PEMSEA/WP/2005/18

GEF/UNDP/IMO Regional Programme on
Partnerships in Environmental Management
for the Seas of East Asia

Proceedings of the Fourth Forum of the Regional Network of Local Governments Implementing Integrated Coastal Management

Building Better Coastal Governance through Stronger Local Alliance

Bali, Indonesia

26-28 April 2005

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PROCEEDINGS OF THE FOURTH FORUM OF THE REGIONAL NETWORK OF LOCAL GOVERNMENTS IMPLEMENTING INTEGRATED COASTAL MANAGEMENT

Building Better Coastal Governance through Stronger Local Alliance

GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)
RAS/98/G33/A/IG/19

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MISSION STATEMENT

The Global Environment Facility/United Nations Development Programme/International Maritime Organization Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) aims to promote a shared vision for the Seas of East Asia:

> "The resource systems of the Seas of East Asia are a natural heritage, safeguarding sustainable and healthy food supplies, livelihood, properties and investments, and social, cultural and ecological values for the people of the region, while contributing to economic prosperity and global markets through safe and efficient maritime trade, thereby promoting a peaceful and harmonious co-existence for present and future generations."

PEMSEA focuses on building intergovernmental, interagency and intersectoral partnerships to strengthen environmental management capabilities at the local, national and regional levels, and develop the collective capacity to implement appropriate strategies and environmental action programs on self-reliant basis. Specifically, PEMSEA will carry out the following:

- build national and regional capacity to implement integrated coastal management programs;
- promote multi-country initiatives in addressing priority transboundary environment issues in sub-regional sea areas and pollution hotspots;
- reinforce and establish a range of functional networks to support environmental management;
- identify environmental investment and financing opportunities and promote mechanisms, such as public-private partnerships, environmental projects for financing and other forms of developmental assistance;
- advance scientific and technical inputs to support decision-making;
- develop integrated information management systems linking selected sites into a regional network for data sharing and technical support;
- establish the enabling environment to reinforce delivery capabilities and advance the concerns of non-government and community-based organizations, environmental journalists, religious groups and other stakeholders;
- strengthen national capacities for developing integrated coastal and marine policies as part of state policies for sustainable socio-economic development; and
- promote regional commitment for implementing international conventions, and strengthening regional and sub-regional cooperation and collaboration using a sustainable regional mechanism.

The twelve participating countries are: Brunei Darussalam, Cambodia, Democratic People's Republic of Korea, Indonesia, Japan, Malaysia, People's Republic of China, Philippines, Republic of Korea, Singapore, Thailand and Vietnam. The collective efforts of these countries in implementing the strategies and activities will result in effective policy and management interventions, and in cumulative global environmental benefits, thereby contributing towards the achievement of the ultimate goal of protecting and sustaining the life support systems in the coastal and international waters over the long term.

Dr. Chua Thia-Eng
Regional Programme Director
PEMSEA

GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia

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PART I: SUMMARY REPORT OF THE WORKSHOP

A. INTRODUCTION

i. The Fourth Forum of the Regional Network of Local Governments implementing Integrated Coastal Management or ICM (RNLG) was organized by the GEF/UNDP/IMO Regional Programme for Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), jointly with the Ministry of Environment of Indonesia, and hosted by the Bali Provincial Government of Indonesia. The RNLG Forum was held at the INNA Grand Bali Beach Hotel in Denpasar, Bali, Indonesia, on 26 – 28 April 2005.

ii. The Forum was designed on the theme of "Building Better Coastal Governance through Stronger Local Alliance", aiming at consolidating lessons learned from ICM implementation, formulating strategies for sustaining ICM practices, and transforming the existing regional network of local governments into a self-sustaining, local government-driven one. Special focus was also given to the issue of coastal hazard management. Strategies for enhancing local capacity and institutional framework as well as raising public awareness for effectively addressing coastal hazards were identified within the context of ICM.

iii. The Forum program is provided in **Annex 1**.

iv. Ninety-five participants from ten countries of the East Asian Seas region as well as two countries outside of the Region and UNEP/GPA, attended the Forum. **Annex 2** contains the list of Forum participants.

B. OPENING CEREMONY

i. Opening remarks were delivered by Mr. Kesuma Kelakan, Vice Governor of Bali Provincial Government, and Dr. Chua Thia-Eng, Regional Programme Director, PEMSEA.

ii. A keynote address was delivered by the Minister of Environment, Mr. Rachmat Witoelar, and he also officially opened the 4th RNLG Forum.

iii. Highlights of the opening remarks and the keynote address include:

Mr. Kesuma Kelakan, Vice Governor of Bali Province, Indonesia

iv. The opening speech of the Bali Governor was delivered by Vice Governor Kesuma Kelakan. He declared that it was a great honor for Bali to be the host of the RNLG Forum, which brings together policy-makers, local government executives, experts, academe and other stakeholders from other countries of the region to share experience, lessons and knowledge concerning coastal governance.

v. He mentioned the great challenges in the management of coastal and marine areas, and the complexity of the problems, such as (1) rapid economic growth that has been accompanied by deterioration of environmental quality, depletion of resources, and loss of habitats and endemic species; (2) natural hazards, the effects of which have been aggravated by the loss of coastal habitats, which

provide shoreline protection; (3) competition for resources and authority; and (4) current single-sector management approach and inter-agency and cross-sector conflicts. Thus, there is a need for a holistic management approach, and policy and functional integration and coordination among various government agencies and sectors.

vi. With the support of PEMSEA, the southeastern coast of Bali has been implementing ICM. The provincial government is committed to support the ICM program by strengthening institutional arrangement and allocating financial and human resources to implement the Coastal Strategy. It will endorse the Bali Coastal Use Zoning Plan and Coastal Strategy Implementation Plan and launch the Beach Environmental Monitoring Program on 29 April during the Bali ICM Workshop, which will be conducted after this RNLG Forum. The replication of ICM in the northern coast of Bali will also be undertaken so that the entire coastline of Bali will be managed using the ICM approach.

vii. At the local level, he encouraged the other local governments to establish a home-base for ICM with an effective coordination function. At the regional level, he promoted networking among the ICM sites, and the continuation of cooperation and sharing of ideas and experiences in addressing the challenges and implementing and scaling up ICM practices. Finally, he encouraged concerned participants to develop and adopt a resolution for the establishment of PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG).

Dr. Chua Thia-Eng, Regional Programme Director of PEMSEA

viii. Dr. Chua voiced concerns related to inadequately planned and poorly managed economic development, which have resulted in loss of habitats, pollution and multiple-use conflicts, and thereby impaired the functional integrity of ecosystems, including productivity and natural defense against calamities. The latter was evident in the recent Indian Ocean tsumani tragedy.

ix. He pointed out that PEMSEA has been advocating for sustainable coastal development through the adoption and application of ICM. Over the past ten years, PEMSEA has been developing and verifying the concept and practices of ICM, and has established several ICM demonstration and parallel sites in the region. These sites provide information, experience, and technical and management know-how, which are valuable in the replication of ICM in other coastal areas across the region. To allow the sharing of views, lessons and experiences, and extending assistance to each other in the implementation of ICM, the RNLG was created in March 2001 during its first annual Forum held in RO Korea. The building of regional cooperation and partnership was developed further with the conduct of the second and third RNLG Forums in Xiamen, PR China (2002) and Port Klang, Malaysia (2003), respectively.

x. The 12 participating countries of the East Asian Seas Region signed the Putrajaya Declaration of Regional Cooperation for the Sustainable Development of the Seas of East Asia and adopted the *Sustainable Development Strategy for the Seas of East Asia* (SDS-SEA). The adoption of the SDS-SEA provides the participating countries with a common platform for regional cooperation and a

framework for policy and program development and implementation at the national and local levels, and enhances the collective efforts of governments and donor agencies to undertake ICM in a more coordinated way. In view of this, PEMSEA is collaborating with various UN agencies, international organizations, donors and private sector to provide financial incentives and means for local governments to implement ICM and investments in environmental infrastructure improvements. GEF and the World Bank will support the efforts to implement the SDS-SEA during the follow-on phase of PEMSEA. Linkage with GEF/UNDP Small Grants Project will also be established.

xi. Dr. Chua reiterated the need for firm political commitments and cooperation among the participating local governments for ICM to succeed. He encouraged the participants to share their insights, constraints and suggestions, and come forward with strong commitments to turn the Regional Network into a dynamic and self-sustaining mechanism, to be driven and owned by the local governments of the region.

Minister Rachmat Witoelar, Ministry of Environment, Indonesia

xii. Minister Rachmat Witoelar welcomed the participants to share experiences and perspectives regarding "Building Coastal Governance through Stronger Local Alliance" – the theme of the 4th RNLG Forum. The Indonesian Government acknowledges that good governance and appropriate development and management of marine and coastal resources would make a significant contribution to the attainment of the country's national economic objectives, namely, a growing and stable economy, increased and more diversified employment opportunities, and increased security and prosperity.

xiii. The Minister mentioned a number of human activities and their subsequent impacts on the environment and natural resource base. Rapid, uncontrolled urban and industrial development, massive coastal tourism development, inappropriate coastal engineering works, over-harvesting and conversion of mangroves and over-fishing have resulted in pollution, physical alteration, coastal land conversion, coastal erosion, displacement and degradation of habitats, and depletion of groundwater, fish stocks and other resources.

xiv. Aggravating these problems are issues related to lack of organizational mechanism that allows coordination and cooperation among the different agencies and sectors, lack of strategic direction in coastal and ocean management at the local and national levels, and the lack of scientific, technical and managerial capabilities. He pointed out that if the stresses and degradation were not mitigated, mounting bio-physical and economic externalities would increase the cost of development and could foreclose future development options. The interdependence of marine and coastal environment and the importance of linking economic, social and environmental aspects together in a holistic and integrated management approach must be recognized and considered to attain sustainable coastal and ocean development.

xv. The Minister noted that Indonesia has participated in the regional seas collaborative management program under the auspices of GEF/UNDP/IMO, starting in the pilot phase (MPP-EAS, 1994-'99) with the subregional

management of the Malacca Straits using risk assessment/risk management, and continuing in the current phase (PEMSEA, 1999-present) in Bali and Sukabumi using the ICM approach. With these two management approaches covering local and sub-regional seas, PEMSEA has demonstrated and strengthened coastal and ocean governance at the regional, national and local levels.

xvi. The Minister drew attention to the way that PEMSEA has been extending policy, technical and financial assistance to the establishment and operation of the RNLG, and encouraged the local and national leaders of the participating countries, international organizations, donors and other stakeholders to take solid actions and move the RNLG toward a self-sustaining form. The Indonesian government supports the mission and objectives of the PNLG, and called on the network members to adopt the "Resolution on the Establishment of PNLG" and commit to the implementation of the ICM Code of Conduct.

C. THE FORUM SESSIONS

1.0 SESSION 1: A Decade of ICM Practices in PEMSEA and ICM Initiatives in Indonesia

Chairperson: Dr. Effendy Sumardja (GEF Council Member, Indonesia)

i. This session discussed the progress and achievements, constraints and opportunities, lessons learned and other valuable experiences of ICM program development and implementation in PEMSEA ICM national demonstration/parallel sites. It also reviewed various coastal management initiatives in Indonesia. The session consisted of presentation of two theme papers and five panel discussions.

ii. The Chair introduced the topics and presenters of the Session Theme Papers as follows:

- "A Decade of ICM Practices in PEMSEA: ICM in Transformation" presented by Dr. Chua Thia-Eng (Regional Programme Director of PEMSEA); and
- "ICM initiatives, experiences and lessons learned in Indonesia" presented by Dr. Harsono Soepardjo (Chairman of the Center for Marine Studies at University of Indonesia).

1.1 Presentation of Session Theme Papers

Following is the summary of Session Theme Papers presentation:

A Decade of ICM Practices in PEMSEA: ICM in Transformation[1]

1.1.1 The concept of ICM was introduced to the East Asian Seas region more than 25 years ago when a training course on Integrated Coastal Zone Management (ICZM) was conducted in Bangkok, Thailand. ICZM was understood as a management approach for the protection and conservation of habitats. Since then, coastal resource management initiatives have multiplied rapidly, involving tremendous amount of financial and human resources, including the transformation of concept and practices as shown by the various acronyms used to describe the coastal management initiatives.

1.1.2 Some of the reasons behind the variations in typology/acronym include: (1) coastal management projects are donor-driven, and donors usually want their sponsored projects to be different; (2) the projects are led by scientists in the academic and research institutions, and the acronym depends on who is taking the lead; (3) lack of understanding of the concept, scale and level of management and operation; and (4) diversity of political, socioeconomic and cultural dimensions and traditional practices that necessitate an adaptive approach to management.

1.1.3 Notwithstanding the acronyms used, there are essential elements in achieving sustainable coastal management. These are: (1) intersectoral and inter-agency coordination; (2) policy and functional integration; (3) stakeholder consultation and participation; (4) institutional and legal arrangements; and (5) local capacity to plan, implement and manage. The geographical coverage must be clearly defined, as the word 'coast' implies the relationship between land and sea. 'Management' is another word often overlooked by science-oriented projects. While good scientific advice is essential in policy-making and effective coastal management, there is also a need to develop technical and managerial skills among political leaders and environmental and economic managers to enable them to resolve multiple-use conflicts and regulate human activities toward the sustainable use of the environment and natural resources. Thus, effective coastal management takes a long time to evolve.

1.1.4 The development of ICM demonstration sites has been an effective way to develop and strengthen coastal governance. By distilling information for knowledge transfer and consolidating on-the-ground experiences and good practices, the confidence and capacity of local leaders and environmental managers has been enhanced to pursue integrated management as a means to address multiple use issues in the coastal and marine areas. ICM results in integrated strategies and action plans, and reduces institutional and sectoral conflicts, creates investment opportunities, and allows for the integration of environment into the economic development agenda. ICM therefore appears to be the sustainable way to achieve the goals of Agenda 21 and the World Summit on Sustainable Development (WSSD) Plan of Implementation.

[1] The full text of the presentation is available in Tropical Coasts, July 2004, Vol. 11, No. 1, 4-11 pp.

1.1.5 Scaling up is the next challenge for coastal management. PEMSEA's adopted goal is to facilitate ICM program coverage of at least 20% of coastlines of the region by 2015. The challenge lies in enhancing the capacity of coastal managers to understand and optimize the dynamics of ICM for timely mobilization of political opportunities, financial resources, intellectual capital and stakeholders' support to improve coastal governance. A long-term programmatic approach for ICM implementation, backed up with conducive national coastal and ocean policy and resources, is urgently needed.

1.1.6 PEMSEA also aims to develop an ICM Code that can be applied by Local Government Units (LGUs). The ICM Code will provide the framework in meeting the requirements of ISO 14001. Conformance to the requirements of the ICM Code will enable LGUs to be recognized as a *PEMSEA ICM Site*. In turn, PEMSEA certification of ICM sites would ensure that the essential elements of ICM are in place, thereby promoting continual improvement of pollution prevention programs and the attainment of sustainable development goals and objectives.

ICM Initiatives, Experiences and Lessons Learned in Indonesia[2]

1.1.7 Dr. Harsono Soepardjo gave a brief background about Indonesia and the contribution of the coastal and marine resources to the country's development. Indonesia is an archipelagic country, consisting of 17,508 islands, and with a coastline of more than 81,000 km. Around 60% of the 200 million population live in the coastal areas. The coastal ecosystem provides food, minerals, energy, tourism values, etc., and generates 14 million jobs, thereby contributing 26.5% of the country's GDP. Because of this huge contribution, integrated coastal and ocean management is important.

1.1.8 The past and current coastal management projects, and the national coastal policy and laws were enumerated. Despite the numerous projects and efforts, there still remain significant gaps in skills, and institutional arrangements. The key issues that constrain Indonesia from implementing integrated coastal and ocean management (ICOM) include: lack of knowledge of coastal and marine resources and processes; undervaluation of coastal and marine resources; lack of empowerment of coastal communities and marine resource users; lack of clarity regarding legal authority and planning frameworks for ICOM; lack of institutional capacity to undertake ICOM; and lack of integration between initiatives because of the project-by-project approach to ICOM. There are considerable inter-regional variations in income and community development that defy generic solutions. A better understanding of the different challenges, interventions, policies and practices is required and implementing those that are applicable to the given situation.

1.1.9 The major elements of ICM, such as legal framework and institutional arrangement; coastal strategies and implementation; capacity-building; multi stakeholder consultation and participation; scientific input to management; and sustainable financial mechanism, were presented, along with the corresponding

[2] The full text of the presentation is available in Part III of this Proceedings.

lessons learned. The concept and approaches of integrated planning and management have been developed and implemented in Indonesia since early 1990s, however these need to be incorporated into national policy, while strengthening the connections between national, provincial and district governments. Commitment of local governments to apply ICM depends upon their understanding of ICM concepts and approaches as well as the benefits that can be obtained from such initiatives.

