead of just providing labor to mussel culture operators. The Partner-FAs reinvested the capital to extend operation of mussel culture areas and integrate fish traps into the area. Bamboo structures serve as artificial reefs, enabling fish to be caught around the culture areas, further reducing fishing effort and fuel expenses since fishers do not have to go distant fishing. FAs engaging in their own mussel culture operations are able to compete with commercial mussel culture operators, thus, energizing the local economy for the benefit of fisherfolk.

A similar story detailing the use of revolving funds can be found in Sihanoukville, Cambodia, where PEMSEA, in collaboration with the UNDP/GEF Small Grants Programme, established a revolving fund to provide initial start-up capital to fishing families, particularly women members, for funding supplementary livelihood. Here, 14 women's groups are able to access the revolving fund, with 142 individuals involved in the project, 102 of whom are women.





Monitoring the Implementation of the SDS-SEA

The Putrajaya Declaration recognized the need to establish a regular reporting system to monitor the implementation of the SDS-SEA. The Haikou Partnership Agreement further supported the compelling need to develop a systematic, cost-effective, and regular reporting system building on existing relevant national and regional initiatives and programs. A uniform reporting format is now under development to monitor the progress of SDS-SEA implementation, in close consultation with PEMSEA partners.

A State of the Coasts (SOC) reporting is also being developed, essentially for monitoring the progress of ICM implementation by local governments. The SOC reporting represents an integrated and comprehensive approach that documents and measures policy and management interventions in addressing key and common environmental issues that affect sustainable coastal development. The

Monitoring and Evaluation

SOC is intended to provide information to policymakers, environment and natural resource managers and others interested in the ocean and coastal environment and resources. The information provided by the SOC reporting includes current status and conditions of the marine and coastal resources as well as the policy, legislative and other management responses of national and local governments and other major stakeholders.

A large part of the SOC is reflective of the strategies and action programs designed under the SDS-SEA. Replication and scaling up of the local ICM efforts throughout the coastline would eventually provide a clearer picture of the actual state of the coasts and enhance SDS-SEA implementation.

The SOC reports will be released on a triennial basis to coincide with the conduct of the EAS Congress. The first SOC reports are being targeted for release in November 2009.

State of the Coasts Reporting

The generic framework and template for SOC reporting are being developed based on the key elements of the Sustainable Coastal Development Framework (SCDF) through ICM Implementation. It incorporates a set of simple, meaningful and measurable indicators for coastal governance and each of the five issue-specific management systems in measuring and reporting the current conditions and trends as well as the management responses of the local governments and other sectors in achieving sustainable coastal development. Indicators are selected based on their easy applicability in the region but complement the indicators and targets of the MDGs, WSSD, Agenda 21 and SDS-SEA. The appropriateness of the framework and template are being tested using available data from selected ICM demonstration sites of PEMSEA.



Replication Strategy

The ability to replicate is an integral element of the scaling up thrust of both the SDS-SEA implementation strategy and the Strategic Partnership. Replicability is built into each major activity or project component during the planning stage. This approach requires the incorporation of capacity assessment, communication and partnership development in the planning and implementation of major component activities.

Capacity Assessment evaluates the demand and supply aspects of replication. This involves identifying and assessing priorities and pre-conditions for successful replication, followed by matching interested sites and areas with appropriate, replicable mechanisms, technologies or practices that have been successfully demonstrated or tested under pertinent conditions.

Communication entails awareness building and knowledge sharing to alert stakeholders on environmental issues, needed changes, and focus of actions needed to initiate changes on the ground. The knowledge-sharing aspect is designed to apply and expand the knowledge, innovations, good practices and technologies demonstrated under the specific project.

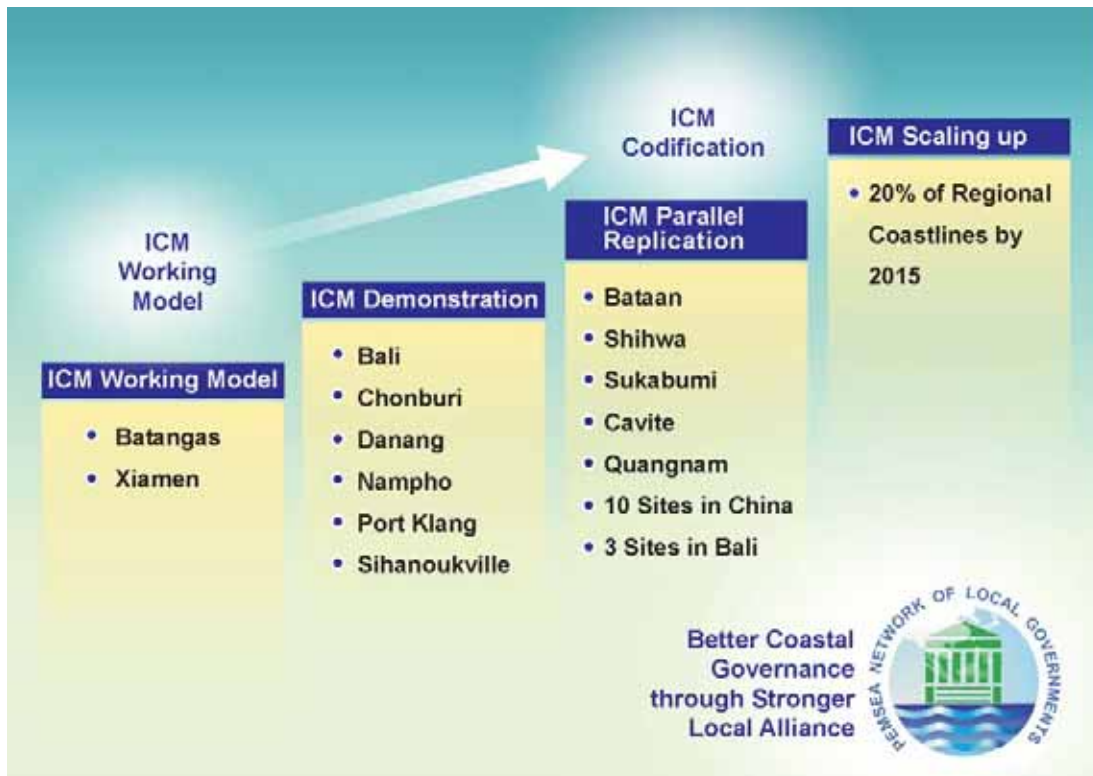
Partnership Development recognizes that many local governments in the region lack the capacity and confidence to commit to investments in scaling up ICM, much less pollution reduction facilities and services. Opportunities created for government and non-government partners, the identification of interested partners, and the process of promoting and developing partnerships will be incorporated into operation activities in order to scale up partnership activities from a local initiative to national and regional dimensions.

Replication and Scaling up of ICM Programs Implementation

PEMSEA aims to cover at least 20 percent of the regional coastline through replication of ICM programs by 2015 to cope with the pace of environmental degradation and resource depletion.

The ICM sites serve as a "critical mass" or a network that have demonstrated confidence and capacity in ICM implementation. They offer practical, workable experiences and knowledge to other would-be areas interested in implementing an ICM program. Many practitioners see them as

Scaling up ICM through the Replication of Demonstration Sites (PEMSEA Example).



Replication and Scaling up



"levers" or "tipping points" that can push and encourage other areas to replicate ICM programs.

Another "lever" is PEMSEA's adherence to the second context of scaling up — functional expansion with regard to linking coastal management and watershed and river basin management. This is evident in the initiative in the Philippines to link the existing programs in the Manila Bay-Pasig River-Laguna Lake continuum to a broader, streamlined and comprehensive management framework. A viable model to integrate river basin management, coastal land-use planning and management and sea-use zoning is being undertaken. Other areas in the region are also poised to do the same.

Another major effort is to increase the local capacity to plan and manage the coastal and marine areas, a prerequisite for ICM replication and scaling up. Existing training materials used for ICM training or professional upgrading and other related publications are being refined in accordance with curriculum development principles into several informal training packages. Post-graduate ICM programs are also being developed and conducted by national universities or consortiums of universities. There are also efforts to disseminate knowledge on coastal and ocean governance in universities offering distant learning.

Strategies for ICM Scaling up.



Partnerships are frequently operationalized in the most practical terms at the local level, i.e., at the ICM project sites and hotspot locations. Project development and implementation is managed by multisectoral and multistakeholder coordinating arrangements that include the National Project Coordinating Committee (NPCC), the Project Coordinating Committee (PCC) and the Project Management Office (PMO). Generally, ICM demonstration sites have PCCs (e.g., PCCs in Bali or Danang), while subregional pollution hotspot sites have NPCCs (e.g., NPCC of Bohai Sea). Relative to the PMOs, the NPCCs and/or the PCCs exercise oversight functions. The EAS Partnership Council, on the other hand, provides a higher level of partnership between State and non-State

Partners. It brings together these various Partners to regular meetings and workshops to provide policy direction and strategies for the sustainable development of the region.

With the establishment and operationalization of PMOs, PCCs, NPCCs and the EAS Partnership Council and the support and commitment of all Stakeholder Partners, intergovernmental, interagency and multisector partnerships can be readily forged, nurtured and implemented. As such, PEMSEA's on-the-ground projects continue to remain relevant to the needs of the communities, local and national governments, and have inspired project ownership, ensured sustainability and encouraged replicability.



Strategic Partnerships in SDS-SEA Implementation

Strategic partnerships are forged with specific partners to collectively address key issues related to coastal and ocean governance. The Strategic Partnership for SDS-SEA implementation is designed to facilitate the effective implementation and interaction of two GEF-supported projects in the region, namely the GEF/UNDP Project on the Implementation of the SDS-SEA, and the World Bank/GEF Partnership Investment Fund for Pollution Reduction in the Large Marine Ecosystems of East Asia. The former aims to scale up ICM programs across the region. The project activities create policy and investment opportunities for the latter project to reduce pollution discharges through the removal of technical, institutional and financial barriers. Expected outcomes of the Partnership Investment Fund are increased investments in pollution reduction and activities of the order of \$1.3 billion.

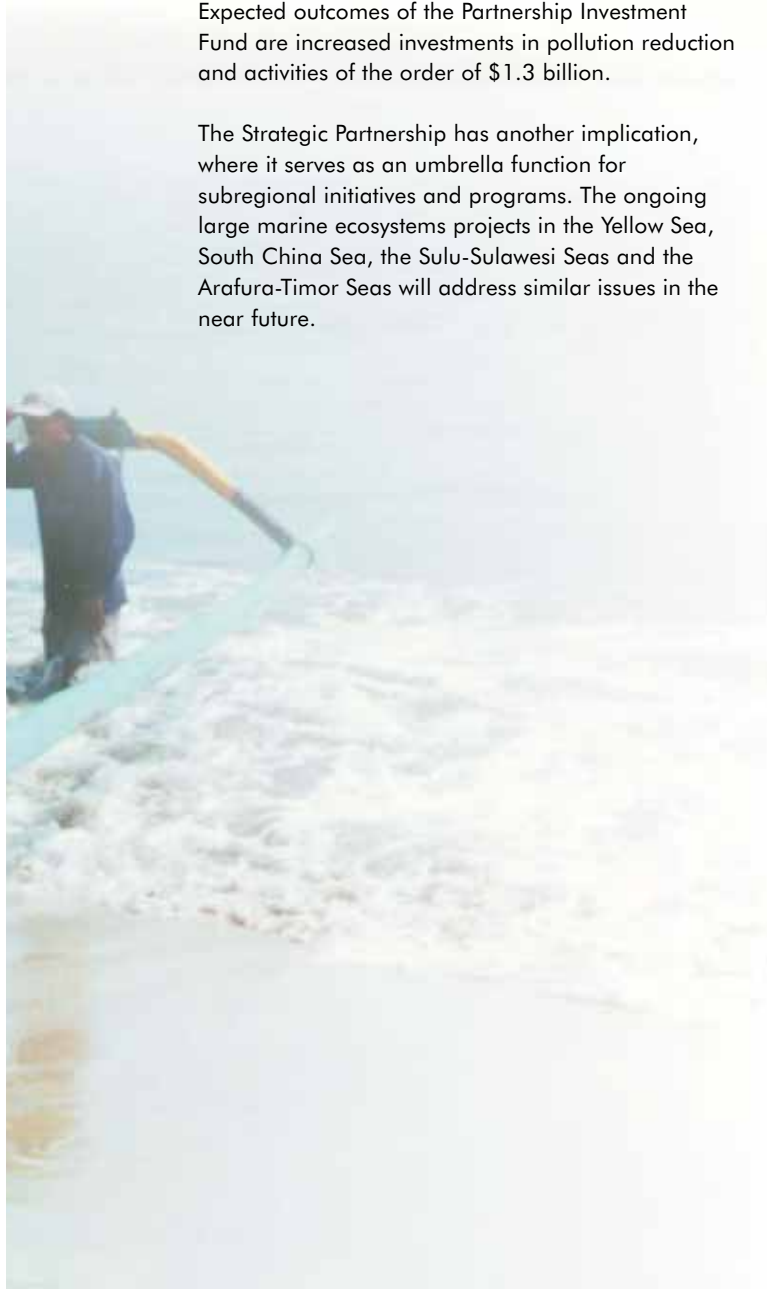
The Strategic Partnership has another implication, where it serves as an umbrella function for subregional initiatives and programs. The ongoing large marine ecosystems projects in the Yellow Sea, South China Sea, the Sulu-Sulawesi Seas and the Arafura-Timor Seas will address similar issues in the near future.

The Strategic Partnership provides a mechanism for GEF, the World Bank, UNDP, UNEP and the concerned countries to mainstream the broad objectives of the SDS-SEA, and the detailed targets and action programs of any future subregional seas Strategic Action Plans (SAPs), into their regular programs. The Strategic Partnership will use its comparative advantages to assist the countries in reaching the overarching regional SDS-SEA objectives by supporting the more detailed site-specific objectives and targets identified in the SAPs.

Corporate Social Responsibility for Sustainable Development of Coastal and Marine Resources

PEMSEA continues to promote partnerships between multinational and national corporations and stakeholders, including government agencies, NGOs and community groups. Such partnerships help build corporate social responsibility, by encouraging companies to integrate social responsibility into their organizational strategies, programs and practices. They also facilitate the replication and scaling up of capacities in sustainable development of the coastal and marine resources among local governments and communities in the region.

PEMSEA's experience in two project sites in the Philippines demonstrate the comparative advantage of multinational companies, serving as models of corporate social responsibility for national and local industries. In these two cases, where Petron Corporation and Shell Philippines partnered with the local governments of Bataan and Batangas respectively, both parties shared resources and skills in order to achieve on-the-ground improvements in the protection and restoration of coastal and marine resources.