1.1.10 For the next five years, Indonesia will have to make serious efforts for sustainable management of its coastal and marine resources management to ensure food security, sustained economic development and improved quality of life for the majority of its population who live along the coast. Indonesia's experiences in developing and implementing ICM programs indicate the need for combining a long-term conceptual ICM process with short-term tangible outcomes. This may effectively maintain the trust and commitment of stakeholders to ICM initiatives. The short-term goals involve governance and institutional arrangements, in particular, the reform of natural resources governance, new laws on decentralization of management authority, the establishment of institutions with capacity and mandate to undertake ICOM, and the increased engagement of coastal resource users in decision-making forums. The medium-term goal is to build bilateral and multilateral support for ICOM in Indonesia to facilitate constituency- and capacity- building. The long-term goal is to engage the people of Indonesia to carry on the ICOM efforts, and push for public accountability and political will for sustainable management of resources. To achieve this, it will require the Indonesian public to be better educated about the diverse values of coastal and marine resources and their empowerment to be full partners in coastal and marine development.

1.2 Panel Discussion: Lessons Learned from ICM Implementation and Strategies for Sustaining ICM Practices

1.2.1 Through the panel discussion, the Forum participants consolidated lessons learned from ICM implementation and identified strategies for sustaining ICM practices. In particular, the panel discussion focused on the key elements of successful ICM implementation, including institutional arrangements, coastal strategy and implementation, capacity building, multi-stakeholder participation, and financing arrangements. The discussion was primarily based on the Progress Briefs on ICM implementation, prepared by PEMSEA ICM demonstration and parallel sites, as contained in Part II of these Proceedings.

1.2.2 Session Chair, Dr. Effendy Sumardja, introduced the theme and moderators of each panel discussion. First panel on Institutional Arrangement was moderated by Ms. Elizabeth Johnstone (Victorian Coastal Council, Australia); second panel on Coastal Strategy and Implementation by Dr. Jihyun Lee (Senior Programme Officer, PEMSEA); third panel on Capacity Building by Mr. Sudariyono (Deputy Minister, Ministry of Environment, Indonesia); fourth panel on Multi-Stakeholders Participation by Ms. Marilou G. Erni (President, Bataan Coastal Care Foundation, Philippines); and the fifth panel on Financing Arrangements by Mr. Heru Waluyo (Assistant Deputy to the Minister, Ministry of Environment, Indonesia).

Panel 1: Institutional Arrangements

1.2.3 This panel addressed: the institutional barriers in effectively addressing critical concerns in managing coastal environment and resources; the need for institutional reform to adopt and sustain ICM practices; experiences and new initiatives at PEMSEA sites for strengthening institutional mechanisms, such as enacting local ICM legislation and creating permanent inter-agency and multi-sectoral coordinating mechanism; the role of national policy in strengthening local coastal governance; and stakeholders involvement in institutional reform.

1.2.4 Four panelists joined the discussion. These were: Dr. Nong Thi Ngoc Minh (Vice Mayor of Danang City, Vietnam); Ms. Ir. Ni Wayan Sudji (Bali PMO Director, Indonesia); Dr. Kim Jong Deog (Korea Maritime Institute, RO Korea); and Dr. Tommy Purwaka (Indonesia).

1.2.5 Following is the summary of the panel discussion:

- Dr. Minh (Danang) addressed institutional issues that are recognized as major barriers to effective ICM implementation in Danang, Vietnam, including: unclear responsibility and scope of ICM management; lack of coordination and cooperation among different sectors and agencies; legal gaps, overlaps and inconsistencies; weak implementation and enforcement of laws and regulations; lack of data to support management; lack of skills and knowledge; and a low level of public environmental awareness, resulting in passive public participation. Such barriers have been quite effectively addressed with the establishment of an interagency, multi-stakeholder coordination mechanism, the Project Coordinating Committee (PCC), chaired by the Vice Chairman of Danang People's Committee. The limited participation of various stakeholders in the formulation of laws and regulations concerning the coast has resulted in laws, regulations and policies that do not address the constraints of the real situation. The recent government reorganization at the national level - the creation of the Ministry of Natural Resources and Environment as well as Vietnam Environmental Protection Agency and ICZM Division under VEPA - may provide opportunities for local governments to incorporate ICM into their institutional arrangements. The following considerations are being made with regard to strengthening institutional arrangements for sustainable ICM implementation: expansion and upgrading the Project Management Office (PMO); strengthening the Technical Advisory Group; strengthening PCC; and consultation and cooperation with relevant national agencies in preparing ICM legal and institutional arrangements.

- Ms. Sudji (Bali) informed the Forum participants that a final draft for the local ICM legislation had been prepared for stakeholder review and consultation. The draft was prepared based on an institutional analysis of national and local laws and regulations relevant to the implementation of ICM in Bali. The analysis illustrated the urgency to establish an institutional mechanism that can effectively coordinate relevant activities of concerned government sectors in the management, development and conservation of natural resources and environmental services of coastal areas. The proposal is to transform the existing PCC into a permanent structure, such as a "Provincial Coordinating

Committee for ICM". She also reported that a local regulation on the implementation of the Bali Coastal Use Zoning Plan had been prepared and would be approved soon.

- Dr. Kim Jong Deog (Korea Maritime Institute) explained the national level institutional arrangements for the environmental management of Shihwa Lake and coastal area, the Lake Shihwa Watershed Management Committee. He also informed the recent initiatives of the Korean government to enact the "Marine Ecosystem Conservation Act", which will strengthen existing efforts for protecting key marine habitats and biodiversity.

- Dr. Tommy Purwaka (Indonesia) highlighted various initiatives on coastal and marine management in Indonesia with different acronyms, and emphasized the importance of harmonizing legal and institutional arrangements based on the common perception on ICM, as it would be critical to building sustainable coastal governance.

Panel 2: Coastal Strategy Implementation

1.2.6 This panel discussed experiences of strategic planning and implementation at PEMSEA sites. Specifically, it discussed how the coastal strategy development facilitated the mobilization of the various stakeholders in implementing the ICM program, enhanced the ownership of the ICM program by stakeholders, changed the perception of political leaders, resolved multiple-use conflicts, and provided a framework for partnerships and cooperation among stakeholders. The panel also identified critical issues pertaining to the implementation of the coastal strategy such as prioritization of action programs, arranging necessary financial resources, capacity building requirements, and necessary policy and institutional reforms.

1.2.7 Five panelists joined the discussion. They were Vice Governor Sihara (PMO Director in Sihanoukville, Cambodia), Mayor Chatchai (Sriracha Municipality, Chonburi, Thailand), Ms. Sudji (Bali PMO Director, Indonesia), Mr. Mazlan (Port Klang PMO, Malaysia) and Mr. Alam Syah (Ministry of Environment, Indonesia).

1.2.8 Following is the summary of the panel discussion:

- Vice Governor Sihara (Sihanoukville) explained the important role played by the ICM program in Sihanoukville in protecting natural resources while promoting tourism development. With the decentralization policy and the devolution of administrative power to local governments, the approaches of ICM involving various stakeholders and encouraging community participation helped the Sihanoukville Municipal Government build its capacity in the planning and management of coastal resources. In particular, ICM enhanced local governance by: improving policy and legal framework; enhancing environmental planning and management; increasing public participation and awareness; promoting sustainable marine and coastal resource uses; improving water quality and waste management; connecting Sihanoukville Municipality with neighboring coastal provinces; and promoting coastal tourism and coastal economy.

- Mayor Chatchai (Chonburi) informed the Forum participants of the key achievements made in line with the implementation of the Chonburi Coastal Strategy, including the successful implementation of the floating mussel farm project; marine turtle conservation at Loi Island; public participation in waste water treatment; training of local fishermen on oil spill response; assessment of impacts associated with shipping activities; and water quality and habitat restoration after the construction of a new bridge to Loi Island, which allows water circulation. He highlighted that the efforts made in Sriracha municipality are currently being replicated in other coastal areas of Chonburi Province, Thailand.

- Ms. Sudji (Bali) presented Bali's efforts in the formulation and adoption of the Coastal Strategy Implementation Plan (CSIP), which will operationalize the Bali Coastal Strategy. The overarching premise for preparing the CSIP was to identify smaller, well-defined work elements that require less resources and are doable using local capacity. Essential elements for the successful implementation of the CSIP are partnerships and sustainability, which must be embraced by stakeholders and policy makers, as well as the willingness of the community and stakeholders to work together toward a cleaner, healthier and sustainable Bali. *Tri Hita Karana*, the Balinese traditional philosophy that became the founding principle of the Bali Coastal Strategy, would be a corner stone for promoting community engagement. A total of 46 action programs were identified in the CSIP in four areas including: education program; regulatory program; solid and liquid waste program; and habitats, natural resources and cultural sites program. Initial implementation of the CSIP will be facilitated by BAPEDALDA, and continuing efforts will be made to engage various partners who will commit their resources and expertise to the implementation of specific action programs. The Bali CSIP will be officially adopted by local policy makers and stakeholders on 29 April 2005 during the Bali ICM workshop.

- Mr. Mazlan (Port Klang) shared the experiences of Port Klang in developing and adopting the Port Klang Coastal Strategy, which became the framework of stakeholders participation and the implementation of on-ground activities in ICM implementation. Port Klang is currently making initiatives for preparing a coastal use zoning plan as well as strengthening institutional arrangements for integrated river basin and coastal area management.

- Mr. Alam Syah (Indonesia) addressed key elements involved in the development of a coastal strategy and implementation plan within the context of ICM program development and implementation. He pointed out that the critical element of the successful development and implementation of the coastal strategy lies in its formulation process: whether the public and other stakeholders have been effectively involved and consulted; whether scientific information has been adequately taken into account and assessed; and whether the process facilitated the stakeholder's feeling of ownership and thereby the commitments to the implementation. He also raised the issue of a manager's dilemma that the ICM manager has to go through a "lengthy" ICM development process, while facing the need for demonstrating on-the-ground outcomes within a short-term period.

Panel 3: Capacity Building

1.2.9 This panel addressed capacity building requirements at the local level in attaining a sustainable development goal. It discussed: how the ICM demonstration project helped strengthen local capacity; how to continue to build necessary local capacity for sustainable operation of the ICM program; and how to build a sustainable mechanism for capacity building, such as a national ICM training center/program.

1.2.10 Five panelists joined the discussion. They were Mr. Heru Waluyo (Ministry of Environment, Indonesia), Mr. Ri Song Il (Nampho, DPR Korea), Mr. Prak Visal (Sihanoukville PMO, Cambodia), Ms. Apiradee Sujarae (Former Site Manager at Chonburi PMO, Thailand), and Ms. Catur Yudha Hariani (Center for Environmental Education of Bali).

1.2.11 Following is the summary of the panel discussion:

- Mr. Heru (Indonesia) emphasized that the limited capacity in integrated planning and management would still be a major barrier to effective ICM replication and scaling-up. To address this issue, the Ministry of Environment of Indonesia is developing a national program for capacity building on sustainable coastal and ocean development, which consists of three key sub-programs : (1) Nation-wide capacity building program for local governments, which will enable them to take initiatives in developing and implementing an ICM program; (2) National performance award system for voluntary coastal management, which will adopt the ICM process and impact indicators; and (3) Site specific technical assistance and supervision program for local governments that are committed to implement ICM on a full-scale basis.

- Mr. Ri Song Il (Nampho) presented the progress and achievements made in Nampho and DPR Korea in general with regard to enhancing national and local capacity for ICM. In particular, he emphasized the strengthening of the monitoring laboratory in the West Sea Research Institution through their involvement in the ICM demonstration project, as well as the establishment and operationalization of the national ICM training center at Kim Il Sung University.

- Mr. Visal (Sihanoukville) and Ms. Sujarae (Chonburi), who were identified as typical examples of PEMSEA's ICM capacity building approach of "learning by doing", shared their experiences in working for the PMOs of national ICM demonstration projects. They explained: how they have gained their knowledge through the Regional ICM Training Course and various other on-site trainings, as well as interactions with Regional Task Force members; the key lessons gained through the actual involvement in ICM program implementation; and, more importantly, the confidence and leadership in addressing unforeseen challenges and issues arising from the daily operation of the ICM program dealing with various stakeholders with different interests and their own agenda.

- Ms. Catur Yudha Hariani (Bali) explained the role of the NGO in environmental education in Indonesia, focusing on the role of the

'Environmental Education Center (PPLH)' in Bali. With the increasing recognition on the importance of environmental education, as well as the role to be played by NGOs in environmental education, a national network of NGOs, the Environmental Education Network, was formed in Indonesia in 1996, of which PPLH was a member. The key activities that have been undertaken in Bali by PPLH include: environmental education with schools; a green team activity, which is coordinated by senior school students focusing on research, field work, journalism, and film production; a forum of teachers for environmental awareness; and environmental education of the community.

Panel 4: Multi-Stakeholders Participation

1.2.12 This panel discussed how the ICM framework and approaches facilitated the participation of multi-stakeholders in the planning and implementation of policies, strategies and action programs toward sustainable coastal development. In particular the panel addressed: how the common vision, which is shared by different stakeholders, was attained; how the responsibility, resources and benefits were shared; how the conflicts between different sectors were resolved; and how the partnerships between the public and private sectors were formed.

1.2.13 Five panelists joined the discussion. They were Ms. Anabelle Loyola (PG-ENRO Cavite/ ICM-Cavite PMO, Philippines), Mr. Pham Kim Son (Danang PMO Director, Vietnam), Drs. Yuyun Muslihat (Head of Sukabumi Regency, Indonesia), Mr. Dharma Putra (Bali), and Mr. Putu Agus Antara (Bali Tourism Board).

1.2.14 Following is the summary of the panel discussion:

- Using the example of ICM program development in the Cavite ICM Parallel Site, Ms. Loyola (Cavite) highlighted the importance of strong mass-based, multi-stakeholder involvement for successful implementation of integrated management. Cavite became PEMSEA's ICM parallel site with the signing of an MOA in March 2004. Within the Provincial Government, the PMO was established as an operational arm for the ICM program, and a multi-sectoral, inter-agency ICM Council was created with various levels of government including Provincial, Municipal or City Councils in nine coastal municipalities. The private sector also took the lead and formed a foundation, "Cavite for Sustainable Environment (CASE)" to support the ICM program by promoting corporate social responsibility among private sectors.

- Mr. Son (Danang) emphasized that the ICM program provided a framework and process for multi-stakeholders participation. He indicated that key institutional mechanisms facilitated involvement of various agencies and stakeholders, such as the PCC, Technical Advisory Group and Core Group of Communicators. He further explained how individual ICM project activities, such as risk assessment, integrated information management system, integrated environmental monitoring program, and public awareness activities, have facilitated the active participation of various stakeholders, community members and civil society groups such as the Women's Association, Farmer's Association, and Danang Youth Union. In particular, the development of the Danang Coastal Strategy, which involved a long consultation process, provided a significant learning experience to practice

broad-scale stakeholders involvement in the planning. Challenges ahead of Danang ICM include passive participation of some sectors, slow perception change, limited coverage of communication activities, different levels of understanding and knowledge among various stakeholders, sustaining the participation of stakeholders, and lack of strong commitment and voluntary cooperation among sectors.

- Drs. Yuyun Muslihat (Sukabumi) shared his experience in implementing the ICM program in the Sukabumi parallel site, by involving various civil society groups, the academe and relevant government agencies. As a result of partnership efforts among various stakeholders, the Coastal Strategy for Palabuhanratu Bay was prepared, envisioning the Bay as clean, beautiful, balmy and a sustainable coastal area. Under the framework of identified strategies, on-the-ground implementation activities are being undertaken by governments and various civil society groups.

- Mr. Dharma Putra and Mr. Putu Agus Antara (Bali) presented the "Tri Hita Karana" Tourism Award and Accreditation Program in Bali as a successful example of multi-stakeholder participation. The program was initiated by the Bali Travel News, and developed jointly by BAPEDALDA and BAPPEDA Bali to promote the sustainable tourism operation under the spirit of Tri Hita Karana. The number of hotels joining the competition increased from 62 in 2000 to more than 100 in 2005. A multi-stakeholder committee is involved in conducting the evaluation, and the joint action among the private sector (media group), local experts from university, and government agencies provides a strong foundation for the program implementation.

- The panel moderator, Ms. Erni (Bataan), summarized that the panelists showed examples on how stakeholders were engaged in their respective ICM sites. By getting the involvement of stakeholders from various agencies and sectors, the intersectoral and inter-agency coordination and cooperation was promoted, and eventually, concrete partnerships were developed. This has facilitated capacity-building toward the integrated management approach for the sustainable development of the coastal and marine areas. Then with ICM in place, a mechanism is put in place to resolve conflicts, and allow the sharing of resources. Commitment is cultivated not only among the local governments, but also among the other agencies, sectors and communities to implement ICM activities. The lessons learned, the good practices developed, and the achievements made encourage replication of ICM in other sites, and contribute to the sustainable development in coastal areas across the region.

Panel 5: Financing Arrangements

1.2.15 The panel discussed various issues related to financing arrangements to develop, implement and sustain the ICM program. Key issues and questions included: how to address barriers/constraints in mobilizing necessary financial resources for implementing a local coastal strategy; the need for alternative financing mechanisms for providing necessary environmental infrastructure and services at the local government level; the lack of political will and commitment to finance environmental investment; partnership building between public and private

sectors; and opportunities and limitations for local governments to get access to national and international investors and operating companies.

1.2.16 Four panelists joined the discussion. They were Governor Enrique T. Garcia. Jr., (Bataan, Philippines), Ms. Maria Corazon Ebarvia (PEMSEA), Mr. Zhou Lumin (Xiamen PMO Director, PR China), and Mr. I Made Anom Wiranata (Bali).