Throughout the years, PEMSEA has tapped the resources of governments, donors, the private sector and other funding sources to complement the funding it receives from GEF. The counterpart financing was intended to support various environmental programs at the local, national, subregional and regional levels. During the second phase, PEMSEA was able to generate co-financing of

more than \$24 million, \$22.7 million of which came from the governments of participating countries. Government co-financing exceeded the target of \$3.3 million in the GEF/UNDP/IMO Project Document by 690 percent, providing concrete evidence of the support from local and national stakeholders for ICM programs, hotspot management, and other projects and activities spearheaded by PEMSEA's Regional Programme Office.

Resource Mobilization (1999–2007), by Purpose.

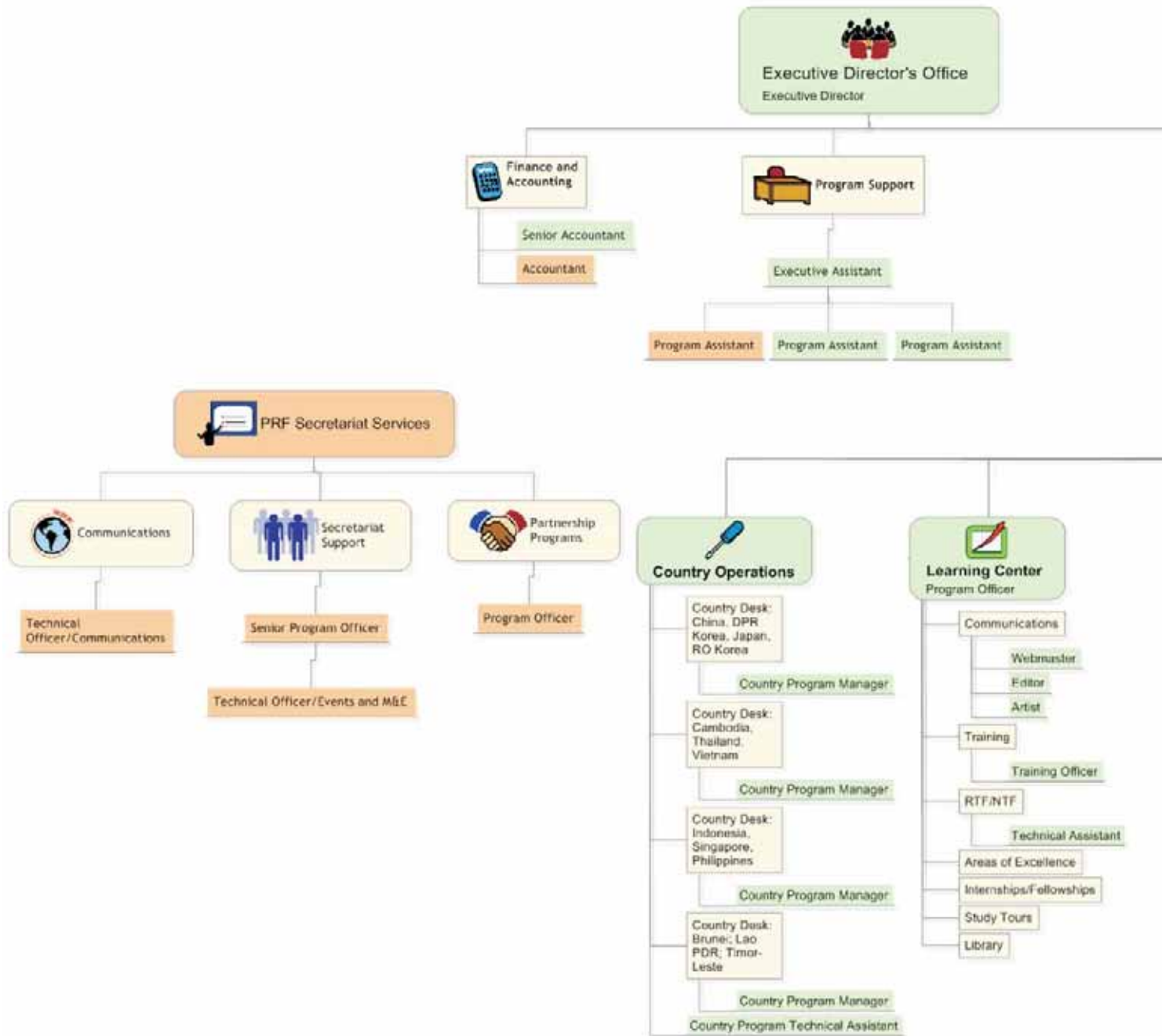
Purpose	Partner	Counterpart Support (\$)	Remarks
ICM			
Demonstration Sites			
Indonesia	Provincial Government of Bali	520,000.00	MOA of 13 March 2000
Vietnam	People's Committee of Danang Municipality	709,250.00	MOA of 07 June 2000
Thailand	Provincial Government of Chonburi	287,394.00	MOA of August 2001
Malaysia	State Government of Selangor	491,895.00	MOA of 19 July 2001
DPR Korea	GBCIO	698,435.00	MOA of 08 September 2000
Cambodia	Municipal Government of Sihanoukville	596,500.00	MOA of 12 June 2000
PR China	Municipal Government of Xiamen	350,000.00	MOA of July 2001
Parallel Sites			
Philippines	Provincial Government of Bataan	155,000.00	MOA of 10 February 2000, letter of 7 February 2006
Philippines	Bataan Coastal Care Foundation	200,000.00	
Philippines	Provincial Government of Cavite	162,000.00	MOA of March 2004
RO Korea	MOMAF (Shihwa Project)	6,000,000.00	
Indonesia	Sukabumi Regency	4,205,064.00	MOA of 10 February 2003, report of 1 February 2006
PR China	10 ICM Parallel Sites	3,000,000.00	estimated 300,000/site
	Subtotal ICM	17,375,538.00	
Hotspots			
PR China	State Oceanic Administration (Bohai Sea)	2,647,300.00	MOA of 23 July 2000
Philippines	Government of the Philippines (Manila Bay)	1,867,347.00	Letter, January 2002
	Subtotal Hotspots	4,514,647.00	
PSC Working Group Meetings			
8 th PSC Meeting	MOMAF, RO Korea	50,000.00	
9 th PSC Meeting	Provincial Government of Chonburi	12,000.00	
10 th PSC Meeting	Municipal Government of Xiamen	15,000.00	
11 th PSC Meeting	Government of Cambodia	15,000.00	
12 th PSC Meeting	Government of the Philippines	14,000.00	
Hosting of the Preparatory Meeting of the Working Group on the Implementation of the SDS-SEA	State Oceanic Administration	20,581.00	
1 st Meeting of the Working Group on the Implementation of the SDS-SEA	Department of Environment and Natural Resources - Philippines	4,000.00	
2 nd Meeting of the Working Group on the Implementation of the SDS-SEA	Department of Environment and Natural Resources - Philippines	5,000.00	
	Subtotal PSC/Working Group Meetings	135,581.00	
Technical Workshop			
Workshop on Ecosystem-based Management of Interrelated River Basins, Estuaries and Coastal Seas	MOMAF, Korea Maritime Institute, Masan City Government and Kyungnam University	60,000.00	
	Subtotal Technical Workshops	60,000.00	
EAS Congress			
EAS Congress 2003	IMO	81,174.00	
EAS Congress 2003	Ship and Ocean Foundation	92,079.00	LOI, October 2003
EAS Congress 2003	UNEP-GPA	7,550.00	
EAS Congress 2003	World Fish Center	30,000.00	
EAS Congress 2003	Kualiti Alam Malaysia	2,652.00	
EAS Congress 2003	Alam Sekitar Malaysia	3,183.00	
EAS Congress 2003	Department of Environment (DOE) - Malaysia	12,750.00	

Resource Mobilization

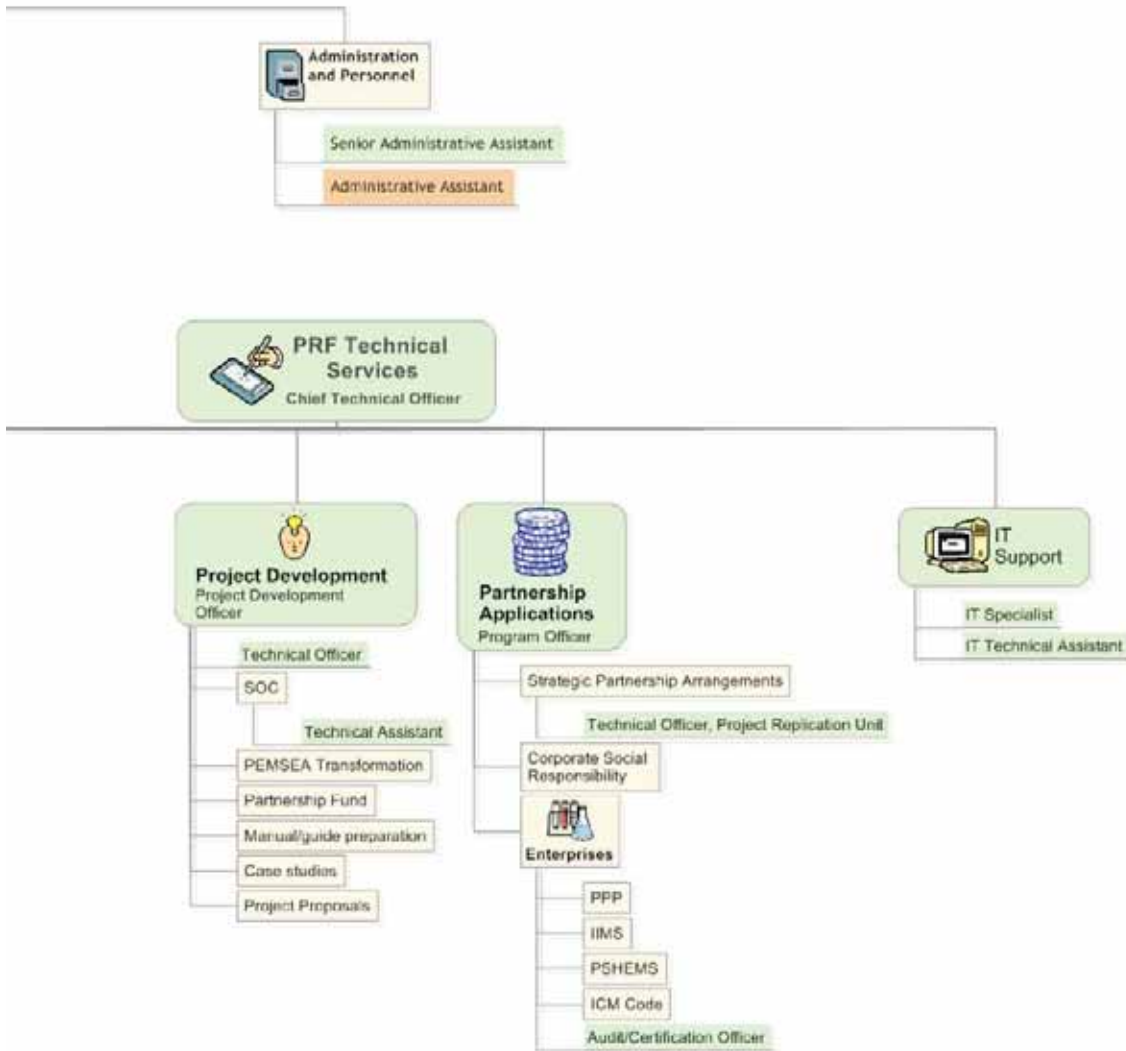
The impact of PEMSEA's effort would be less had it not been for the resources it was able to mobilize within and outside the region. Essentially, partnership development and resource mobilization efforts have catalyzed investments, leveraged funding and created synergistic results across its Programme portfolio. Contributions from partners not only augmented the Regional Programme's limited funds, but such co-financing has

likewise encouraged greater participation from all parties, donors and recipients alike. In other words, the synergistic outcomes arising from PEMSEA's twin strategy of developing partnerships and mobilizing resources have led to greater interest in PEMSEA's methods and approaches, creating a virtuous spiral of positive developments for the East Asian Seas region.

Purpose	Partner	Counterpart Support (\$)	Remarks
EAS Congress (cont.)			
EAS Congress 2006	State Oceanic Administration	519,480.00	
EAS Congress 2006	Hainan City Government	259,740.00	
EAS Congress 2006	UNDP Capacity 2015	10,718.00	
EAS Congress 2006	IMO	15,000.00	
EAS Congress 2006	Korea Maritime Institute (KMI)/ Korea Environmental Institute (KEI)	66,391.00	
EAS Congress 2006	UNEP-GPA	15,000.00	
EAS Congress 2006	Nippon Foundation	69,434.00	
EAS Congress 2006	OPRF	52,174.00	
EAS Congress 2006	CMC-Youth Forum	30,000.00	
EAS Congress 2006	UNESCO-IOC	15,000.00	
	Subtotal EAS Congress	1,282,325.00	
RNLG Forums			
1 st RNLG Forum, Study Tour	MOMAF	40,000.00	
2 nd RNLG Forum, Leadership Training, Study Tour	Municipal Government of Xiamen	20,000.00	
3 rd RNLG Forum, ICM Study Tour, EAS Congress	Lembaga Urus Air Selangor (LUAS), State of Selangor	13,500.00	
4 th RNLG Forum	Provincial Government of Bali	25,000.00	
	Subtotal RNLG Forums	98,500.00	
Trainings			
Training/Regional Mechanism (2000–2001)	IMO	200,000.00	
Regional Training on IEIA	Sida/CMC	39,480.00	
Regional Training on Project Development Management	Sida/CMC	38,700.00	
Regional Training on ICM	Sida/CMC	69,640.00	
	Subtotal Training	347,820.00	
Projects			
Port Safety, Health and Environmental Management System (2002–2003)	IMO	150,000.00	PID, 08 February 2002
Dynamics of Regional Cooperation on Oceans and Coasts	Nippon Foundation	200,000.00	Grant Agreement
Waste Management Facility (Batangas)	Wastes Systems New Zealand	200,000.00	MOA of 14 July 1999
Quest Simulation Model (Bali)	Hatfield Consultants	150,000.00	Proj. Doc. 22 June 2000
Renewal of Commitment for Collaboration and Sharing Experiences in the Sustainable Development of Marine and Coastal Resources	UNEP-GPA	80,000.00	MOU of May 2005
	Subtotal Projects	780,000.00	
Publications			
Tropical Coasts	Sida/CMC	39,000.00	
Collaboration and Sharing Experiences in the Sustainable Development of Marine and Coastal Resources	UNEP-GPA	19,000.00	MOU of January 2003
	Subtotal Publications	58,000.00	
	TOTAL	24,652,411.00	



PEMSEA Resource Facility Organizational Structure



State and Non-State Partners

PEMSEA State Partners (11):