1.2.17 Following is the summary of the Panel Discussion:

- Governor Garcia (Bataan) explained the progress that the Bataan ICM program has achieved through a successful partnership between public and private sectors. Within the partnership, the Provincial Government supports the personnel of the PMO, while the Bataan Coastal Care Foundation mostly funds operational activities of the ICM project. Some examples of on-the-ground implementation, which are being undertaken under the framework of the Bataan Coastal Strategy, include: provision of alternative livelihood skills training and job assistance; anti-illegal fishing campaign; provision of legal assistance to fish wardens; strengthening law enforcement by involving community members (e.g., Text A Crime; leasing of a helicopter; etc.); mangrove rehabilitation and tree planting; and relocation of squatters living along the river banks and creeks. He also highlighted their initiatives on preparing a coastal use zoning plan to address multiple use conflicts involving fishing, aquaculture, tourism, and mangrove protection.

- Ms. Ebarvia (PEMSEA) informed the participants about the call for projects under the “GEF/UNDP Medium-Sized Project on the Development and Implementation of Public-Private Sector Partnerships in Environmental Investments”, and explained the key requirements and the procedures for application, the benefits to be derived by the stakeholders, and the role of PEMSEA in the PPP project development and implementation.

- Mr. Zhou Lumin (Xiamen) shared his experiences in establishing a sustainable financing mechanism for ICM program implementation in Xiamen. He introduced several strategies using the actual examples from Xiamen, including: incorporating the expenditure for ICM program implementation within the annual government budget (e.g. US$ 4 million of annual allocation for ICM in Xiamen); establishing a special fund for marine management using the revenue from the sea area user-fee scheme (US$ 1.2 million per year in Xiamen); strengthening the legislative system to secure necessary resources for environmental investment (e.g. Xiamen Environmental Protection Regulation requiring environmental investment of not less than 3% of total financial budget); expanding environmental investment through building partnerships between public and private sectors (e.g. Maluan Bay’s Integrated Treatment Project, involvement of Hong Kong investment company in the management of sewage treatment); and using the grant from an international programme (e.g. GEF/UNDP/IMO PEMSEA) as a catalytic funding for leveraging government investment.

- Mr. Anom (Bali) highlighted the importance of focusing on small-scale, doable projects for the effective implementation of the Bali Coastal Strategy in consideration of weak local capacity and limited government resources. He

also emphasized the need for involving various private sectors and business groups in coastal strategy implementation as well as securing the allocation of an annual governmental budget for ICM. He also raised the possibility of allocating a certain percentage of the revenue from coastal tourism facilities tax, for coastal preservation.

1.3 Session Conclusions and Recommendations

1.3.1 Dr. Effendy reiterated the key findings and recommendations from each panel discussion:

Institutional Arrangements

1.3.2 ICM provides a "Code of Conduct" for sustainable coastal development. The inherent difficulty in implementing ICM is that it has no 'home base' within the traditional institutional setting of ocean and coastal governance, which are mostly single sector-based. With increased economic development, globalization and changing consumption patterns, however, there is a need to have a broader perspective and adaptive approach in addressing resource and environment management issues, in particular in the coast and ocean, and therefore institutional arrangements involving cross-linkage and cross-sectoral approaches become essential.

1.3.3 Integration and harmonization across different policy objectives, legislation and management arrangements is a challenging task in implementing ICM. A common set of values, clear goals toward sustainable development, and a longer term advocacy will enable improved implementation of ICM. Establishing an inter-agency and cross-sectoral coordinating mechanism that can harmonize various sectoral interests and policy priorities is the key to successful ICM implementation. National policy, legislation and an institutional framework for integrated management can thus catalyze local implementation of ICM.

1.3.4 The development and implementation of a coastal use zoning plan in many PEMSEA ICM sites, such as Xiamen, Bali, Danang, and Sihanoukville, facilitated the development of institutional arrangements and a mechanism to reduce or resolve multiple-use conflicts. Ensuring inputs from science, while taking into account the diverse perceptions of community members, should be the foundation for strengthening institutional mechanisms for integrated management.

Coastal Strategy Implementation

1.3.5 Coastal Strategy provided a long-term policy framework for achieving sustainable development, which facilitated mobilizing local partnerships and cooperation among various stakeholders in the implementation of the ICM program. It enhanced the awareness of political leaders as well as community members on the values, issues and threats, actions to address risks, and development opportunities of their coastal resources and environment. It provided stakeholders with a common, long-term vision for their coastal area. It promoted development of appropriate institutional arrangements for long-term, sustainable operation of ICM by identifying specific roles and responsibilities of different

stakeholders toward realizing their common vision of the area. It provided a practical and comprehensive guide to donors and the private sector for investments in environmental services and facilities as well as other environmental and resources management initiatives.

1.3.6 Prioritization of action programs based on assessment of priority risks, local capacity and existing resources is a key process to operationalizing coastal strategy and incorporating it into local development programs. Political will, stakeholders' commitments, capacity building, and mobilization of available local and national resources are critical to the successful implementation of the Coastal Strategy. There is a need to bridge the long-term aspects of the Coastal Strategy with the requirement to demonstrate benefits on-the-ground within the short-term period.

Capacity Building

1.3.7 ICM itself is a learning process, both technical and managerial, and thus capacity building and human resource development should be seen within the context of ICM. The whole process of ICM learning involves personal development, connecting people from different disciplines, confidence gaining and leadership building. Therefore, building local capacity was the key factor to the successful implementation of ICM and component activities. PEMSEA RPO's support and technical assistance were effective in developing local capacity to implement the ICM program. In particular, among others, significant improvements were made in the establishment of an information management system, which allowed sharing of information and provided support to decision-making, environmental monitoring, coastal use zoning, and training of trainers for ICM implementation and replication.

1.3.8 Public awareness building, community participation, and a process of dialogue and consultations enhanced the knowledge and understanding of the community members. NGOs and academe played a crucial role, especially in initiating environmental education among school children and in the communities.

1.3.9 At the national level, coordination and technical assistance by the national government will be crucial to sustain continuous building of local capacity in the coastal areas. At the regional level, working together and sharing experiences among the ICM sites in the EAS region through regional networking should be an essential part of future capacity building efforts.

Multi-Stakeholders Participation

1.3.10 For successful involvement of multi-stakeholders in the planning and implementation of the ICM program, the following strategies were suggested by the panel:

- Recognize strengths, capabilities, skills and knowledge requirements of stakeholders;
- Improve capability-building in managing the ICM program and projects at the local level;

- Develop cross-functional programs, clarify roles and responsibilities of each stakeholder group, and explain synergy from sharing information and combining resources;
- Integrate programs with social and economic development programs;
- Pursue programs that will create both short- and long-term impacts and benefits; and
- Improve communication and coordination to build strong partnerships.

Financing Arrangements

1.3.11 Securing long-term and stable financial support, by incorporating the ICM budget into the annual government budget, facilitates the successful implementation of ICM.

1.3.12 Small and medium-sized LGUs do not have necessary capacity for environmental investment projects, and thus, are in need of building strategic partnerships with the private sector. Building strategic partnerships with various stakeholders, in particular the private sector, NGOs and People's Organizations, international organizations and donors, facilitates the mobilization of necessary resources for ICM program implementation. Securing political and stakeholders' commitment and providing an adequate policy and legal environment are critical in attracting private sector investment.

1.3.13 Application of user's fee can provide an alternative financing mechanism to support environmental management initiatives. Providing alternative livelihood programs to community members promotes their voluntary participation in sustainable use of resources and conservation efforts. Support from international organizations and the regional programme is needed to assist local governments to adopt new ideas, develop a management framework, and build local capacity.

2.0 SESSION 2: ICM and Coastal Hazard Management

Chairperson: Dr. Wong Poh Poh (National University of Singapore)

i. The Chair opened the session by introducing the topics and presenters. This session was put up in response to the Indian Ocean tsunami tragedy last December 2004. The session discussed: its impacts on fisheries, coastal resources, tourism and other human environment; lessons learned from the tragedy; measures to reduce natural and man-made disasters; strategic framework for coastal hazard management; and the role of ICM in mitigating risks from disasters. The session consisted of presentation of six theme papers and a panel discussion.

ii. The Chair introduced the topics and presenters of the Session Theme Papers as follows:

- "Lessons learned from Indian Ocean tsunami tragedy: Impacts on Aceh, Indonesia and its reconstruction program" presented by Dr. Agus Prabowo (Indonesia);

- "Impacts of tsunami on fisheries, coastal resources and human environment in Thailand" presented by Mr. Pedro Bueno (NACA);
- "Managing the coastal zone: What lessons to draw from the tsunami" presented by Dr. Anjan Datta (UNEP/GPA);
- "Coastal tourism, habitat restoration and hazard management" presented by Dr. Wong Poh Poh (Singapore);
- "Disaster risk reduction strategies and sustainable development" presented by Mr. Danilo Bonga (PEMSEA); and
- "ICM as a framework for coastal hazard management" presented by Ms. Ingrid Narcise (PEMSEA).

2.1 Presentation of Session Theme Papers

Following is the summary of the Session Theme Papers presentation:

Lessons learned from the Indian Ocean tsunami tragedy: Impacts on Aceh, Indonesia and its reconstruction program

2.1.1 Dr. Agus Prabowo presented the damage and impact of the tsunami on Aceh. Coastal habitats like mangrove and coral reef as well as important coastal activities, (i.e., fishery; aquaculture; and agriculture) were significantly damaged. Ground and surface water contamination, solid waste and debris remain as big problems. The statistics on damage were also complemented by the presentation of before and after satellite images showing changes in the sedimentation and the coastline as well as the trench and volcano pattern and the earthquake and active tectonic zones. To rebuild Aceh, Dr. Prabowo enumerated the principles that call for restoring the environment's carrying capacity, the natural resource-based economy, and the local government's capacity to govern. It also must use existing socio-cultural approaches to involve communities while at the same time anticipating the risk of a similar natural disaster happening in the future. To operationalize these principles, Dr. Prabowo presented the spatial plan for Aceh, highlighting areas to be designated as greenbelts and no-build zones and the need to implement a stricter building code.

2.1.2 Dr. Prabowo articulated that currently, the local government is totally disabled and requires full support from the central agencies. When queried on how to resolve land ownership, he admitted that the property rights issue is the most difficult one given that legal documents were also obliterated as an aftermath of the tsunami. For people who want to rebuild on their former land, they must present community witnesses to establish their ownership. For people who wish to rebuild on areas now designated as no-build areas, the government encourages a transfer to less risky areas through a compensation for their former land.

Impacts of tsunami on fisheries, coastal resources and human environment in Thailand[3]

2.1.3 Mr. Pedro Bueno presented the damage profile of the economic sectors in Thailand, in which tourism accounted for the highest economic loss, followed by fisheries, and to a lesser degree by the agriculture sector. Variable impacts on corals, seagrasses, mangroves and coastal forests, parks and wildlife and the human environment were also discussed. In response, the rehabilitation plan for both tourism and fisheries were examined in terms of immediate-, medium- as well as long-term plans. The tourism plan calls for coastal and marine habitat rehabilitation, promoting eco-tourism and implementing multiple use zoning. The fisheries rehabilitation plan aims to rebuild livelihoods, rehabilitate coastal and fisheries resources, and build capacity to prepare for future natural threats. However, the plans have to contend with issues of rebuilding quickly, land tenure as well as access to resources. As an adjunct, three fundamental principles must guide the rehabilitation: putting people first; rehabilitating the production-market chain; and pursuing the objectives in line with international and regional agreements and guidelines.

Managing the coastal zone: What lessons to draw from the tsunami[4]

2.1.4 Dr. Anjan Datta articulated the 12 Cairo Principles adopted during the meeting last 17 February 2005 in Cairo, Egypt, convened by UNEP together with governments and other partners to discuss coastal zone rehabilitation and management in the tsunami-affected region. Cognizant of the arduous process to rebuilding devastated lives, the principles serve as a roadmap that can enable affected communities to sequence their actions following a common set of priorities. Likewise, the Cairo principles call for collective commitments to rehabilitate and protect communities in order to build conditions that are more sustainable and more equitable than those present before the tsunami struck.

Coastal tourism, habitat restoration and hazard management[5]

2.1.5 Dr. Wong Poh Poh provided an overview of some related critical issues on coastal tourism, habitat restoration and hazard management. He emphasized that coastal tourism in Southeast Asia developed in a spontaneous and unplanned manner, (e.g., no proper setbacks; and environmental destruction and degradation), resulting to undesirable impacts. The aftermath of the tsunami had added another layer of complexity, as reconstruction needs to tackle issues on land tenure, resettlement, and the type and extent of redevelopment. The presentation also emphasized the restoration of the coastal ecosystem damaged during the tsunami, given the validation of their role as natural defense walls. But this time, the restoration must be hinged on the involvement of tsunami-affected communities and the restoration of their livelihood. The presentation posited a paradigm shift in integrating hazard management into coastal management. The strategies to reduce a community's risk to coastal hazards were stated in terms of their immediate, medium- and long-term needs. Some of these included public education, integration of coastal ecosystem rehabilitation with aquaculture and

[3] The full text of the presentation is available in Part II of this Proceedings.
[4] The full text of the presentation is available in Tropical Coasts, July 2005, Vol. 12, No. 1, 24-29 pp.
[5] The full text of the presentation is available in Part II of this Proceedings.

agriculture, and a regional warning system. Specifically for Aceh, Dr. Wong suggested the following: using off-road vehicles to create public awareness on earthquakes and tsunamis; focusing on restoration of people's dignity by reducing their vulnerabilities; and selecting suitable ICM sites that include hazard mitigation.

Disaster risk reduction strategies and sustainable development[6]

2.1.6 Mr. Danilo Bonga's presentation emphasized that the tsunami tragedy has now become the focal point of the renewed emphasis on how to deal with disasters. Although numerous initiatives were started in the last 30 years, the recent Kobe World Conference on Disaster Reduction was thrust into more prominence due to the tsunami. The Conference adopted the Hyogo Framework for Action 2005-2015: Building Resilience of Nations and Communities to Disasters and its five strategic actions in the next ten years. Mr. Bonga described the principles underpinning such risk reduction strategies and focused on addressing vulnerability to disasters and how to create the culture of prevention, safety, and preparedness to prevent disasters from occurring. A number of case studies in East Asia were presented that articulated some of the significant components which support the Framework – early warning systems, life-saving belts, land-use planning, management-based research and partnerships. The presentation concluded with a call to action to apply strategies which already have been codified, and mainstream risk reduction into development planning.

ICM as a framework for coastal hazard management[7]

2.1.7 Ms. Ingrid Narcise made a presentation on how ICM contributes to hazard management and how it can be further strengthened to support risk reduction strategies. She emphasized that there is no need to reinvent the wheel as the ICM implementation arrangements, processes, tools and applications are already in place and serve as an effective platform to support hazard management considerations. The presentation demonstrated that ICM is serving as a cost-effective tool for disaster reduction. ICM can be further strengthened through incorporation of elements of both man-made as well as natural hazard management into ICM activities and practices. Likewise, existing ICM tools offer convenient frameworks. While environmental risk assessment is an essential starting point, this can be supported by environmental profiling, integrated information management, development and implementation of Coastal Strategy, coastal use zoning, and integrated environmental monitoring program. The presentation reiterated that it is imperative to instill "hazard thinking" into various facets of management and the public consciousness.

2.2 Panel Discussion

2.2.1 This panel addressed local concerns in improving the preparedness, response system and mitigation measures to natural and man-made disasters. It discussed possible approaches for increasing public awareness and building local capacity as well as distilling from the information presented on how these strategies can

[6] The full text of the presentation is available in Part II of this Proceedings.
[7] The full text of the presentation is available in Tropical Coasts, July 2005, Vol. 12, No. 1, 16-23 pp.

effectively integrate coastal hazard management with the framework and processes of ICM.

2.2.2 Three panelists joined the discussion. They were Vice Governor Pisit (Chonburi, Thailand), Mr. John Ginivan (Australia), and Dr. Jihyun Lee (PEMSEA).

2.2.3 Following is the summary of the panel discussion:

Vice Governor Pisit Boonchoang (Chonburi)

- Vice Governor Pisit acknowledged that the tsunami has brought greater awareness on the need to institute measures like early warning systems and disaster preparedness plan and to strengthen environmental management with the application of ICM to mitigate impacts of natural hazards. He knew that although Chonburi has yet to deal with such natural devastation, there is the need to become more vigilant and not to become complacent to risks from disasters that may happen. Chonburi however, at the present, puts emphasis on instituting measures to reduce impacts from man-made hazards like industrial accidents, oil spills, pollution and environmental degradation. Vice Governor Pisit emphasized that designating Chonburi as an ICM demonstration site was instrumental to fast tracking actions to address the above concerns. He, in turn, pledged to support the formulation of regulations and implementation of activities consistent with marine and coastal management. In closing, he encouraged enhanced integration, participation and ownership to the effective practice of ICM. He remarked that the real definition of management is how to get things done and for this he draws inspiration from two famous persons: the former US President Bill Clinton who said, “Dream and cherish your dream, someday miracles will happen” and the Thai PM who said, “Always give to the public … losers always see problems in every solution, but winners always see solutions in every problem”.

- Dr. Wong Poh Poh appreciated that without experiencing devastating natural hazards, Chonburi is instead addressing human-induced disasters, instituting measures that can address mitigation to both kinds of hazards. In addition, he also quoted former US President Ronald Reagan, in a speaking engagement in China, who said, “In every crisis there is an opportunity”.

Mr. John Ginivan (Victoria)

- Mr. Ginivan underscored that the commitment to emergency risk management is vital because it enables leaders and managers to understand potential risks and likely consequences which in turn form the basis for the strategies to either increase safety or reduce the risk. For risks that cannot be eliminated, a vigorous campaign to instill the culture of mitigation is imperative through the effective building of a code of conduct, awareness, early warning systems, community engagement and communication tools. He also emphasized that the ICM framework and its inherent processes for planning, restoration and capacity building help create strategies to mitigate risks and impacts of natural hazards. He cited the cases of Vietnam, China and Australia, which have adopted three fundamental measures for effective

reduction of disasters: preparation at all levels for natural events; an early and effective warning; and a commitment to using nature to protect from nature. For him, the operative phrase to reduce risk of disaster is to 'live within the limits of the environment.' However, he pointed out that there are no simple solutions as the whole process is a learning, evolutionary and an adaptive experience – as we learn more, we understand more.

Dr. Jihyun Lee (PEMSEA)

- Paraphrasing Kofi Annan, Dr. Lee posed the following question: How many among local governments are willing to invest now [on risk reduction strategies] for the benefits in the distant future [the disasters that did not happen]? It boils down to acquiring political commitment to reduce vulnerability and the application of the lessons learned. The challenge thus is how to incorporate hazard management into existing coastal governance and how to apply the principles on-the-ground. She emphasized that most of the key elements that are being practiced in ICM would in fact enhance the capacity of the local governments in addressing hazard management: multi-sectoral, interagency approach; political and stakeholders commitments; effective resource allocation, guidelines for on-the-ground implementation; coordination and partnership building; accountability and transparency; effective communication; and monitoring and evaluation.

- Vice Governor Pisit added that we have to realize that the very nature of human beings is to maximize self interest and if we want to get things done, we have to do every means to make people realize that the issue of disaster is in their own interest.

- Dr. Lee concluded that getting things done means being ready to commit and mobilize interests to achieve a common goal.

2.2.4 Following is the Summary of the open discussion:

- Addressing Vice Governor Pisit, Mr. Pedro Bueno reframed the "winners and losers" concept by using the polluter pays principle. He said that the 'winners' are those who benefit from but cause pollution and do not pay and the 'losers' are those who suffer from pollution caused by the winners.
- Vice Governor Pisit remarked that there will be no losers if regulations are working well. He said that the major problem in Thailand and other areas is the failure of law enforcement. He noted that generally local factory owners simply pay local taxes and disregard with impunity the stipulated rules and regulations. For him this must be corrected.

- Mr. Pedro Bueno suggested creating a market, e.g., for cleaner shores while Mr. John Ginivan described Victoria's strategy is to make people understand what ecosystem services are and what they contribute to economy.

- Mr. Dharma Putra addressed the following questions: What are the practical actions that can be taken at the local level, to incorporate coastal hazard management into the framework of ICM? How should we deal with bureaucracy and put greater emphasis on transparency?

- Dr. Lee explained how the concerns on coastal hazard management were addressed, to a different extent, in formulating the SDS-SEA as well as local Coastal Strategies. She emphasized that putting in place an effective mechanism for the implementation of SDS-SEA as well as local coastal strategies would greatly enhance the capacity for coastal hazard management, in particular when the action programs are strengthened by the knowledge and experiences of disaster management experts and local practitioners. She also indicated that the ICM framework, allowing multi-stakeholder participation, contributed a lot to ensuring transparency, citing Bali's case of multi-stakeholder participation in the process of coastal use zoning development, which resulted in a policy decision to stop the airport construction project in Benoa Bay addressing its potential adverse ecological impacts.

- Dr. Chua Thia-Eng extended his appreciation for the very good information and advice from the theme paper presenters and the panelists. The challenge though is how to put the wisdom, articulated during the session, into action. Given that the risk to disaster has become commonplace and has increased the vulnerability of people living at the coasts, there is a need to move quickly and institute immediate actions. He urged the ICM sites not to wait until a disaster happens, but instead keep the momentum gained from implementing the ICM processes, institutional arrangements and tools. The operative challenge is how to include both the natural and man-made hazards into the ICM processes.

2.3 Session Conclusions and Recommendations

2.3.1 Dr. Wong Poh Poh wrapped up the session by reiterating that natural hazard mitigation and the strategies for reducing vulnerability to man-made hazards can now be operationalized in PEMSEA sites. There are enough methodologies on coastal habitat restoration and environmental management, and we should not wait too long to put these things together. It is imperative to put the necessary measures into existing ICM processes. Learning from the tsunami disasters means putting into action the wisdom that has been articulated as well as ensuring that the lessons be shared with various stakeholders.

3.0 SESSION 3: Better Coastal Governance through Stronger Local Alliance

Chairperson: Dr. Chua Thia-Eng (PEMSEA)

i. This session reviewed the draft Resolution on the establishment of the PNLG and considered it for adoption. The session consisted of presentation of the draft resolution and panel discussion afterwards.

ii. The "Draft Resolution on the Establishment of the PEMSEA Network of Local Governments for Sustainable Coastal Development" was presented by Dr. Jihyun Lee (PEMSEA).

3.1 Presentation of Draft Resolution

Following is the summary of the presentation:

Draft Resolution on the Establishment of the PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG)

3.1.1 As a background to the development of the draft resolution, Dr. Lee provided the history of the establishment and operation of the RNLG as well as the demonstration and replication of ICM efforts in the East Asian Seas region over the past decade. She highlighted PEMSEA's target of ICM, as part of SDS-SEA implementation, to cover at least 20% of the region's coastlines under some form of coastal management program by 2015. Such demand for ICM replication and scaling-up brought about the need to transform the existing regional network into a self-sustaining, local government-driven network and a driving force for enhancing local coastal governance.

3.1.2 She explained the mission, code of conduct for the PNLG members, membership eligibility, potential benefits as well as roles and obligations of the PNLG membership, and the establishment of a secretariat as proposed in the draft resolution. The member local governments were invited to review the draft resolution and consider it for adoption.

3.2 Panel Discussion

3.2.1 The panel addressed views and commitments of local governments to the establishment of PNLG, in particular the Code of Conduct for the PNLG members. It also identified effective strategies for sustaining the local government network.

3.2.2 Four panelists joined the discussion. They were Vice Governor Mr. Kesuma Kelakan (Bali, Indonesia), Vice Mayor Minh (Danang, Vietnam), Ms. Elizabeth Johnstone (Australia),and Dr. Hur Ock Yung (Former Mayor, Haewoondae, RO Korea).

3.2.3 Following is the summary of the panel discussion:

- As representatives of national ICM demonstration sites, the Bali Vice Governor and Danang Vice Mayor appreciated PEMSEA's efforts to enhance the cooperation and collaboration among local governments through the regional networking. They recognized the need and value of transforming the existing regional network into the PNLG, expressing their commitments to the proposed mission and the code of conduct and recommending the adoption of the draft resolution.

- Ms. Johnstone shared her experiences in Victorian Coastal Council, in particular introducing the institutional arrangements as well as various challenges involved in the implementation of the Victorian Coastal Strategy. She emphasized that local alliances are fundamentally important to good planning and management, and that institutional and administrative arrangements within jurisdictions need to explicitly encourage active

participation in policy development and the identification of innovative solutions. By providing examples of local alliances related to ICM, such as Coast Action, Coast Care, and Marine and Coastal Community Network in Australia as well as ICLEI at the international level, she pointed out that duplication of efforts need to be avoided.

- Appreciating PEMSEA's efforts for building a regional collaborative mechanism for the implementation of SDS-SEA, Dr. Hur suggested a macroscopic approach of building local alliance in light of regional level partnership building and institutional mechanism. For effective ICM replication and scaling-up, she emphasized the need for a firm consensus building mechanism among countries based on a regional agreement alongside the voluntary partnership approach. To address key challenges, such as lack of awareness and lack of obligation, and to build stronger local alliance, she suggested the following as key prerequisite: understanding of the local political and administrative situation; establishing a local network of LGUs within each country; development of local-friendly action manual; strengthening local autonomy and capacity building; and organization of a supporting group to PEMSEA comprised of high-level policy makers.

3.2.4 Following is the summary of the open discussion:

- Dr. Kim Jong Deog (ROK) expressed the need to invite university and/or research institutions as associate members. Dr. Chua clarified that the nature of membership, e.g. full member or associate member, would be further articulated in the preparation of the PNLG Charter.

- Mr. Zhou Lumin (Xiamen) appreciated PEMSEA's efforts for introducing ICM to China and Xiamen, and expressed the support of Xiamen Municipal Government to the establishment of the PNLG, recognizing the useful role to be played by the PNLG. On behalf of Xiamen Municipal Government, he offered hosting the secretariat of the PNLG, which would involve the provision of office facilities and equipment, staff, and an annual operational budget of at least US$ 10,000/ year.

- The representatives from DPRK, Sihanoukville, Port Klang, Cavite, and Sukabumi expressed their support and commitments to the establishment and sustainable operation of the PNLG as proposed in the draft resolution.

- Regarding the concern on the economic implications of the PNLG participation raised by Mr. Ri Song Il (Nampho), Dr. Chua suggested that the details of the specific arrangements be discussed between PEMSEA RPO and the concerned governments, with an understanding that the commitments of local governments to the code of conduct would be a prerequisite.

- Dr. Minh, Vice Mayor of Danang, expressed the interest of the Danang Municipal Government to host the Forum in 2007, following the Forum scheduled in December 2006 as part of the EAS Congress 2006.

3.3 Session Conclusions and Recommendations

3.3.1 The Forum participants adopted the "Resolution on the Establishment of the PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG)" without any modifications, as attached in **Annex 3**.

3.3.2 The representatives from Bali, Bataan, Danang, RO Korea and Xiamen volunteered to join the working group that will prepare the draft PNLG Charter, identifying the details of the network structure and operating modality, membership eligibilities, benefits, roles and obligations of the network members, in consultation with other member local governments.

3.3.3 The member local governments welcomed, with appreciation, the offer of Xiamen Municipal Government to host the PNLG secretariat, and requested the RPO to provide the Xiamen Government with the necessary support to the establishment of the PNLG secretariat, in particular the capacity building of local staff.

3.3.4 The member local governments recommended that the inaugural meeting of the PNLG be organized as part of the EAS Congress 2006 and during the meeting, the draft PNLG Charter be reviewed and considered for official adoption.

3.3.5 The member local governments welcomed, with appreciation, the offer of Danang Municipal government to host the annual Forum scheduled in 2007.

4.0 CLOSING OF THE FOURTH RNLG FORUM

4.1 The Forum was closed by Mr. Heru Waluyo, Vice Governor Mr. Kesuma Kelakan, and Dr. Chua. They congratulated the participants for the successful conclusion of the Forum, in particular the adoption of the Resolution on the establishment of the PNLG, and the informative and dynamic discussion and exchange of ideas among the participants. Dr. Chua extended his special thanks again to the Ministry of Environment and Bali Provincial Government for graciously hosting and co-organizing the 4th RNLG Forum.

4.2 The meeting closed at 5:00 p.m., 27 April 2005.

5.0 FIELD TRIP

5.1 The Forum Participants joined the field trips to the coastal areas of Bali, which was organized by the Bali PMO. The summary report of the field trip is attached in **Annex 4**.

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PART II: SUMMARY REPORT OF THE PMO DIRECTOR'S MEETING

PMO Directors' Meeting

(28 April 2005, 7:00-8:30 a.m.)

Chairperson: Dr. Chua Thia-Eng (PEMSEA)

A. Introduction

i. About 30 representatives from the Project Coordinating Committees and the Project Management Offices of National ICM demonstration and parallel sites attended the Meeting. The Chair opened the meeting by presenting the agenda which included: 1) terminal evaluation; 2) plans for 2005 to 2007; 3) future of PEMSEA after 2007; 4) 2nd EAS Congress and 5th RNLG/1st PNLG Meeting; 5) operationalization of the PNLG; 6) other potential funding sources; and 7) common operational issues related to project management. On each agenda, the Chair provided briefings as follows:

1.0 Terminal Evaluation

1.1 Dr.Chua informed the participants that Terminal Evaluation of the Regional programme would be undertaken in October 2005. The Terminal Evaluation mainly aims at assessing the relevance, suitability, impact and effectiveness of the strategies, project design, implementation methodologies and resources allocations that have been adopted under the Regional Programme for the purpose of achieving the objectives stated in the project document. He explained necessary preparations, including the preparation of site terminal reports and field visits, for the conduct of the successful evaluation, and requested the full cooperation of the PMOs. RPO will provide the sites with the relevant guidelines and specific field visit schedule in due course.

2.0 Plans for 2005 to 2007

2.1 The Programme is being extended to December 2006 but field activities at the sites need to be completed by December 2005. The Memorandum of Agreement (MOA) with the sites will expire in September 2005, and further extensions have to be discussed depending on the interest of the sites. Even without MOA extension, the sites can continue the relationship with PEMSEA through the PNLG. After 2006, the ICM sites should be moving into ICM certification. PEMSEA is currently developing a system for recognizing outstanding performance of ICM implementation.

3.0 PEMSEA after 2007

3.1 After 2007, the ICM demonstration and parallel sites will need to learn to be sustainable like Xiamen. They will need to learn how to attract funding for their activities. They should use the Coastal Strategy (CS) and the CS Implementation Plan (CSIP) as a key framework in leveraging funds, and work with donors and other partners who are willing to support the implementation of the CS and CSIP. Future partnerships should work within the concept of the CS.

4.0 2nd EAS Congress and 5th RNLG/1st PNLG Meeting

4.1 The EAS Congress will most likely be held in Hainan, China. This will be a big event that will gather together government leaders, policy makers, environmental managers, technical experts, academics, private sector, non-government organizations, donors, and other sectors from within and outside the region. The EAS Congress will be a tri-annual forum to discuss and monitor the implementation of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA). The 5th meeting of the RNLG, which will be considered the 1st meeting of the PNLG, will be one of the concurrent events during the Congress. The PNLG meeting will be highlighted by the signing of the PNLG Charter.

5.0 Operationalization of the PNLG

5.1 Xiamen, China has offered to host the Secretariat for the PNLG and to provide the necessary organizational resources. The PNLG Charter which will be drafted by a team composed of representatives from Xiamen (China), Danang (Vietnam), Bali (Indonesia), Bataan (Philippines), and R.O Korea, will have to be completed by the end of this year. Danang has offered to host the 6th RNLG/2ND PNLG Meeting on 2007. The challenge for Danang, Bali, Xiamen, and other sites is to move towards ICM certification.

6.0 Other Potential Funding Sources

6.1 Various donors and funding sources have been approaching the representatives from the ICM sites offering interest in potential collaborations. PEMSEA is encouraging the expansion of site operations through collaborations with other partners. PEMSEA is also willing to provide assistance in facilitating these new partnerships as long as this will be working within the framework of the coastal strategies.

7.0 Common Operational Issues Related to Project Management

7.1 The Chair opened the floor to discussion of operational issues that the sites have experienced in ICM implementation. Following is the summary of the discussion:

7.2 Ms. Ni Wayan Sudji (Bali) brought up the issue of budget preparations for the participation in the next RNLG meeting. Dr. Chua encouraged the sites to incorporate in their local government funds the budget to attend the RNLG meetings. This will facilitate the evolution of the RNLG/PNLG from a project-based to a local government-driven endeavor where sister city-relationships or sustainable coastal city-relationships could be developed.

7.3 Ms. Annabelle Loyola (Cavite) inquired about the organizational structure of the network. Dr. Chua advised that this will be addressed in the development of the Charter. The network will also continue to work under the PEMSEA umbrella until it is strong enough to stand on its own. There are various benefits from being recognized as a UN initiative, including not being required to register to a specific country. In the EAS Congress 2006, the Charter will be signed and the operational modality will be finalized.

7.4 Ms. Loyola inquired further about the future of PEMSEA after 2007. Dr. Chua clarified that PEMSEA will still exist after 2007 but as a new programme and with a new leadership. He went on to announce that he will be retiring after 2006. The budget and scale of operation after 2007 will also be much greater, in the 100 million dollar bracket, compared to the 16 million dollar for the current programme.

7.5 Mr. Zhou Lumin (Xiamen) reiterated the willingness of Xiamen to host the PNLG Secretariat and its members, while Mr. Pham Kim Son (Danang, Vietnam) expressed Danang's willingness to cooperate with PEMSEA in hosting the annual forum in 2007.

7.6 Dr. Chua appreciated all the efforts of the ICM sites and reiterated that the experiences shared during the RNLG Forum shows that ICM works. In particular, he commended the efforts of the demonstration sites and the parallel sites, which endeavor to implement ICM despite the lack of financial support from the Programme. He then proceeded to pose the questions: "What has worked?" and "What has not worked?" What would the sites do differently if they could start the ICM project all over again?