Cambodia

(Ministry of Environment)

People's Republic of China

(State Oceanic Administration)

Democratic People's Republic of Korea

(Ministry of Foreign Trade)

Indonesia

(Ministry of Environment)

Japan

(Ministry of Land, Infrastructure and Transport)

Lao People's Democratic Republic

(Prime Minister's Office)

Philippines

(Department of Environment and Natural Resources)

Republic of Korea

(Ministry of Maritime Affairs and Fisheries)

Singapore

(Ministry of the Environment and Water Resources)

Timor-Leste

(Ministry of Agriculture, Forest and Fisheries)

Vietnam

(Ministry of Natural Resources and Environment)

Non-State Partners (14):

Conservation International (CI) Philippines

Coastal Management Center (CMC)

IOC Subcommission for the Western Pacific (IOC/WESTPAC)

International Ocean Institute (IOI)

Korea Environment Institute (KEI)

Korea Maritime Institute (KMI)

Korea Ocean Research and Development Institute (KORDI)

Ocean Policy Research Foundation (OPRF)

Oil Spill Response and East Asia Response Limited (OSRL/EARL)

Plymouth Marine Laboratory (PML)

Swedish Environmental Secretariat for Asia (SENSA)

UNDP/GEF Small Grants Programme (SGP)

UNEP Global Programme of Action (UNEP/GPA)

UNDP/GEF Yellow Sea LME Project (YSLME)

Executive Committee

Chua Thia-Eng*

Council Chair

Li Haiqing

Intergovernmental Session Chair

Hiroshi Terashima

Technical Session Chair

The Executive Committee is composed of the Council, Technical Session, and Intergovernmental Session Chairs with the Executive Director of the PEMSEA Resource Facility (PRF) serving as the Secretary. The three Chairs were elected by consensus at the First EAS Partnership Council Meeting in July 2007 in Manado City, Indonesia.

* In view of Dr. Chua's current status as PEMSEA Regional Programme Director (RPD) and Interim Executive Director (ED) of the PEMSEA Resource Facility (PRF), the Executive Committee decided to appoint Dr. Li Haiqing as Acting Council Chair until the end of September 2007 or upon the completion of Dr. Chua's term as RPD and Interim ED.

PEMSEA Staff

		Staff since
Chua, Thia-Eng*	Regional Programme Director and Interim Executive Director	1994
Ross, Stephen Adrian	Senior Programme Officer/Technical Coordinator	1996
Yu, Huming	Senior Programme Officer	1995 – 2000; 2002
Almario, Amadeo Jr.	Utility Aide	1995
Bacay, Jose Gerard	Publications Production Assistant	1998
Bautista, Vanessa	Library Assistant	2007
Bermas, Nancy	Technical Officer – Research	1996
Bonga, Danilo	Technical Assistant – Research	1997 – 2002; 2004
Caballero, Rommel	IT Specialist	2004
Cano, Anna Rita	Communications Assistant – Publications	2004
Cordova-Cayaban, Diwata	Senior Secretary	2000
Custodio, Kristine	Senior Communications Assistant – Webmaster	2002
Dela Pena, Mary Ann	Head of Accounting	1996
Dulay, Jonel	Senior Technical Artist	1995
Ebarvia-Bautista, Maria Corazon	Technical Officer – Environmental Investments	1999
Factuar, Diana	Training Officer	1999 – 2001; 2002
Gallardo, Kathrine Rose	Technical Assistant – Regional Ocean Governance	2004
Gervacio, Bresilda	Technical Officer – IIMS and Coastal Use Zoning	1994 – 1995; 1997
Gutierrez, Anthony	Driver	2007
Josue, Rachel	Administrative Assistant	2002
Lacerna, Ma. Teresita	Legal Officer – Law, Policy and Institutional Development	2002
Mariano, Marlene	Secretary	1997
Merina, Elsie	Secretary	2004
Narcise, Cristine Ingrid	Senior Technical Assistant – Environmental Management	2000
Nepomuceno, Ma. Concepcion	Office Attendant	1995
Padayao, Daisy	Technical Assistant – Research	2005
Rafael, Belyn	Technical Assistant – ICM	2004
Requinala, Rainier Allan	Senior Technical Assistant – Project Monitoring and Evaluation	2002
Urbano, Ramil	Driver	2005
Valeriano, Arsenio Jr.	Accounts Assistant	2001
Velasquez, Caroline	Senior Secretary	1998



Former PEMSEA staff

Name	Designation	Duration
Abansi, Corazon	Officer – Batangas Bay Demonstration Project	1995 – 1999
Aca, Elson	Programmer	2000 – 2001
Agsaoay, Eunice	Technical Assistant	1998
Almira, Francis	Computer Programmer	1997
Aloria, Maribel	Environmental Monitoring Specialist, ENRO	1996 – 1998
Amuan, Rommel	Technical Assistant (GIS)	1997
Aragon, Ana Marie	Administrative Assistant	2000 – 2002
Araza, William	Clerk	1997
Arevalo, Jeremy	Library Assistant	2005 – 2006
Artienda, Cornelio	Training Officer	1996 – 1998
Aseron, Ma. Victoria Grace	Artist	1996 – 1998
Atanacio, Rachel	Artist	1994 – 1995
Azucena, Carlos William	Technical Assistant – HRD	2005
Baculanta, Patricia	Documentations Clerk	2003 – 2004
Banzon, Cesar	Technical Officer – Environmental Investment	2004 – 2005
Basilio, Gina	Technical Assistant	1997 – 1998
Bernad, Stella Regina	Legal Officer – International Conventions	1995 – 2007
Bigal, Maricel	Editorial Assistant	1997 – 1999
Bonto, Edgardo Celso	Project Assistant	1996
Cada, Roberto	Artist	1996
Calderon, Edmond Titus	Technician/Administrative Clerk	1997 – 2005
Carada, Florisa Norina	Editorial Assistant	1999
Cargamento, Agnes	Technical Reviewer	1998
Cariño, Albert	IIMS Programmer	2002 – 2004
Carlos, Azenith	Library Assistant	2002 – 2005
Castillo, Ronald	Environmental Monitoring Assistant	1997
Catalan, Jose Alvin	Technical Assistant – Research	2004 – 2005
Cataytay, Alma	Communications Assistant	2003
Cayaban, Leo Rex	Senior Editorial Assistant	1997 – 2006
Cheevaporn, Voravit	Research Associate	1995
Colocado, Marie Sol	Information Officer	2001 – 2002
Corpuz, Catherine Frances	Technical Officer – Public-Private Partnership	2000 – 2004
Cuanang, Liligrace	Secretary	1994 – 1995
Cuevas, Arleen	Senior Communications Assistant	2001 – 2003
David, Felicisimo Jr.	Technical Officer – Monitoring and Evaluation	2000
De Guzman, Eugene	Computer Technician	1999
Dela Paz, Catalino	Computer Programmer	1996 – 1997
Delos Reyes, Mario	Programme Officer	1997 – 1998
Diamante, Dolores Ariadne	Research Associate	1994 – 1995
Diaz, Raul	Layout Artist	1996
Dizon, Leticia	Information Officer	1997 – 1999
Escolano, Augusto	Training Officer	1996 – 1998
Espino, Pythias	Technical Assistant – Environmental Chemistry	1995