7.7 Ms. Sudji (Bali) highlighted the importance of having a common vision and mission for the coastal area among the various stakeholders and to drive home the point that they need to work together. She also highlighted the necessity to establish mechanisms for various sectors to work together, particularly for the implementation of the coastal strategy and the numerous action programs.

7.8 Dr. Chua agreed that getting stakeholders to work together is very important and this can be done by building their interest and highlighting the collective benefits that can be gained from the project. Lead agencies/coordinators also need to strengthen coordination and sharing of benefits with other agencies and sectors in order to avoid being challenged by stakeholders in their roles as the coordinating bodies and being perceived as the main beneficiary of the project.

7.9 Mr. Dana Budiman (Sukabumi) expressed Sukabumi's commitment to implement the ICM program and the Coastal Strategy. JICA has also shown interest to collaborate with the Sukabumi ICM program. Sukabumi, however, needs more guidance and monitoring support from PEMSEA. It is also interested to build sister city-relationships with other sites.

7.10 Dr. Chua strongly agrees that the RPO needs to spend more time with the sites in order to provide closer monitoring, evaluation and technical advice. Proper strategies will need to be identified in order to provide this service to all demonstration and parallel sites. With regard to the establishment of coastal sister cities, this has to be done in relation to the ICM code which is currently being developed by RPO as part of the ICM certification.

7.11 Mr. Zhou Lumin reported that Xiamen has successfully updated/refined its ICM strategies, strategic environmental management plan and institutional arrangements, and leveraged funds for its implementation. Xiamen is now

interested to establish cooperative mechanisms at the regional level within a regional framework for marine environmental management.

7.12 Dr. Chua commended Xiamen's efforts to expand from municipal-level implementation to a larger area in order to address transboundary environmental issues. He also highlighted similar efforts of the Bali Provincial Government in expanding ICM implementation to the other regencies in Bali.

7.13 Mr. Kesuma Kelakan, Vice Governor of Bali Province, shared that Bali will be holding a formal declaration involving all the regencies in order to strengthen ICM implementation. He inquired whether PEMSEA has a program to provide technical assistance particularly with regard to the legislative and executive aspects of ICM implementation.

7.14 Dr. Chua replied that PEMSEA is willing to provide Bali with the necessary assistance for various aspects of ICM implementation. Recognizing that ICM implementation requires human effort and financial resources, he also offered PEMSEA's assistance in mobilizing such resources. PEMSEA is currently working with GEF and World Bank to address sewage problems through infrastructure development. He encouraged the sites to endeavor to address minor problems locally, highlighting Xiamen's allocation of 3% of its budget for environmental management. For major initiatives, RPO can provide technical advice and support in developing project proposals.

7.15 Ms. Sudji spoke about the efforts of various regencies in Bali to replicate the ICM experiences in the project management area, and inquired about the formalization of their involvement as parallel sites.

7.16 Dr. Chua replied that parallel site development is part of PEMSEA's future efforts to scale up ICM implementation, and that the mechanism for this is currently being worked out. In addition to the Bali regencies, 10 municipalities/cities in China are also initiating parallel site development. Formalization of their involvement as parallel sites, which would hopefully be accomplished before the end of the Programme, would require stronger commitment and assurance that they will be able to deliver.

7.17 Mr. Ri Song Il (Nampho) informed that the DPR Korea government is currently developing a management program for Taedong River, which is connected directly to the coastal area of Nampho ICM Project area. He inquired about the possibility of extending the ICM program to cover the proposed area and of RPO's assistance to develop a project proposal on Integrated Management of Taedong river basin and Nampho coastal area. He also reiterated that the government has an environmental conservation policy that is consistent with PEMSEA's goals but is constrained by economic difficulties. He expressed the need to enhance Nampho's capacity with regard to the IIMS including the development of the system in the local language. Nampho also needs more technical assistance with regard to equipment for pollution monitoring.

7.18 Dr. Chua recognized DPR Korea's constraints but clarified that PEMSEA could not extend support to the Taedong River project. However, PEMSEA can help in developing a GEF medium-sized project worth approximately 1 million USD

provided DPRK can meet the necessary requirements and cooperate with PEMSEA. Dr. Chua advised Mr. Ri to prioritize the government's interest in the project, while he will link up with the UNDP and GEF. The IIMS translation is already incorporated in the terms of reference (TOR) of a contract to be issued in May 2005.

7.19 A representative from Sukabumi expressed interest for the PPP project but emphasized that they would be needing support.

7.20 Dr. Chua advised that Sukabumi can take full advantage of opportunities provided by the GEF MSP grant on PPP provided that they show commitments to the application of PPP approach in collaboration with PEMSEA. He advised them to send RPO the necessary application form. Dr. Chua also informed the meeting about the opportunity for UNDP small grant projects that can provide at most 50,000 USD to support community and NGOs activities.

7.21 Ms. Loyola shared that at the start of project implementation, they had a hard time getting the commitment of municipal mayors so they reversed the strategy and focused on establishing strong mass-based support first, which eventually led the mayors to support the project. The ICM municipal/city council has been convened, and the Governor has requested all 9 coastal mayors to designate representatives to the council.

7.22 Dr. Chua emphasized the importance of local political commitment in implementing ICM. Different approaches may be applied to obtain this commitment, but ultimately, the responsibility for ICM development lies largely with the local government. ICM will work only for interested governments and stakeholders. Dr. Chua reiterated further that PEMSEA is helping local governments to do what they want to do, and it is not the other way around.

7.23 Mr. Mazlan (Port Klang) remarked that there is a need to harmonize institutional mechanisms for project implementation in Port Klang. The Selangor Water Management Authority (LUAS) does not provide an overarching mechanism for project implementation such that there is a need to put more effort on municipal-level implementation and integration of ICM implementation into concerned government departments.

7.24 Mr. Prak Sihara (Sihanoukville) shared their efforts in transferring skills to the local people and their emphasis in enhancing the quality of life. Dr. Chua agreed that the ICM project must be carried out to benefit the people and enhance the quality of life.

7.25 Ms. Apiradee Sujarae (Chonburi) shared that project implementation in Chonburi has continued, despite various setbacks, based on the firm network of partners that has been established and the strong support form the Mayor of Sriracha. The cross-sectoral and multi-disciplinary approach has worked well in obtaining support for various ICM activities. However, recognition of the support provided by various participants was inadequate and linkages between the specific activities and with the broader goals of ICM were not clear to some participants until these were demonstrated during the Coastal Strategy Declaration.

7.26 In closing, Dr. Chua acknowledged that ICM implementation provides a lot of benefits, but that problems with project implementation are also inevitable. He also recognized that not enough effort is being given to recognize the contribution of political leaders to ICM implementation, and that this needs to be incorporated in future programs. PEMSEA will thus put in more effort with regard to monitoring and evaluation of project implementation at the sites, creating strong political commitment at various levels, and providing recognition for political contributions to ICM. Given the long process of ICM implementation, he encouraged the site managers to create projects that can show tangible results in a faster manner.

PART III: WORKSHOP PAPERS AND SITE PROGRESS BRIEF

WORKSHOP PAPERS

Integrated Coastal and Ocean Management (ICOM): Initiatives, Experiences and Lessons Learned in Indonesia

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1. Introduction

In the first comprehensive overview of Indonesia's marine resources, Tomascik et al. (1997:1167) commented that "one of the many challenges facing Indonesia today is the reconciliation of development objectives and conservation aims in the marine and coastal sector". Those challenges are even more cogent as Indonesia emerges from the economic depression, social and political turmoil that has marked the transition from the New Order Government (1965-1997) to the "reformation" era since 1998. As some commentators have observed,[1] development of a civil society as well as broader economic recovery in Indonesia requires the development of more equitable, transparent and sustainable approaches in utilizing natural resources. Coastal and marine resources are considered to be of increasingly strategic significance in these processes.

Integrated coastal and ocean management is obviously of paramount importance in an archipelagic nation like Indonesia where more than 75% of the national area is sea and the 24% that is land is fragmented among at least 13,000 islands. The 81,000 kilometers of shoreline is the world's longest usable coastline. Coastal and marine industries such as oil and gas production, transportation, fisheries and tourism account for a quarter of Gross Domestic Product and employ more than 15% of Indonesia's workforce. Some 140 million Indonesians live within 60 kilometres of the coast; many of these within the large coastal cities that occupy a predominant position in the national economy.

It has been estimated that between 60% and 95% of Indonesia's population lives within 100 km of the coast. Of the Indonesian population living in the coastal area it is estimated that 80% engage in marine resource-dependent activities such as fishing, mariculture and/or related activities.

Given that Indonesia has such a diverse marine estate, well-established cultural traditions of marine resources exploitation and a significant economic dependence on coastal and marine resources, it is surprising that it has not previously established a systematic coastal and marine governance regime. Despite increasing public interest and policy efforts directed towards marine and coastal management since the late 1980s, there is not a corresponding number of "on the ground" examples of application of integrated coastal management concept, although this is now growing. Of concern is the lack of integration of development plans and regulatory systems between sectors and tiers of government, and between various sectors of industry. In many areas and sectors, industry, communities and the different arms of government compete

[1] van Klinken. 1999

with each other, for control of the same, often limited, resources. Inevitably this leads to a decline in environmental quality and reduced quality of life and income for local communities.

This paper provides an overview of the evolution, experiences and lessons learned from development and implementation of integrated coastal management in Indonesia. This paper primarily describes how the various levels and sectors of government work to address multi-dimensional coastal and marine environmental challenges. Emphasis is given to a number of major integrated coastal management or coastal resource management related initiatives such as the USAID Indonesia Coastal Resource Management Project (CRMP), Marine and Coastal Resources Management Project (MCRMP), Coral Reef rehabilitation and Management Program (COREMAP), Coastal Community Development and Fisheries Resource Management (COFISH), GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) ICM Program, and Sustainable Coastal and Marine Management Program ("Pantai dan Laut Lestari").

2. The Evolution of Integrated Coastal and Marine Management in Indonesia

During the first 25 year development plan (PJP I – 1969-1993) and subsequent interim five-year development plans (Repelita), national planning policy placed considerable emphasis on terrestrial development, particularly in Java and Sumatra. Not until the late 1980s was strategic attention given to coastal and marine resources (CIDA, 1987). For example, the 1988 State Policy Guidelines (BAPPENAS, 1988: 13g) noted that, "it is necessary to improve management of marine areas so as to increase utilization and maintain sustainability".

Through the 1970s and 1980s the educational level and professional and academic capacity of Indonesia increased rapidly. Along with these changes came an improvement in the awareness of apparent connections in ecological systems and limited improvements in resource valuation. Coastal and ocean management discussions in government took on a more coherent form. Indonesia began achieving limited cross-sector coordination through the formation of the first Ministry of Environment and Population (MEP) in 1978 and subsequent revisions of the mechanism for environmental impact assessments (EIA). The MEP played a lead role in both improved sector–based management of coastal and marine resources (e.g., fisheries, aquaculture, tourism, mining, industry, etc.) and improved intersectoral coordination (i.e., sectoral, ecological, spatial, interdisciplinary integration and broadened public transparency through the inclusion of new environmental non-governmental organizations).

The first official proposal to set up a marine protected area (MPA) in Indonesia was made in 1973 (Alder et.al., 1995). From that time, legal and institutional arrangements were formed to establish and manage marine conservation areas or the MPA system. Amongst the laws and regulations, Act No.5/1990 on the Conservation of Biodiversity and the Ecosystems and Act No.24/1992 on Spatial Planning provide the basis for creation and management of MPAs in Indonesia.

Act No.5/1990 concerning the Conservation of Living Natural Resources and their Ecosystems provides the basis for the management of the MPAs including marine parks and reserves. Besides being the key legislation for management of all protected areas (on land and in marine environments), this Act stipulated that the Department of Forestry through the Directorate General for Forest Protection and Nature Conservation (PHKA) is the leading agency for management of MPAs in Indonesia. It also describes the types (category) and purposes of protected areas including in MPAs within Indonesia. In addition, since 1990 the responsibility for

drafting and implementing management plans devolved from Directorate General (DG) PHKA to the Regional Forestry Office (Kantor Wiloayah Kehutanan-KanWil). Presently, management plans are developed by Kanwil forestry in cooperation with the Provincial Development Planning Board (Bappeda). While there is recent movement to move marine parks to the Ministry of Marine Affairs and Fisheries, the DG PHKA continues to control the gazettement of MPAs (Alder et.al., 1995).

Meanwhile, Act No. 24/1992 concerning Spatial Planning provides the basis for spatially sound planning and management of land, sea, and air ecosystems at the national, provincial, and district (local) levels. The Act specifies the use of a comprehensive and integrated approach to the spatial management of these ecosystems although this is not yet achieved. The Act also permits for the designation of protected areas outside of those covered under Act No. 5/1990. In marine areas, this allows for management of commercial uses within MPAs as stipulated under Act No.24/1992.

In 1988, a cooperative project between Indonesia's National Planning Agency (BAPPENAS), the Canadian International Development Agency (CIDA), and the Ministry of Population and Environment published the seminal report, "Indonesia's Marine Environment: A Summary of Policies and Strategies". This publication marked a more focused interest in coastal and marine resources management by the Indonesia Government (Bengen, 2003) and provided a more serious platform for MEP discussions on how to focus government policies and energies.

While important, the 'Summary of Policies and Strategies' and related actions (BAPPENAS/CIDA, 1988) stimulated only modest ICOM efforts, mostly via bi-lateral projects. However, the report and new strategies represented an important first step in the subsequent formal recognition of the importance of coastal and marine resources management. Concurrently with these initiatives, an array of new legislation on living resources management, spatial planning and environmental impact assessment was enacted (Purwaka, 1995).

In the First 5-year development plan (Repelita IV 1993-1998) of the Second 25-year Development Plan (PJP II), four main goals for coastal and marine resources development were established (Dahuri et al., 1999): (i) Support for expanded coastal and marine enterprises throughout Indonesia, especially in the less developed Eastern regions; (ii) Support for offshore industries, especially oil and gas production; (iii) Strengthening of national sovereignty and jurisdiction by mapping of continental shelves and the EEZ; and (iv) Establishment of a coastal and marine geographic information network (MGIS).

Also in 1993, marine issues became an individually recognized economic sub-sector in the General Guidelines for State Direction (Garis-Garis Besar Haluan Negara-GBHN, Bappenas, 1993). Even so, tracking of information on the economic contribution of marine and coastal resources was still distributed among other categories such as agriculture, mining, and oil and gas. As noted elsewhere (e.g., Bengen, 2003), the 1993 GBHN outlined three major issues for emphasis in state development directions:

1. Marine development shall aim to diversify utilization and conservation of coastal and marine resources and to maintain the sustainability of ecosystems by means of applying science and technology.
2. There should be increased improvement of marine and coastal security to facilitate economic development based on the Indonesia vision of an archipelagic nation (i.e., on the basis of an integrated marine and coastal nation).

3. Coastal and Marine Resources shall be utilized to support economic development to increase employment and raise the economy through increased in-depth knowledge of ocean and coastal resources, including more in-depth mapping of sea floor.

Attainment of these goals was proposed via a dedicated marine unit within the national development planning board (BAPPENAS), via establishment of national strategies (e.g. the Agenda 21 Strategy for Indonesia – see Rais et al., 1997), through increased national budget allocation for specifically related activities in a variety of government departments, and via approval by the national government of a series of bilateral and multilateral projects intended to build knowledge of coastal and marine resources and institutional capacity for their management. These included:

(a) The ADB-funded *Marine Resources Evaluation and Planning* (MREP) Project which was implemented in 10 Provinces between 1993 and 1998;

(b) The multilateral *Coral Reef Rehabilitation and Management Program* (COREMAP) that commenced implementation in 1998 after a lengthy design process and is to be implemented in three phases between 1998 and 2013;

(c) The marine conservation programs of non governmental organizations such as the World Wide Fund for Nature, The Nature Conservancy, Asian Wetlands Bureau/Wetlands International, Telapak/Jaring Pela and Conservation International;

(d) Bilateral aid programs such as the USAID-supported *Coastal Resources Management Project* or "*Proyek Pesisir*" (CRMP);

(e) GEF/UNDP/IMO Regional Programme on Building Partnership in Environmental Management for the Seas of East Asia (PEMSEA), 1999-2005;

(f) Indonesia-German joint *Marine Ecosystems and Resources Program* (JIGMER, 1999);

(g) The Norwegian *Sea Watch Project;*

(h) The Indonesia-Canada *Collaborative Environmental Project in Indonesia* (CEPI);

(i) Collaborative research and education programs such as the *Netherlands-Indonesian Buginesia* (Noor and Hoeksma, 1993) and Teluk Banten programs (Tjallingii, 1999);

(j) The ASEAN *Living Coastal Resources Program* supported by AusAID; and

(k) The Man and the Biosphere Program of UNESCO.

While full details of investments in Indonesia coastal and ocean management related projects are difficult to obtain due to incomplete reporting, Sofa (Sofa, 2000) undertook an evaluation of coastal and ocean management related projects in 1999. In that study she estimated that some $400 million was spent in coastal and ocean management related projects from 1987-1998. She also noted (with concern) that relatively few of these initiatives resulted in any sustained activity or impact once direct funding via central government or donor agencies ceased. She also noted that very few of these projects directly improved the quality of life of coastal communities or quality of coastal ecosystems. However, without this continued support, largely through bi-lateral and multilateral funded projects, progress toward increased recognition of the need for more focused and integrated management of coastal and marine resources on the part of the government would have been much more limited.

While there is little tangible evidence of sustainable operation of these projects, they did prepare the way for several very important events for moving forward the Indonesia national agenda on coastal and ocean management. This unforeseen change in the political structure of Indonesia led to a series of rapid changes in the governance regime of the country with significant importance for coastal and marine resources. In October 1998, newly elected President

Abdurahman Wahid announced his new cabinet including the establishment of a new Ministry of Marine Affairs and Fisheries (MMAF). For the first time in history, Indonesia had a ministry specifically concerned with the definition, management and development of marine and coastal resources. This historic act marks a true watershed in the history of this archipelagic nation and symbolizes an institutional recognition of the social, economic and ecological significance of Indonesia's coastal and seas.

Indonesia's unitary system of government is being presented with important challenges by its recent and radical shift toward increased regional autonomy through parliamentary enactment of Act No. 22/1999 on regional autonomy (amended through Act 32/2004) and Act No. 25/1999 (amended through Act 33/2004) on fiscal balance currently being clarified and evolved. These two laws, supported by a series of implementing regulations, create the legal and financial framework for regional governance, primarily by districts but with assistance from both provincial and central levels of government. This new authority for regional governments covers every governance field except foreign affairs, national defense and security, justice, finance and religion and has created what some scholars term 'regional euphoria' – a sense that in the regions, especially district administrations, regional governments have virtually unfettered authority to manage their own affairs.

However, Act 32/2004 remains clear that the authority for districts is not absolute. In fact, the recently adopted revisions (Acts 32 & 32/2004) move considerable authority back to provincial and national government levels. The central government can issue regulations to withhold specific areas of governance for itself. The central government retains authority to develop policy regarding a host of subjects, importantly including natural resource use and conservation. In addition, regional governments are responsible for "maintaining environmental preservation pursuant to law" with authorities of provincial governments strengthened over those outlined in the previous acts (Acts 22 & 25/1999). The central government also maintains the ability to take action against regional governments that fail to adequately implement existing laws or regulations. Finally, the central government can invalidate any regional regulation that contravenes higher regulations or the public interest.

Four districts – Minahasa in Northern Sulawesi, Bengkayang in West Kalimantan, Pati in Central Java, and Gresik in East Java – have enacted perda relating to coastal management. As mentioned above, recent developments at the regional level also pose significant challenges in the development of an integrated coastal and marine resources framework.

In addition to government initiatives, there are a growing number of coastal management projects underway via donor agencies and lending institutions (see descriptions below). Some of these have emphasized community-based activities, while others have focused more on institutional capacity development and integration. While limited in funding, USAID's CRMP I and CRMP II programs have successfully balanced both of these aspects of coastal management, drawing on successful community-based activities to provide field-tested models that could be replicated and institutionalized by government agencies. CRMP II continues to work with regional and national partners to develop and implement legal and administrative mechanisms to apply these models at larger administrative and geographic scales. The World Bank COREMAP program, Asian Development Bank COREMAP program, the ADB funded Co-Fish fisheries management project, the jointly funded GEF/UNDP/IMO PEMSEA project and programs led by international and national non-governmental organizations (NGOs) such as The Nature Conservancy (TNC), Ford Foundation, Worldwide Fund for Nature (WWF), Conservation International (CI), Kehati, IHSA, ICEL, Telapak, PERISAI, Bestari, Kalbu, Kelola,

Jaring Pela, YLLI, SCREEN and many others are working toward improved coastal management frameworks.

These recent developments and others are paving the way for a new generation of coastal and ocean management actions by local governments for effective implementation at the local level (i.e., achieving some sort of measurable implementation that leads to measurable changes in the state of coastal and marine resources). Many of these initiatives address such important issues such as accountability, transparency and reduction of poverty by encouraging appropriate small-scale economic opportunities for coastal residents.

3. Key Issues for Coastal and Ocean Management in Indonesia

ICOM efforts in Indonesia typically address, at least, six inter-related and often overlapping issues:

(a) Lack of knowledge of coastal and marine resources and processes – despite the seeming wealth of knowledge about Indonesia's seas in the impressive synthesis by Tomascik et al. (1997), the recent discovery of an Indonesian coelacanth (Erdmann and Moosa, 1999) revealed that current knowledge about the nature, distribution and significance of most marine and coastal resources is extremely limited. Of equal concern is the lack of a sustained capacity to map resources, to monitor even basic changes in resource condition (e.g. sea surface temperature) or to fully assess hazards that are of periodic significance (e.g. tsunamis).

(b) Undervaluation of coastal and marine resources – Cesar (1996) and, more recently, Pet-Soede et al. (1999) have clearly demonstrated that undervaluation of coral reefs and associated coastal ecosystems has been a prime factor in their ultimate over exploitation and degradation. Dutton (1997) argued that until these use and non use values are properly accounted for in the development process, it is likely that resource production will be sub-optimal, non sustainable and ultimately socially destructive, as was demonstrated in a case study of the evolution of the development of North Java inshore fisheries in the 1960s (Yowono, 1998).

(c) Lack of empowerment of coastal communities and marine resource users – despite the considerable efforts of government to redress perceived imbalances in income (e.g. in the mid 1990s a poverty alleviation program directed towards coastal villages was initiated – see Dahuri, 1996) and various community enterprise and social safety net initiatives, coastal communities lack equity in resource exploitation. Whether due to lack of infrastructure, capital, technology, skill or because of global factors (e.g. market fluctuations), or because of inequities induced by particular development paradigms (e.g. the so-called 'trickle down' effect of centralized investment strategies), it is clear that many Indonesian coastal communities have become marginalized or disempowered. Poverty alleviation, income generation from alternative (usually to fisheries) livelihoods and the development of improved economic resilience are thus key objectives of many coastal development initiatives. However, as Crawford et al. (1999) pointed out, there are significant interregional variations in income and community development status that mitigate against simple solutions - what works in one location may not be transferable elsewhere. A key challenge for ICOM policy makers thus remains to better understand the typology of situations in which particular practices/interventions are most effective.

(d) Lack of clarity regarding legal authority and planning frameworks for ICOM – despite the existence of a vast array of legislation pertaining to coastal and marine resources management (Purwaka, 1995) and the recent establishment of a multi-tiered planning framework for ICOM

under the MREP project (Hunt et al., 1999), great confusion exists with regard to spatial planning authority in intertidal and offshore areas, lack of transparency or accountability in most governance processes. In recognition of the need for clarification and decentralization of authority, in April, 1999 new regional government and fiscal allocation laws (No 22/99 and No 25/99 respectively) were enacted. They provide, inter alia, for the specific delegation of power to regulate access to, and use of, natural resources by provincial and local administrations (Dutton, 1999). Provinces have been granted jurisdiction of Territorial Seas (out to 12 nautical miles) and local government's jurisdiction for up to four nautical miles. These laws create unprecedented opportunity for locally agreed and enforceable ICOM schemes. Despite considerable public debate and academic scrutiny (e.g., Alm and Bahl, 1999; Brown, 1999), regulations for implementation of these laws are still in draft and likely to be further adjusted as programs and proposals emerge from the Cabinet in 2000.

(e) Lack of institutional capacity to undertake ICOM – much of the national investment in ICOM to date has ostensibly been for the purpose of developing institutional and professional capacity. For example, the MREP program provided some 2,300 person months of in country training and 275 person months of international training (Dahuri et al., 1999). The Indonesian Directory of Coastal Managers (Moermanto, 1998) lists some 1,200 professionals in government, industry, academia and non-government organizations engaged in ICOM-related activities. Masters level post graduate training courses in ICOM have now been established in two universities (IPB and UNDIP) and there are frequent formal and informal short courses in fields related to ICOM – for example, Proyek Pesisir has trained more than 9,100 persons during some 150 training events conducted since 1997. In spite of these efforts and selective institutional development initiatives (e.g. Cobb, 1998), there remain significant skills gaps, a lack of experienced staff to implement programs and generally ineffective deployment of existing staff. These problems must be addressed systematically in the implementation of new ICOM programs. Importantly, as demonstrated by the experience of training of village residents by Proyek Pesisir, (Fraser et al., 1998), there seems to be much value in broadening stakeholder participation in ICOM programs to better utilize the knowledge and local capacity of resource users.

(f) Lack of integration between initiatives – because of the historically sectoral and project-by-project approach to ICOM in Indonesia until recently, there are very few programs sustained at the local level in Indonesia and few linkages between initiatives. Indeed, one of the most striking features of the evolution of ICOM has been the apparent lack of co-ordination and co-operation between programs, resulting in the loss of 'institutional memory' and the value adding that ideally occurs when programs cross fertilize. Various projects now place a deliberate emphasis on learning concurrently with implementation, to value failure as well as success and thus build locally workable approaches to ICOM (see, for example, BCN, 1999). In Proyek Pesisir, a learning team has been established within the Centre for Coastal and Marine Resources Studies at IPB. After developing methods and experience (see, for example, Sondita et al., 1999), it is expected that the team will engage with other ICOM initiatives to develop a broader understanding of what works, what fails and why, in the Indonesian context. It is also expected that with an increased premium on the acquisition and application of loan funds for development/program initiatives in marine and coastal management, there will be a much greater incentive for agencies involved to share experience by working collaboratively (Kusumaatmadja, 1999).

4. Experiences and lessons learned from coastal and marine related management initiatives in Indonesia

4.1 Legislative Framework

National Legislation

Indonesia still lacks the legal framework for implementing an integrated coastal and marine program. Legislation is still very sectoral, interdepartmental coordination is lacking and as mentioned above there are literally hundreds, if not thousands, of laws that need to be reviewed and/or revised at the national level. However, important progress is being made in the area of national legislation.

A new draft Indonesia Coastal Management Act is currently being reviewed in preparation for submission to the Indonesia National Parliament in 2005. This new coastal management act provides both technical and process standards for development and implementation of a vertically and horizontally integrated coastal and ocean management program in Indonesia.

A new Fisheries Law (Act No. 31/2004) provides significant opportunities for conservation and management activities of coastal resources including coral, sea grass, mangroves critical nursery habitat and other areas through a new national system of linked marine protected areas. In addition, a new umbrella act is being developed that will hopefully integrate environmental management activities and improve coordination between departments.

Provincial and District Legislation

Indonesia Act No. 22/1999 (amended through Act No. 32/2004) provided important authorities to provinces and especially districts to undertake coastal and ocean management activities. Under Act No. 32/2004, provinces retain authority from 4-12 miles seaward, and districts from the high tide mark seaward to 4 miles.

In 2001, Minahasa Regency was the first regional government to enact regional laws (perda) on coastal management, Perda No. 2/2001 on Integrated Community-Based Management of Coastal Resources. In 2002, North Sulawesi Province enacted the first Provincial Law on integrated coastal resources management. Other districts that have enacted perda on coastal management include Bengkayang in West Kalimantan, Pati in Central Java, and Gresik in East Java, each with its own local variations. Through the ADB funded Marine and Coastal Resources Management Project (MCRMP), another 43 districts are in various stages of perda development. These districts and provinces are following both the technical and process standards set out in the draft national coastal management act that will be submitted to the Indonesia National Parliament in 2005.

Village Law

The authority decentralized under Act 22/1999 and continued under Act 32/2004 extends all the way to the village level (desa in districts and kelurahan in cities). While districts and cities are being encouraged to formally recognize the authority of desas and kelurahans to adopt their own local controls and programs, in many places villages have already taken the initiative. For example, in Minahasa District, North Sulawesi over 35 village laws (perdes) in over 25 villages have adopted on coastal resources management. In Balikpapan, East Kalimantan Province a

number of kelurahan have initiated development of marine and mangrove protected areas with their boundaries. On Nusa Lembongan Island in Bali Province, the local village made their own spatial plan to protect coastal resources from increased tourism pressure from the island of Bali.

Customary and Traditional Law

In Maluku Province, local tradition law regarding coastal and fisheries resources (*sasi*) is still practiced. This practice includes closing of certain areas during certain years, village ownership of specific ocean areas and a system of resolving disputes. In the province of Nusa Tenggara Timur (NTT), local villages still hunt cetaceans. However, hunting is regulated by local laws wherein certain villages only hunt certain cetaceans. This still practiced system limits pressure on specific species and particularly on males and females of the same species. In Bali, the practiced Hindu religion includes the concept of *tri hita kirana* (harmony among humans and gods, harmony among humans and other humans, and harmony among humans and environment). As an example, recently the high priest in Bali determined that it was not in harmony with the principles of *tri hita kirana* to kill an uncontrolled amount of turtles for ceremonial use as has been traditionally done. The priests set a limit on the number of turtles to be killed in ceremonies each year, and determined that it was not necessary to use turtles in many ceremonies that traditionally used turtles.

Law enforcement:

At the national level the Ministry of Environment, under Act No. 23/1997 provides monitoring, supervision, surveillance and law enforcement for coastal and marine areas including coastal marine protect and pollution control. The Ministry of Marine Affairs and Fisheries is in the process of implementing new programs to control illegal, unregulated and unreported fishing through a monitoring, control and surveillance (MCS) system.

Under decentralization many districts and provinces are taking law enforcement initiatives. For example, in Minahasa District and North Sulawesi Province new Coastal and Marine Management Boards were established by Regent and Governor Decrees and regional laws. These boards include representatives from the water police, local police, local port authority, and attorneys involved in prosecuting cases where coastal and marine resource management laws have been broken. In a number of national marine park sites rangers and local water police have received training in enforcement. For example, in Bali Barat National Marine Park and Komodo National Marine Park, ranger patrols are very effective in enforcing against destructive fishing, illegal fishing and maintaining no-take conservation zones.

Marine-based enforcement was historically in the hands of the Navy and the water police and under central government control, is now shifting as a result of decentralization to regional governments. In some instances, new regional enforcement efforts are showing success. In areas where funds, training and equipment have been made available enforcement programs are successful in achieving compliance. With support from USAID's Natural Resources Management Program, Bunaken National Park in North Sulawesi has developed a system for transferring funds generated from park tourism to enforcement activities. These enforcement activities are now very successful and compliance is relatively high within the park boundaries with repeat offenders being jailed in some cases.[2]

[2] (pers. com. Mark Erdmann, USAID Natural Resources Management Program, 2002)

Local villages in Minahasa and Balikpapan City have set up their own patrol and enforcement mechanism to enforce village agreements or laws establishing marine protected areas, mangrove protected areas and destructive fishing practices.

4.2 Institutional Framework

Commitment

In Indonesia, integrated coastal and marine resources management while national commitment is important, it is more dependent on sub-national (provincial, district and village) commitment. The Sukabumi District ICOM program, developed and implementation under PEMSEA with supervision of the MOE, is a good example of successful ICOM implementation based on developing strong local commitment. The program facilitates local stakeholders and government in developing the Sukabumi Integrated Coastal Management Strategic Plan ensuring sustainability even given limited local budget availability. The completion of the strategic plan opens the window for further opportunities, including development of investment opportunities in implementing the strategic plan, especially in the fisheries and tourism sectors. The adoption of the strategic plan also allows Sukabumi District to apply for accreditation under the Ministry of Marine Affairs coastal management program that supplies funding, technical assistance and planning support to continue implementation of the plan facilitated under PEMSEA and MOE support. This is only one example of local and regional level commitment to ICOM being more rapidly developed as a result of decentralization in Indonesia.

Transparency

Since decentralization, national and local media is recognizing the important role it plays in good governance, democracy and transparency. This makes an important contribution to furthering integrated coastal and ocean management in Indonesia. Media (television, radio, newpapers, journals and magazines) plays an important role in coastal community economic empowerment (for example, fishermen can now receive daily reports through national radio about fish prices in the markets), in awareness of local issues (through talk shows), and in highlighting specific issues of local concern.

For example, an inter-jurisdictional, watershed-based bay management strategy was a sign for Balikpapan Bay. Through this strategy, three districts, the City of Balikpapan, and the Province of East Kalimantan agreed to coordinate development and budgeting through an inter-jurisdiction management board. The Balikpapan Spatial Plan is being revised to match the strategy. The local media has played an important role in explaining the issues, educating the public about options and acting as a 'watch-dog' in both the process of budget utilization and spatial plan revision.

The Ministry of Environment and PEMSEA provided training to media personnel in Bali to better understand their roles in building public awareness. As a result, local television conducted a series of talk shows on important issue affecting coastal and marine resources such as solid waste management.

The implementation of the national coral reef awareness campaign 'SeKarang!' won the international Gold Quill Award from the International Association of Business Communicators, signifying excellence in public communication service. National surveys (CRMP and

COREMAP) indicated a consistent increase in the level of awareness of coastal and marine resources, especially coral resources, across Indonesia.

Accountability

Prior to decentralization, Indonesia's accountability framework included twenty central government statutes and hundreds of regulations distributing authority for coastal management among fourteen different ministries and departments at the central government level (Sapta, 2002). Central government ministries and departments exercised authority through de-concentrated offices located at the provincial and district levels that directly reported to the central ministries. Reporting was less than optimal and significant latitude was allowed in program implementation. Under decentralization, authority and responsibility now directly reside with regional governments (provincial and district/municipal), and what were previously regional offices for central government ministries now report directly to regional governments. As a result, accountability has significantly increased and local governments are being held much more accountable for decisions and implementation actions.