Name	Designation	Duration
Fabunan, Alexis	Technical Assistant, GIS Specialist	1995 – 1998 and 2003
Fornoles, Olivia	Secretary	1996 – 1997
Garcia, Benjamin	Assistant Congress Coordinator – Events Management	2005 – 2006
Genilo, Jude William	Information Officer	2001
Gonzales, Antonio	Layout Artist	1998
Gorre, Ingrid Rosalie	Technical Officer – Community Network	1999 – 2000
Guerrero, Socorro	Senior Administrative Officer	1994 – 2005
Guevarra, Joselito	Technical Officer – Subregional Seas	2004 – 2005
Guinto, Alexander	Technical Assistant – Risk Assessment/Risk Management	2000 – 2005
Hernandez, Antonio Jr.	Senior Accounting Clerk	1994 – 2003
Hidalgo, Mary Ann	Training Officer	2002
Inciong, Olivia Sylvia	Information Officer	2003
Irisari, Milani	Legal Assistant – Marine Affairs Policy	2001
Isla, Emmanuel	Artist	2000 – 2002
Israel, Danilo	Site Manager – Batangas	1994 – 1997
Javier, Tricia	Information Officer	2000
Javillonar, Joyce	Training Assistant	2000 – 2004
Kalaw, Ma. Theresa	Research Assistant	1997
Kang, Katherine	Webmaster	2000 – 2002
Kho, James	Research Associate/Writer	1998
Lee, Jihyun	Senior Programme Officer	2000 – 2007
Librodo, Lisa Aines	Training Officer	2001
Licuanan, Ferdinand	Library Assistant	2001 – 2002
Lontoc, Vir Angelo	Data Encoder	1996
Lopez, Jocelyn	Accounting Clerk	2002 – 2006
Lopez, Joselito	Senior Programme Officer	2000
Luoping, Zhang	Research Assistant	1997
Maaliw, Alex	Technical Officer – Monitoring and Evaluation	2002 – 2003
Macabeo, Yolwinda	Receptionist/Clerk	2004 – 2005
Madriaga, Efren	Senior Office Assistant	1999 – 2002
Malto, Abigail	Communications Assistant	2002 – 2003
Mandac, Eden	Secretary	1995 – 2003
Mangahas, Juan Paolo	Communications Assistant	2003 – 2005
Manguiat, Ma. Socorro	Legal Research Associate – International Conventions	1999 – 2001
Marfil, Lilian	Publications Coordinator	1996 – 1997
Matanguihan, Josefina	Environmental Management Specialist	1996 – 1997
Molo, Carmela Ann	Receptionist	2000 – 2003
Morales, Jane	Secretary	1996
Naeg, Erdito	Copyeditor	1996 – 1997
Nathan, Ari	Senior Programme Officer	2000
Natarajan, Ramanathan	Research Assistant	1996 – 1997
Navarro, Enrique	Conference Coordinator	2003
Nuñez, Enrique Antonio	Project Coordinator – Public-Private Partnership	2000

Name	Designation	Duration
Ordoñez, Muriel	Chief Editor	1999
Padilla, Delilah	Research Assistant	1997 – 1998
Pascual, Ferdinand	Office Assistant	1998
Paw, James	Technical Programme Officer	1994 – 1998
Payumo, Annechielli	Accounting Clerk	2000 – 2002
Pido, Michael	Technical Officer – ICM	2000 – 2002
Poblete, Angelita	Programme Management Assistant	1996
Rafanan, Gary	IT Specialist	2000
Reyes, Michael	Research Associate	1995 – 1997
Reyes, Rommel	Project Assistant	1996
Robles, Noel	Senior GIS Technician	1995 – 2002
Ronquillo, Jaime	Publications Coordinator	1996
Rosales, Rina	Research Associate	1996 – 1997
Rosales, Vilma	Secretary	1995 – 1996
Ruiz, Bernard Fortunato	Library Assistant	2001
Samarasekara, Vidhisha	Assistant Technical Programme Officer	1998
San, Maria Cecilia	Senior Technical Assistant – Legal/Policy Analysis	2002 – 2006
Sanohan, Aida	Environmental Monitoring Assistant	1997 – 1998
Silan, Ma. Margarita	Receptionist	2003 – 2004
Solito, Kristine Joy	Secretary	2006
Soriano, Elizabeth	Copyeditor	1996
Sujarae, Apiradee	Project Technical Coordinator – Chonburi ICM	2001 – 2004
Tan, Giselle	Technical Officer – Monitoring and Evaluation	2000 – 2003
Tejam, Catalina	Resource Economist	1995 – 1997
Torres, Susan	Accountant	2000
Villa, Deborah	Technical Editorial Assistant	1996 – 1997
Villamor, Jose	Driver	2004 – 2007
Villarosa, Casimiro Jr.	Senior Communications Assistant	2000 – 2001
Viyar, Nogel	Communications Assistant – Video	2003 – 2007
Zafra, Alfie	Senior Communications Assistant	2000

PEMSEA Interns and Fellows

List of Interns/Fellows/UN Volunteers (1994-2007)

	Institution/Organization	Country	Duration
<u>Fellows</u>			
Zulhasni	Ministry of Environment	Indonesia	16 May 2002 – 15 May 2003
Hur Ock Yung (Senior Fellow)	Local Government of Busan	RO Korea	1 April 2005 – 30 September 2005
<u>Regional Interns</u>			
Long Rithirak	Ministry of Environment	Cambodia	15 July – 15 December 1995
Nguyen Minh Son	Center for Marine Environment Survey Research and Consultation	Vietnam	11 March – 11 September 1996; 24 September 1996 – 21 March 1997
O Ryang Pyong	State Hydrometeorological Administration	DPR Korea	11 March – 22 June 1996
Ryang Chol	State Hydrometeorological Administration	DPR Korea	11 March – 22 June 1996
Fan Zhijie	State Oceanic Administration	PR China	17 February – 15 August 1997
Aceng Hidayat	Bogor Agricultural University	Indonesia	3 November 1997 – 27 April 1998
Zhang Haiwen	State Oceanic Administration	PR China	16 November 1997 – 31 May 1998
Tran Dinh Lan	Haiphong Institute of Oceanology	Vietnam	16 November 1997 – 30 April 1998
Oh Seung Kwon	Ministry of Maritime Affairs and Fisheries	RO Korea	12 February 2001 – 11 Feb 2002
Pham Thi Chin	Project Management Office, Danang ICM Project	Vietnam	16 May – 15 November 2002
Nguyen Thanh Lam	National Center for Natural Science and Technology	Vietnam	17 February – 17 August 2003
Sothou Sang	Project Management Office, Sihanoukville ICM Project	Cambodia	1 July – 20 December 2003
Yang Yafeng	State Oceanic Administration	PR China	9 March – 8 September 2004
Nisakorn Wiwekwin	Project Management Office, Chonburi ICM Project	Thailand	1 August – 30 October 2004
Arthit Chachiyoo	Project Management Office, Chonburi ICM Project	Thailand	1 August – 30 October 2004
Le Dai Thang	Vietnam Environment Protection Agency	Vietnam	1 August – 15 December 2005
Saowalak Winyoonuntakul	Department of Marine and Coastal Resources	Thailand	15 August – 15 December 2005
Zheng Yanling	Xiamen Oceans and Fisheries Bureau	PR China	19 September 2005 – 18 March 2006
Wang Qingyan	Hainan Government	PR China	15 September – 15 November 2006
Chen Wen Qun	Hainan Government	PR China	15 September – 15 November 2006
Jaekyun Kim	Student	RO Korea	15 February – 17 December 2006
<u>International Interns</u>			
Jennifer Aldrich	University of British Columbia	Canada	28 September 1999 – 28 March 2000
Karla Rhonda Pope	Fisheries and Marine Institute of Memorial University of Newfoundland	Canada	6 October 2003 – 5 April 2004
Stacey Belbin	Fisheries and Marine Institute of Memorial University of Newfoundland	Canada	6 October 2003 – 5 April 2004
Anne Caillaud	Institute of Political Studies of Paris (<i>Sciences Po</i>)	France	10 September 2005 – 25 January 2006
<u>UN Volunteer</u>			
Maeve Nightingale	Technical Coordinator – Community Development	United Kingdom	24 October 2000 – 31 July 2002