National Policy

In spite of growing interest in improving resource conditions, targets set by the central government for coastal and ocean management have not been consistently achieved (Sarwono Kusumaatmadja, personal communication 2002. Bappenas, 1987). The 1982 National Conservation Plan and the 1984 National Marine Atlas, for example, identified priority areas for establishing marine protected areas. The target for 2000 was 30 million hectares, but so far only 4.4 million hectares have been established.[3] Regional and regional government agencies lacked both management authority and resources with which to carry out regional management initiatives even if the political will existed to do so.[4] (Bappenas, 1987).

However, again significant progress is being made. In 2005 Indonesia submitted a marine series-site nomination to the UNESCO World Heritage Program that included the establishment of 6 world heritage sites within the system, including 5,961,761 hectares of marine area including at least 3,519,145 hectares of additional marine area previously not under management.

The Ministry of Environment is leading the adoption of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), which was officially adopted by twelve PMESEA participating countries in December 2003, into the national and regional development policy of Indonesia. The MOE is currently working to socialize this policy development with other departments. The MOE initiative is an important element of the ongoing national multi-agency initiative to development the Indonesia Ocean Policy. The Ministry of Environmental is also facilitating the preparation of Implementation Plan of Bali Coastal Strategy in collaboration with PEMSEA. This initiative integrates planning and budgeting at provincial and regency levels for integrated implementation priority action programs. The related inter-jurisdictional declaration and stakeholders endorsement of the Implementation Plan will be signed on 29 April 2005 during Bali ICM workshop.

[3] World Bank, 2001.
[4] Sarono Kusumaatmadja, personal communication, 2002.

4.3 Strategic Planning and Implementation

National Level

At the national level, the Ministry of Marine Affairs and Fisheries has published through ministerial decree guidelines for ICOM planning and implementation at the regional level. In addition, the new draft coastal management act provides standards for public participation and comment and development period of strategic plans, as well as accreditation for plans the meeting minimum process and technical standards.
The Ministry of Environment, through its Coastal and Marine Environmental Management: Policy, Strategies and Action Plans, provides guidance on major issues that should be considered in the development of comprehensive coastal and ocean management strategic plans. Both of these programs specifically target public participation as a key component of strategic planning.

Regional Level

The Balikpapan Bay Watershed-Based Strategic Management Plan was signed by the Regents of three districts, the Mayor of the City of Balikpapan, the Governor of East Kalimantan Province and the Minister of Marine Affairs and Fisheries. As such, it successfully vertically connected each tier of government in inter-jurisdictional planning and implementation of coastal and marine resources management for Balikpapan Bay.

The Lampung Provincial Government initiated a strategic planning process that resulted in the first coastal and marine resources atlas in Indonesia. Information collected for the Lampung Atlas was first checked with coastal resource users in coastal communities. A public participation process brought together government and community resource users to discuss and agree on specific aspects represented in the Atlas. Once the Lampung Atlas was produced the provincial government used it as the basis for a strategic plan that resulted in significant budget allocations in the first year after development. As of 2004, the atlas model has now been independently replicated in over 19 provinces across Indonesia to support provincial level coastal and marine strategic planning.

There are numerous cases in which integrated budgeting and planning has been accomplished either through local laws requiring integrated coastal and marine planning, or simply by decree of district or provincial heads. In Bali, the longer term plan is to require this through provincial law. In the meantime, the Bali Province Governor is planning to issue to decree until the legal development process for a provincial law can be completed. A similar approach is being followed in Sukabumi District, West Java.

4.4 Capacity Building

National, Regional, Local, Training Programs

The collective national capacity in coastal and marine resources management has grown exponentially over the recent years. It is estimated that total training from all coastal and ocean management related projects and programs in the past 10 years exceeds 20,000. The Ministry of Marine and Affairs and Fisheries possesses the largest funding for capacity development program. The ministry will support approximately 45 students to acquire overseas advanced degrees starting in 2005.

University Roles/Programs

National universities have established marine and coastal management programs that cover social, economic, environmental and physical technical fields. These programs are producing a new generation of graduates focus on the various aspects of ICOM science, planning, implementation and monitoring.

Local, Community Empowerment

Indonesia has increased its focus on the importance of community empowerment over the past 15 years. Coastal community economic empowerment programs are being implemented by several national government ministries and local governments. The Ministry of Marine Affairs and fisheries implements the Coastal Community Economic Empowerment Programs that seeks to build local village capacity by providing training to local fishermen on new fishing techniques and financial management. The program sets in place revolving loan funds that are managed locally to funds purchase of local fishing gears, particularly gear that allows fishermen to travel further offshore away from sensitive near shore habitats important as fish spawning aggregation sites and nursery areas like sea grass beds, mangroves and coral reefs.

Community-to-Community training also is being used to spread innovations in community-based coastal resources management. Transmission of villager-to-villager information speeds up the acceptance and sharing of information and more rapidly raises community capacity. This technique was used on North Sulawesi to more than quadruple the scaling up and rate of adoption of community-based marine protected areas in Minahasa District. Under the PEMSEA program in Bali and Sukabumi District various training programs were developed and implemented particularly in collaboration with various civil society groups to empower community members.

In addition, under Indonesia's new National Education Act, up to 50% of local curriculum can be local content. Many local communities and government agencies are taking advantage of this opportunity by building their own local coastal and marine school curriculum. For example, in Bintuni Bay District, Papua, the University of Hasanuddin through the Sea Partnership Program is helping local government and communities to build coastal and marine curricula for elementary, junior high school and high school students.

International and Regional Collaborative Training Initiatives

One of the most important areas for improvement in capacity building for Indonesia in coastal and marine resources management is in the area of collaborative training programs. PEMSEA has contributed to cross-national regional training opportunities. For example, Indonesia has benefited from cross-training in such places as China, Thailand, Philippines, Singapore, Republic of Korea, and Malaysia organized by PEMSEA as well as programs organized by other PEMSEA partner institutions.

While domestic programs have grown considerably, and produce high quality graduates, learning through international exposure is very important for the future of Indonesia's coastal and ocean management future. This need must be met by assistance through bi-lateral and multi-lateral programs that bear the burden of costs for overseas training and education.

Recommendations have already been made for overseas education and training to meet the minimum requirements for technical expertise in Indonesia for the next 10 years.[5]

Conservation Scientists: Funding is needed for 10 internationally trained PhDs per year for 10 years (resulting in 3 per province) to reach a critical mass of 100 marine and coastal PhDs within the next decade. This will effectively distribute international-level expertise via the university-based Sea Partnership Program, government agencies, NGO leaders and managers and develop the expertise necessary to mentor domestic graduate students from 30 provinces.

Conservation Managers: Funding is needed for 20 International Masters Students (conservation management, eco-tourism, etc) per year for 10 years (resulting in 6 per province). This will develop the capacity to deliver world-class management knowledge and expertise, and to build a critical mass of quality trainers and core professionals to strengthen and institutionalize capacity in home institutions.

MPA Mentors and "Sisters/Partners": Funding is needed for 30 mentors or mentoring organizations to partner with individual provinces on one activity in the province to guide local implementation.

Cash/Endowment/Alternative Financing Mechanisms: Funding is needed for locations (10 – 30, one per province?) that are too remote or too poor to get adequate tourism dollars (even small-scale, high end) to adequately protect them through local management (possibly in conjunction with internal Global Environment Facility programs to protect smaller areas of national/global value in areas unable to do it alone).

Advocacy: Funding is needed to complete the shift in balance that is showing early results in the marine infrastructure of the nation from exploitation to conservation and sustainable use with global advocacy programs and policies to address Indonesia's leaders.

Communications Campaign: Funding is needed for a perpetual, institutionalized awareness and advocacy campaign within the country that gives marine and coastal conservation an identity, change behaviors and keep the public aware of advances and critical issues.

Short-Term Training of Trainers: Funding is needed to train 100 people as trainers through 2 week to 2 month to address the near vacuum of useful information in small, local NGOs, and organizations that could help mentor communities and local governments on simple conservation tools. This would include training trainers who could then translate material into Bahasa Indonesia with counterpart staff linked to a public advocacy campaign.

Staffing and Personnel: Funding is needed for up to 100 people for up to 5-10 years providing continuity and badly needed skills in conservation and biodiversity protection (3 per province). Conservation practitioners are needed in projects that can fill gaps in capacity that exist as we build our national capacity, and that can work hand-in-hand with communities as they struggle to learn the tools of conservation and sustainable development. The national and district levels can manage these projects now if they had access to the funding resources to make them happen.

Production and Public Access to Digital Maps: Institutionalized capacity to conduct remote sensing, LIDAR surveys, and GIS (some already exist, but needed to re-fresh training and

[5] Minister Rokhmin Dahuri, 2003.

application to conservation) in order to monitor the management of vast areas over time efficiently and effectively. This must be coupled with extensive geographical ground-checking with communities and stakeholders.

4.5 Scientific Inputs in Management

There are numerous scientific and research initiatives ongoing in Indonesia in every aspect of integrated coastal and ocean management. From the early 1990s, Indonesia universities were supported by the central government to develop programs in coastal and marine research and information support.

The list of ongoing projects is too long to list here. However, several general comments can be made about the current status and potential future needs for marine and coastal scientific research in Indonesia to support management. The first is the lack of a clear, integrated and prioritized national agenda for basic research to guide development of proposals, allocation of funds and evaluation of progress toward meeting the future needs of Indonesia.

The second comment that can be made is that basic research will continue to be of limited immediate benefit in meeting the needs of Indonesian people. There is a huge unmet need to develop programs for using 'off-the-shelf' existing research and technology that can be adapted to meet the economic development and basic human services provided by coastal and marine resources.

The university-based Indonesia Sea Partnership Program (Program Mitra Bahari-PMB) is a program that focuses on applied research, education, policy development and extension services through 19 regional universities across Indonesia. The PMB program is already supported through national budget allocation and matching local government and private sector funding. This program is the most successful university based extension and applied research program of its kind in the world outside of the United States.[6]

4.6 Sustainable Financing Mechanisms

In some places sustainable financing is already underway. For example, in Bunaken National Marine Park user fees are already generating funds that sustain marine park ranger patrols and community-based forums ensuring village participation in park management decisions. In 2004, these fees generated approximately US$170,000. In Komodo National Marine Park, user fees have just been implemented and a joint partnership has been formed between international NGO and local private investors to manage concessions within the park that will also contribute to park management.

However, tourism demand may not always be at a level for such financing mechanisms to work. Access to important but remote marine and island coastal areas may be very difficult. As a result, tourism demand will be low and sustainable financing mechanisms must be developed that appropriately distribute the burden of coastal and marine resources management funding among government, private sectors, non-governmental and civic organizations and universities (e.g., through public-private-stakeholder partnerships). Bappenas is currently conducting a study on alternative financing for conservation. This study outlines such options as adding US$1.00 to each international air ticket to support coastal and marine conservation efforts (as is

[6] Rene Eppi, Director International Affairs Office, U.S. National Oceanic and Atmospheric Administration.

very successfully done in Egypt[7]). Another option that is being examined in the Bappenas study is the establishment of marine or coastal concessions that effectively provide transfer payments to local communities in exchange for sustainable management and use of important resources. One important potential source of funding for coastal and ocean management is the fisheries resource taxes collected by the central government from local governments. Unlike other natural resource-based tax revenues, fisheries taxes are not distributed based on where the taxes are sourced. Fisheries resource taxes are distributed equally among all provinces and districts equally regardless of fish landed or caught within its jurisdiction. This reflects the Indonesia principle of fisheries as a true open access public resource. At least 30% of these funds should be required for allocation by local governments to support programs for sustaining coastal and marine resources.

4.7 The Emerging Role of Government

Coastal and marine capacity in Indonesia is limited in two main areas: 1) human resources capacity, and 2) institutional capacity. These capacity limits extend across the entire range of constituents and stakeholders served by the Ministry of Marine Affairs and Fisheries including regional and local governments, non-governmental organizations, the private sector, universities and communities. Raising capacity among these partners, as well as providing sustained mechanisms for service delivery at the local level, is made more challenging by the recent complete decentralization. While decentralization provides the opportunity for direct control of decisions concerning the use and conservation of local coastal and marine resources, it also effectively cut direct lines of association between central, provincial and district governments.

To meet these challenges, the Ministry of Marine Affairs and Fisheries formed the Indonesian Sea Partnership Program (SSP) modeled after the U.S. Sea Grant College Program. The SSP is designed to accomplish simultaneously a number of objectives for the central Ministry relating to capacity development and technical assistance: outreach, education, applied research and policy reform, working through a university-based mechanism.

From its inception year in 2002 with five (5) universities, the SSP program has now grown quickly to include 18 university-based Regional Centers (RC) in 18 provinces with additional support from other institutions. Each Regional Center forms a self-defined consortium that includes other local and regional universities, private sector members, local and regional NGOs and local government. Following guidance provided by the Ministry intended to align local activities with national priorities, Regional Centers solicit local proposals seeking funding from the national government that include approximately 25% matching funding from local consortium or grant applicant partners. Proposals are selected by the local consortium and then reviewed by a national team and ranked for funding. Regular monitoring and provision of technical support and advice is provided throughout implementation through personal supervisory visits from Ministry personnel, semi-annual conferences, NOAA mentoring and other outsourced technical assistance.

Through this program, connections between national, provincial and district governments are not only reestablished; they are strengthened. Local problems have a mechanism to help find local solutions. National development priorities and capacity to address these are developed among the full range of stakeholders and the concept of government as a service sector for stakeholders is introduced. A recent joint decree with the Ministry of Education will help to

[7] Stacey Tighe, 2004, personal communication.

expand the program by creating new mechanisms for programs in the university system. This Indonesian adaptation of the Sea Grant model has sparked interest in creating a South East Asia Regional Sea Grant Network among other nations.

5. Toward the Future

Marine and coastal management in Indonesia has entered a new era. In this new era Indonesia must strive to balance top-down guidance with bottom up empowerment and participation. Although stronger in virtually every aspect of coastal and ocean management, capacity is still below what is needed to design, implement, monitor and sustain central and regional coastal and ocean management programs across the archipelago.

This paper has provided only a glimpse of the many advances already accomplished in Indonesia's coastal and marine resources management efforts. These advances are as diverse as the range of opportunities that are presented. Given the recent election of a new government for the next five years, it is expected that Indonesia will demonstrate even greater strides in one of its most important priorities; sustainable management of its coastal and marine resources management to ensure food security, sustained economic development and improved quality of life for the majority of its population who live along the coast.

The development of an indigenous capacity for truly integrated coastal and marine and management will be a process of trial and error and likely to take some decades to fully establish throughout this vast archipelago. Popular demand for reform of natural resources governance, new laws on decentralization of management authority, the establishment of institutions with capacity and mandate to undertake ICOM and the increased engagement of coastal resource users in decision making forums augur well for ICOM in the short term. Bilateral and multilateral support for ICOM in Indonesia will be essential in the short to medium term to support constituency and capacity building. Ultimately, however, it will be the people of Indonesia who must sustain ICOM efforts in the long term by pushing for public accountability and political will for sustainable management of resources.

To achieve this will require the Indonesian public to be better educated about the many values of coastal and marine resources and their formal empowerment to be full partners in coastal and marine development.

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Impacts of Tsunami on Fisheries, Coastal Resources and Human Environment in Thailand

Based on a country statement by the Department of Fisheries, a rapid assessment report of the Ministry of Natural Resources and Environment, and a report of a regional workshop by CONSRN[1]

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I. IMPACTS

The Indian Ocean tsunami of 26 December 2004 severely affected six provinces (Ranong, PhangNga, Phuket, Krabi, Trang and Satun) on the Andaman coast, claimed more than 5400 lives (with 3000 more missing), injured some 8500 people, destroyed in various degrees 422 fishing villages (40 were almost wiped out and 200 others sustained significant damage). More than 700 fishers, mostly small-scale, died.

Impact on infrastructure was heavy especially to the tourism and fisheries sectors: 315 hotels and resorts, 234 restaurants were partially to totally destroyed, 4306 shops most of which were dependent on tourism were lost and 148 large tourist vessels and 776 small tourist boats were damaged or sunk; inflicted on the fisheries and aquaculture were losses valued at 2.5 billion baht (1 US$ = 40 Baht). Damage to the agricultural sector was 1,505 ha of agricultural land severely impacted, and loss of livestock estimated at 1,124 large and small ruminants (cattle, buffalo, goat, and sheep), more than 2,000 pigs and around 8,000 poultry. In summary, the losses to tourism were estimated at $321 M, fisheries at $60 M, and agriculture at 0.65 M.

1. Impact on Fisheries

More than 6,100 fishing boats — 4,678 small and 1,475 large boats were damaged by the tsunami, 76 % of which are less than 10 meters. About 22 % of the large and 5 % of the small fishing boats were salvaged after the disaster: 549 large and small fishing boats were salvaged at a cost of 112 million baht. The total value of damaged fishing boats was 687.4 million baht (331.9 million baht for the large, 355.5 million baht for the small boats).

1.1. Fishing Gears

Loss of the fishing gears normally accompanies the damage done to the affected fishing vessels. The damage in this assessment covers the loss of bamboo stake traps, nets, crab traps, squid traps, and fish traps. Damage to these gears was placed at 160 million baht.