Coastal and Ocean Governance

1. Putrajaya Declaration of Regional Cooperation for the Sustainable Development of the Seas of East Asia and the Sustainable Development Strategy for the Seas of East Asia
2. Framework for National Coastal and Marine Policy Development
3. The Development of National Coastal and Marine Policies in the People's Republic of China: A Case Study
4. Case Study on the Integrated Coastal Policy of the Republic of Korea
5. Framework and Guidelines for National Marine Pollution Legislation in East Asia
6. Assessment of National Marine Pollution Legislation in East Asia
7. National Coastal Policy for the East Asian Seas: Status Review and Model Policy Development
8. Sharing Lessons and Experiences in Marine Pollution Management
9. Challenges, Responses, Strategies and Actions for the Implementation of the SDS-SEA
10. Sustaining Benefits
11. Policy Briefs: Sustainable Trade in Marine Endangered Species in East Asia
12. Policy Briefs: Integrated Coastal Management: Revitalizing the Coasts and Oceans Program in the Philippines
13. Policy Briefs: Sustainable Development and Management of Manila Bay: A Focus on Water Quality
14. Policy Briefs: Partnership Opportunities in Enhancing GPA Implementation

Implementation of International Conventions

15. Malacca Straits: Special Area? The Need and Feasibility of Designing the Malacca Straits as a Special Area Under MARPOL 73/78
16. A Study on the Status of Compliance of the Philippine Domestic Merchant Fleet with the MARPOL 73/78 Convention

Integrated Coastal Management

17. Dynamics of ICM Practical Applications in Sustainable Coastal Development in East Asia (by Chua Thia-Eng)
18. Integrated Coastal Management in Tropical Developing Countries: Lessons Learned from Successes and Failures (Edited by Chua Thia-Eng)
19. Enhancing the Success of Integrated Coastal Management Initiatives (English)
20. Enhancing the Success of Integrated Coastal Management Initiatives (Bahasa)
21. Enhancing the Success of Integrated Coastal Management Initiatives (Vietnamese)
22. Enhancing the Success of Integrated Coastal Management Initiatives (Chinese)

23. Enhancing the Success of Integrated Coastal Management Initiatives (Korean)
24. Enhancing the Success of Integrated Coastal Management Initiatives (Thai)
25. Enhancing the Success of Integrated Coastal Management Initiatives (French)
26. Enhancing the Success of Integrated Coastal Management Initiatives (Portuguese)
27. Enhancing the Success of Integrated Coastal Management Initiatives (Spanish)
28. Enhancing the Success of Integrated Coastal Management Initiatives (Swahili)
29. Southeastern Coast of Bali Initial Risk Assessment
30. Coastal Strategy for the Southeastern Coast of Bali
31. Bataan Sustainable Development Strategy
32. Manuscript Series: Enhancing Coastal and Marine Management through Effective Information Management (The Bataan IIMS Case Study)
33. Coastal Environmental Profile of the Batangas Bay Region
34. Initial Environmental Risk Assessment of Pesticides in the Batangas Bay Region, Philippines and the Xiamen Seas, China
35. Strategic Environmental Management Plan for the Batangas Bay Region
36. Integrated Coastal Management (ICM) Contingent Valuation Survey in Batangas Bay, Philippines
37. Integrated Waste Management Action Plan for the Batangas Bay Region
38. Water Use Zoning for the Sustainable Development of Batangas Bay, Philippines
39. Securing the Future through ICM: The Case of the Batangas Bay Region
40. Chonburi Initial Risk Assessment
41. The Chonburi Coastal Strategy
42. Danang Initial Risk Assessment
43. Coastal Strategy of Danang City
44. Coastal Strategy of Nampho City, Democratic People's Republic of Korea
45. Port Klang Initial Risk Assessment
46. Port Klang Coastal Strategy
47. Sihanoukville Coastal Strategy
48. Coastal Environmental Profile of Xiamen
49. Strategic Management Plan for Marine Pollution Prevention and Management in Xiamen
50. Xiamen: An ICM Journey (Second Edition)
51. Bohai Sea Environmental Risk Assessment
52. Bohai Sea Sustainable Development Strategy
53. Bohai Sea Declaration
54. Manila Bay Initial Risk Assessment
55. Manila Bay Refined Risk Assessment
56. Manila Bay Coastal Strategy
57. Malacca Straits Environmental Profile
58. Malacca Straits: Initial Risk Assessment
59. Malacca Straits: Refined Risk Assessment
60. Natural Resource Damage Assessment and the Malacca Straits
61. Marine Pollution Management in the Malacca/Singapore Straits: Lessons Learned

PEMSEA Publications and Videos

For more information, visit www.pemsea.org.

Socioeconomic Valuation and Sustainable Financing

62. Socioeconomic Assessment Framework and Guidelines for Integrated Coastal Management
63. A Perspective on the Environmental and Socioeconomic Benefits and Costs of Integrated Coastal Management: The Case of Xiamen, PR China
64. Marine Pollution Prevention and Management in the East Asian Seas: A Benefit-Cost Framework
65. Total Economic Valuation: Coastal and Marine Resources in the Straits of Malacca
66. Benefit-Cost Analysis of Tourism Development and Sustainability in the Malacca Straits
67. Sustainable Financing for Ship-based Pollution Prevention and Management in the Malacca Straits
68. Sustainable Financing Mechanisms and Policy Instruments for the Prevention and Management of Marine Pollution in the Philippines
69. Manuscript Series: An Overview of Public and Private Sector Capacities for Environmental Infrastructure in the Philippines
70. Manuscript Series: An Overview of Public and Private Sector Capacities for Environmental Infrastructure in Five East Asian Countries
71. Manuscript Series: Sewerage Planning and Wastewater Treatment for Sabang, Puerto Galera
86. TC Vol. 5. No. 1 Coastal Tourism
87. TC Vol. 5. No. 2 – Vol. 6. Issue #1 PPP in Coastal and Marine Resource Management
88. TC Vol. 6. No. 2 Getting our Acts Together – Resolving Conflicts in Coastal Zones
89. TC Vol. 7. No. 1 – Who Pays for the Damage? Oil and Chemical Spills
90. TC Vol. 7. No. 2 – A Challenging Journey – Coastal and Marine Policymaking in East Asia
91. TC Vol. 8. No. 1 – Transboundary Environmental Issues
92. TC Vol. 8. No. 2 – Partnerships for the Environment
93. TC Vol. 9. No. 1 – Keeping the Essentials Flowing
94. TC Vol. 9. No. 2 – Rare... Endangered... For Sale
95. TC Vol. 10 No. 1 – The Regional Approach
96. TC Vol. 10 No. 2 – The Role of Media in Sustainable Development
97. TC Vol. 11 No. 1 – PEMSEA Experiences in the Evolution of Coastal Management
98. TC Vol. 11 No. 2 – Coast to Coast – From Demonstration to Replication
99. TC Vol. 12 No. 1 – Call to Action – Disaster Risk Reduction and Post- Tsunami Reconstruction
100. TC Vol. 12 No. 2 – Port Safety, Security, Health and Environment
101. TC Vol. 13 No. 1 – From Ripples to Waves
102. TC Vol. 13 No. 2 – EAS Congress Special Issue 1 – One Vision, One Ocean
103. TC Vol. 14 No. 1- EAS Congress Special Issue 2 – One Vision, One People

Management Tools and Methodologies

72. Environmental Risk Assessment Manual: A Practical Guide for Tropical Ecosystems
73. Integrated Environmental Impact Assessment for Coastal and Marine Areas: A Training Manual
74. Manual on Economic Instruments for Coastal and Marine Resource Management
75. Manual of Practice: Contingent Valuation Survey for Integrated Coastal Management (ICM) Applications
76. Natural Resource Damage Assessment Manual
77. Manual on Strategies, Tools and Techniques for Implementing International Conventions on Marine Pollution in the East Asian Seas
78. Port Safety Audit Manual Vol. 1 and 2

Tropical Coasts

79. TC Vol. 1. No. 1 The 1994 Royal Colloquium on Tropical Coastal Zones – From Knowledge to Action
80. TC Vol. 2. No. 1 Environment and Enterprise
81. TC Vol. 2. No. 2 International Marine Environment Conventions: Obligations and Opportunities
82. TC Vol. 3. No. 1 Conservation to Management – Initiatives for the Coastal Zones in Eastern Africa
83. TC Vol. 3. No. 2 Marine Pollution Prevention and Management: Opportunities for Investment
84. TC Vol. 4. No. 1 Marine Biodiversity
85. TC Vol. 4. No. 2 Marine Environmental Monitoring

Workshops and Conference Proceedings

104. Challenges and Opportunities in Managing Pollution in the East Asian Seas
105. Proceedings of the IMO/APCEL/MPA Workshop on the Ratification and Implementation of MARPOL 73/78 in the East Asian Seas
106. Proceedings of the National Workshop on IMO Conventions for the Prevention and Management of Marine Pollution
107. Proceedings of the National Workshop on the Ratification and Implementation of MARPOL 73/78 in the Philippines
108. Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost Effective Shore Reception Facilities
109. Oil Spill Modelling in the East Asian Region
110. Regional Consultative Workshop on the Recovery of Oil Spill Clean-Up Costs and Pollution Damage Claims
111. Regional Consultative Workshop on Strengthening Recovery of Ship Pollution Clean-up Costs and Damage Claims
112. Regional Network on the Legal Aspects of Marine Pollution
113. Marine Pollution Monitoring and Information Management Network. Inception Workshop
114. Highlights of the Second Technical Workshop of the Regional Network for Marine Pollution Monitoring and Information Management
115. Proceedings of the Pilot Intersessional Consultative Group Meeting

PEMSEA Publications and Videos

116. Proceedings of the Senior Experts Dialogue on Coastal and Marine Policy
117. Proceedings of the Seminar on Leadership in Ocean and Coastal Governance
118. Proceedings of the Experts' Meeting on Strategies for Better Coastal and Ocean Governance
119. Proceedings of the Senior Government Officials' Meeting on the Sustainable Development Strategy for the Seas of East Asia
120. Consensus Building for the Formulation of the Sustainable Development Strategy for the Seas of East Asia
121. Proceedings of the Preparatory Meeting for the Working Group on the Implementation of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA)
122. Proceedings of the Working Group Meeting on the Implementation of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA)
123. Meeting of the Working Group on the Regional Implementing Mechanism for the SDS-SEA
124. Proceedings of the National Forum on Sustainable Development of Coastal and Marine Resources and the National Consultation Workshop on the Implementation of the SDS-SEA (Vietnam)
125. Proceedings of the First Meeting of the Multidisciplinary Expert Group
126. Workshop on Ecosystem-based Management of Interrelated River Basins, Estuaries and Coastal Seas
127. Determining Environmental Carrying Capacity of Coastal and Marine Areas: Progress, Constraints, and Future Options
128. Regional Workshop on Partnerships in the Application of Integrated Coastal Management
129. Sustainable Financing Mechanisms: Public Sector-Private Sector Partnership
130. Valuing Benefits from Integrated Coastal Management: Workshop Report
131. Proceedings of the 2nd Forum of the Regional Network of Local Governments Implementing Integrated Coastal Management (RNLG)
132. Proceedings of the Fourth Forum of the Regional Network of Local Governments Implementing ICM
133. Proceedings of the National Conference on Media as Key Partners in Environmental Sustainability
134. Proceedings of the Consultative Meeting on the Malacca Straits Demonstration Project
135. Proceedings of the Consultative Workshop on the Gulf of Thailand Environmental Management Project
136. Proceedings of the 4th Subregional Meeting of the Gulf of Thailand Project Task Team
137. Summary of the Batangas Demonstration Project Evaluation Workshop
138. The East Asian Seas Congress 2003: Regional Implementation of the WSSD Commitments for the Seas of East Asia
139. EAS Congress/WP2007/1 Proceedings of the Meeting of Experts to Discuss the Framework for State of the Coasts Reporting
140. EAS Congress/WP2007/2 Proceedings on the Workshop on the Ecosystem-based Management of Interrelated River basins, Estuaries and Coastal Seas
141. EAS Congress/WP2007/3 Proceedings of the Workshop on Local Government Financing for Water, Sewage and Sanitation
142. EAS Congress/WP2007/4 Assessment of East Asia's Capacity Building in Ocean and Coastal Governance
143. EAS Congress/WP2007/5 Proceedings of the Workshop on Achieving the MDGs through Enhancing Local Capacities for ICRM: Evidences and Lessons Learned
144. EAS Congress/WP2007/6 Proceedings of the Second Ministerial Forum on the Implementation of the Sustainable Development Strategy for the Seas of East Asia
145. EAS Congress/WP2007/7 Proceedings of the Inaugural Meeting of the East Asian Seas Partnership Council
146. EAS Congress/WP2007/8 Proceedings of the Inaugural Meeting of the PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG)
147. EAS Congress/WP2007/9 Proceedings of the Regional Network on Coastal and Ocean Governance
148. EAS Congress/WP2007/10 Proceedings of the Joint Meeting of SGP Coordinators and PMO Directors
149. EAS Congress/WP2007/11 Report on the Outputs and Outcomes of the EAS Youth Forum
150. EAS Congress/WP2007/12 Proceedings of the ICM Dialogue

Programme Steering Committee Meeting Reports

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|-------------------|--------------------|
| 151. PSC 1 (1994) | 157. PSC 7 (2000) |
| 152. PSC 2 (1995) | 158. PSC 8 (2002) |
| 153. PSC 3 (1996) | 159. PSC 9 (2003) |
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| 156. PSC 6 (1999) | 162. PSC 12 (2006) |

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163. The Regional Programme for Marine Pollution Prevention and Management in the East Asian Seas (GEF Project RAS/92/G34): Bi-annual Report 1994-1995
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167. PEMSEA Mid Term Evaluation Report 2003
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169. Melasti: A Festival of Hope
170. Danang: A City at the Crossroads
171. Monsoon Tale
172. Xiamen Story
173. Regional Partnerships in Action: The East Asian Seas Congress 2003
174. PEMSEA Story
175. Future of our Coasts
176. PEMSEA Eco-Camp Experience



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