The total value of damage to fisheries excluding aquaculture was placed at 1.9 B baht.

[1] Consortium to Restore Shattered Livelihoods and Communities in Tsunami-Devastated Nations. Organized on January 11 by BOBP-IG0, FAO, NACA, SEAFDEC, WFC and now joined by APFIC, and collaborating with NGOS, Projects, Community Organizations and other institutions (see www.enaca.org/tsunami for the concept note on CONSRN.

In 2000 the total fish production of Thailand was almost 4 M metric tons. Nearly one-third of the total marine catch is taken in the Andaman Sea, valued in 2000 at $1.1 billion. After the tsunami, the fishing industry and coastal aquaculture suffered major losses in terms of vessels, gears and aquaculture facilities. In addition 8 harbours were severely damaged.

2. Impact on Aquaculture

2.1 Fish Cage Culture

From DOF preliminary assessment, 27,000 fish cage culture operators in the Andaman coastline were affected by tsunami covering a total cage area of some 1,000,000 square meters. These 27,000 farmers in the six affected provinces lost their fish cages.

2.2 Shrimp Culture

Marine shrimp culture in the six Andaman provinces were also affected. 342 rai (1 ha = 6.25 rai) of shrimp pond and 1 million square meters of hatcheries were totally damaged by the tsunami. Affected shrimp culture area was not large but the destruction of the hatcheries set back production. The six affected provinces are the main areas for marine shrimp fry production. The 300 hatcheries damaged accounted for a 30% loss in seed production, which translates to 70,000 metric tons of cultured shrimp (and this is only one crop).

The total damage to aquaculture was estimated at 600 million baht.

2.3. Reserve fisheries

Reserve fisheries refers to fishing or cultivating aquatic animals in leased areas, including trapping ponds. The farmers mostly culture bivalves in these areas. The damage to these areas was more than 2000 square meters of trapping ponds and more than 300 ha of cockle grounds

Affected facility	**Extent of loss or damage**
Fishing vessels	
Large vessels	1475 boats
Small boats	4678 boats
Fishing gears	
Push nets	3313 fishers affected
Traps (stake, bamboo)	3220 fishers
Coastal aquaculture	
Ponds	50 ha (shrimp)
Cages	27000 farmers
Shrimp hatcheries	300 hatcheries
Cockle grounds	300 ha

3. Impact on Resources

Coastal habitats and environment have been altered in various degrees. In some coastal areas, coral reefs were destroyed impacting on the fisheries and tourism resources and thus on livelihoods, directly and indirectly. Preliminary assessment of fisheries resources of the Andaman coast in early January 2005 indicated that fisheries resources in some areas declined

by half after the tsunami. Specific rapid assessments on various resources including coral reefs, seagrass beds, mangroves, land, water, soils, marine parks, and on certain marine mammals are as follows:

3.1 Coral reefs

The coral reefs along the Andaman coast of Thailand are estimated to cover 7,861 hectares. The reef are more developed around offshore islands while few reefs are located off the mainland. They are main sources of direct income for tourism and indirect income for the fisheries sector. Thailand's coral reefs however have been deteriorating since the 1980s. The area of coral reef assessed as either in good or very healthy conditions has decreased from 34% in the early 1990s to 16% before the tsunami.

A rapid assessment in 174 of 324 coral reef sites (by DMCR with support of 8 Thai universities), which were selected across the 6 affected provinces inside and outside protected areas and included key snorkelling and diving sites and sites not visited by tourists showed that:

- 13% of the total coral reef area was significantly impacted
- The level of impact is site specific and varies from 0 to 80%. Coral reefs suffered from 10 to 80% on the islands' western coasts and 0 to 60% on eastern coasts. Reefs located in channels between islands suffered more severe impacts; shallow water reefs are most affected; deep water reefs and those around Phuket remained largely intact
- The types of impact are also site specific and include siltation and sand sedimentation as well as partial damage by debris from land swept by the receding waves. There was also some dislocation or removal of coral heads
- Six to 7 sites where over 50% of the reef were impacted were recommended to be closed temporarily to tourism (4 of these are in Mu Ko Surin National park)

3.2 Seagrass beds

The seagrass beds along the Andaman coast cover an area of nearly 8,000 hectares. Seagrass habitats are of considerable importance as a basis for fishery production, as food source for certain threatened wildlife particularly the Green sea turtle (*Chelonia mydasand*) and the dugong (*Dugong dugon*), and for coast stabilization. Seagrass meadows covering the inter-tidal zone appear to have prevented soil erosion during the tsunami event, as those in Kraburi, PhangNga Province. A rapid assessment by DMCR covering 70% of the total seagrass area found that:

- 3.5% of the inspected area was impacted by silt and sand sedimentation
- 1.5% suffered total habitat loss (the most impacted seagrass meadows are those of Yao Yai island in Phang Nga Province which registered a total habitat loss of 10%)
- The seagrass meadows of Talibong Island off Trang Province, which are the biggest areas in the Andaman coast of Thailand providing foraging ground to a large population of Dugongs did not suffer any total habitat loss, although 10% of the area was silted or sand-sedimented
- It was estimated that it would take 3 months for seagrass to recover from siltation; less certain was how long it would recover from sand sedimentation.

3.3 Mangrove and coastal forests

The mangrove forests along the Andaman coast cover 181,374 hectares. Changes in mangrove forest area could not be precisely determined due to differences in methodologies applied over time. However, the main threats are known and include infrastructure development, settlements, coastal aquaculture (until the late 90s) and use of mangrove forests as land fills. The 32 stations that manage the mangroves along the Andaman coast reported the following:

- Some 306 ha of mangrove forests were impacted, representing less than 0.2% of the total area
- Most of the damage were in Phang Nga Province with four stations reporting 304 ha affected; the remaining damage was in Satun Province where only 1.6 ha was affected.

The beach forests along the Andaman coast cover 1,465 ha but no rapid assessment was conducted on the impact of tsunami on these.

3.4 Surface and groundwater

The tsunami flooded coastal areas to 2-3 kilometers inland. Surface waters in the inundated areas were likely to have been significantly contaminated with saltwater. Of the 30 water bodies sampled (as of Feb) only one natural pond was not contaminated significantly (its waters could still be used as they were before the tsunami).

Short duration flooding caused negligible infiltration of saline water. However, seawater that remained in pools, lakes and depressions could lead to saline infiltration in areas with permeable soils, hence eventually impacting on groundwater. In addition the washed away coastal sediments that resulted in a landward shift of the coastline in some areas. The intrusion of saltwater in the coastal aquifers is expected to shift landwards over a similar distance, which could affect nearby groundwater production wells. In the long term salinization of groundwater may also occur by deposited salts leaching from unsaturated zones into the groundwater. The problem of groundwater quality could be further compounded by the potential contamination from sewage and the huge amount of waste generated by the tsunami.

The Department of Health analysed the quality of well water in the 6 provinces for coliform bacteria chlorine and particulates. Contamination of well water in Phang Nga was significant. The water in 187 out of 530 wells was found unsafe due to coliform bacteria contamination and in 32 out of 534 wells it was unsafe due to seawater intrusion. In Phuket coliform contamination affected 55 wells severely and 44 slightly. (However, the findings were of post-tsunami and does not tell the state of contamination before the event).

3.5 Soils

In the flooded zone, deposition of salts occurred that would have affected vegetative cover and the medium- to long-term fertility of the soil. Preliminary assessment estimated that 20,300 ha of land on the mainland were inundated and that 1,505 ha of agricultural land had been severely damaged.

3.6 Land subsidence

Land subsidence in particular the formation of sinkholes is a natural phenomenon in areas with limestone substrate. Over time water dissolves the limestone and forms caves. The stability of

the roof of the caves depends on a number of factors such as proximity of a fault or the hydrostatic pressure of underground water. Strong vibrations such as those caused by an earthquake can trigger the collapse of unstable or weakened roofs. Sinkholes are not a frequent occurrence but between December 26 and end of January, 25 sinkholes were reported, a rather unprecedented number of cases and frequency; 17 of these were in the six provinces. They have not caused casualties but have damaged structures, in particular 2 schools that had to be closed. Mapping is being done on vulnerable areas.

3.7 Marine and terrestrial protected areas

There are 14 marine national parks on the Andaman Coast of Thailand covering many of the archipelagic islands as well as sensitive areas on the coasts of the mainland. Apart from the damage to marine and coastal habitats the parks suffered losses in terms of structures (office, housing, and tourist facilities), equipment (communication and vehicles). Six parks were heavily affected including those in Laem Son in Ranong, Sirinath in Phuket, three parks in Phang Nga, and Hat Nopparat Thara in Phi Phi Island in Krabi.

3.8 Wildlife (sea turtles and marine mammals)

The Andaman Sea hosts a number of threatened fauna species including dugong, dolphins, 4 species of sea turtles that are listed as threatened to critically endanger. Some 150 dugongs are estimated to live in the Andaman Sea in scattered groups from Ranong to Satun. The incidental capture of dugongs in nets and degradation of seagrass beds are the main threats to dugongs. Two dugongs and three dolphins were carried inland by the waves; one dugong and two of the dolphins died.

The tsunami severely affected four turtle conservation and sanctuary projects and the participating communities. The losses included death of staff, loss of animals including breeders, destruction of facilities and project camps.

Summary of Preliminary Assessments on Natural Resources

Environmental dimension	Preliminary findings	Gaps	Priority ranking
Coral reef	**13% of total area significantly affected;** **40% not affected**	**174 of 324 sites were surveyed** **Impact of coral reef damage on aquatic life need to be assessed;** **Need to monitor long term impact on biodiversity**	1 3 4
Mangroves	**Less than 0.2% of total mangrove area affected**	**More systematic assessment need to be aided by aerial survey** **Long term impact of siltation and sedimentation on health of mangroves need to be monitored**	2 4
Seagrass	**5% of total area impacted by siltation and sand sedimentation (3.5%) and total habitat loss ((1.5%)**	**70 % of the area was inspected; need to look at the rest** **Monitor the recovery of the seagrass that is silted and sedimented**	3 4

Beach forest	**None**	**Need assessment of impact on this resource**	2
Coastal erosion	**Coastline has changed in many places significantly; no thorough assessment has been made**	**Most of coastlines need to be surveyed** **Factors that reduced coastal erosion need to be studied to help identify effective mitigation measures**	3 3
Land subsidence	25 sinkholes reported between 26 Dec and 24 Jan – an unprecedented no. of cases	**Identify and implement mitigation of erosion process** **Vulnerability to sinkholes to be identified (including links to water abstraction**	1 3
Saline water intrusion	20,300 ha inundated; 1500 ha croplands severely impacted Salinated wells – 32 of 524 in Phang Nga 29 of 30 surface water bodies sampled contaminated with salt water	**Assess medium and long-term impacts on soil quality and identify amelioration measures** **Check water quality in all wells and in vicinity of flooded areas** **Monitor water quality of wells.** **Check water quality** **Monitor water quality**	2 1 3 2 3
National parks	10 national parks impacted; major infrastructure and equipment loss in 6 parks	**Revise the zoning in the national parks where the vegetative cover has been affected**	3
Sea turtles marine and mammals	Four sea turtle conservation projects severely damaged Dolphins and dugongs died	Assess impacts of tsunami on vital turtle habitats especially nesting grounds Conduct systematic surveys of dugong populations and other endangered mammals	3 4

4. Impacts on Human Environment

4.1 Infrastructure of key economic sectors

Impact on infrastructure was heavy especially to the tourism and fisheries sectors. It was relatively slight on the agriculture sector. The losses to tourism were estimated at $321 M, fisheries at $60 M, and agriculture at 0.65 M.

315 hotels and resorts, 234 restaurants were partially to totally destroyed, 4306 shops most of which were dependent on tourism were lost and 148 large tourist vessels and 776 small tourist boats were damaged or sunk. Damage to the agricultural sector was 1,505 ha of agricultural land severely impacted, and loss of livestock estimated at 1,124 large and small ruminants (cattle, buffalo, goat, and sheep), more than 2,000 pigs and around 8,000 poultry.

4.2 Waste and hazardous materials

The extensive damage to houses (6800 damaged and 3620 destroyed totally), shops, tourist facilities and public infrastructure, large amounts of debris including inert building materials and

hazardous wastes were generated. The total amount is not known but early estimates for the tourist island of Phi Phi were placed at 35,000 tonnes, most of which have now been collected. Debris was scattered by the receding waves along the coastal zone from the settlement areas to the beaches and into the marine ecosystems such as seagrass beds and coral reefs. Hazardous wastewater was also generated by the forensic operations, for which a treatment plat was installed (in Phang Nga province).

4.3 Water distribution and irrigation

There was no major water distribution disruption in the 6 provinces. But water was found significantly contaminated with coliform bacteria and chlorine in a number if wells in Phang Nga and Phuket provinces.

4.4 Energy

The power distribution infrastructure was severely damaged and affected more than 5,000 customers. The repair work, already completed, cost $4.2 M.

II. RESPONSES

1. To Impacts on Fisheries and Aquaculture

1.1 Establishment of a Rescue Center and rescue units

From the night of December 26, 2004 the Department of Fisheries (DOF) lent immediate assistance to the victims by having their Mahidol Research Vessel as well as patrol vessels and DOF staff to rescue survivors and collect bodies (1,583 survivors and 518 dead on the first week). The DOF Rescue Center was set up on December 27 at the Marine Research and Development Center at Andaman, Phuket to enable the victims mainly fishermen to report of their losses and damages. Five Rescue Units were also established in Phang-nga, Satun, Krabi, Ranong, and Trang. The center and units were equipped with communication systems, computer and manned by DOF staff for data collection; they were in operation until January 31.

1.2 Preliminary damage assessments and provision of government relief fund

From the assessment of damages completed by 11 January, approximately 1.3 billion baht had been provided for relief and compensation for fishing communities. Of this 235 million baht were paid to the 422 villages in line with the financial regulations of the government: the funding could only partially compensate people for their losses.

1.3 Fisheries rehabilitation plan development

1.3.1 Needs

These needs include requirements, both immediate-short term and medium-long term, for direct support for equipment and infrastructure, and indirect support such as training, counselling (to recover from trauma) and capacity building, and the gradual rebuilding of livelihoods.

On February 14-15, 2005, with the facilitation of EU/RTG CHARM Project and the support of FAO/NACA/SEAFDEC, the Department of Fisheries organized the *Workshop on Fishing*

Communities and their Livelihoods in the Tsunami Aftermath in Phuket in order to collate updated and more refined damage assessments and address the needs of and facilitate dialogue between the communities, NGOs, local authorities and donors. Immediate-short term and medium-to-long term activities were identified and addressed such as occupation development in the fishing sector, welfare, housing and utilities, education and counseling.. The immediate requirements were boat repair and replacement, provision of fishing gears, revolving funds or micro finance. This would enable the fishermen both small- and large-scale including aquaculture operators to restart their occupation and earn a living.

The Fisheries Rehabilitation Plan contained two schemes: *Livelihood Rehabilitation and Coastal and Fisheries Resource Rehabilitation,* divided into phases covering immediate needs (3 months), short-term rehabilitation (4-6 months), medium-term rehabilitation (6-12 months) and long-term rehabilitation (1-2 years onwards). The needs for support were identified for two levels, namely, household/village level and institutional level. The Plan is outlined as follows:

a. Livelihood Rehabilitation

The tsunami impacted with varying degrees of severity the main economic sectors in the 6 coastal provinces of Andaman coast, namely, tourism, fishery and agriculture. There is a compensation scheme for damage and loss of fishing vessels, gears and aquaculture facilities. The level of compensation is based on fixed rates for each type of damage or loss but these rates are recognized as insufficient to fully compensate for the losses. There is also the issue of gears and traps being illegal and therefore not registered so that they could not be compensated. The government eventually changed its policy and announced it would compensate loss of unregistered fishing assets. It also saw this as an opportunity to introduce legal gears and sustainable practices.

In support to tourism recovery, clean up operations started immediately on the most affected tourist destinations. And major promotion campaigns were initiated to rebuild tourists' confidence. However, the government was aware of the risk that fast track recovery of the tourism industry could merely lead to rebuilding what was there before the disaster. This would effectively pre-empt a well-planned and implemented integrated coastal zone management development program. However, in 3 of the most seriously affected areas (Khao Lak, Phi Phi and Phuket) rehabilitation plans have been drafted that integrate the sensitivity of the natural habitats to promote eco-tourism.

Some of the specific activity areas to rehabilitate livelihoods and resources (and to strengthen capacities of institutions to support rehabilitation) include the following:

i. At household and village levels

Direct immediate/short-term support needs identified so far include:

- Fishing equipment and gear (boats, engines, engine parts, nets, traps etc) replacement and repair
- Fishing boat replacement and repair; establishment of boatyards
- Communication equipment and system for fishing operation both for small-and large-scale fishermen
- Fish landing areas and piers rebuilding
- Procure and provide equipment and facilities for fish handling such as buckets, insulated boxes, and cold storage at fishing piers

- Assist in rebuilding or repair of major items such as houses
- Facilitate access to aquaculture inputs (fish seed, cage reconstruction materials)
- Facilitate easy access to flexible forms or low interest micro finance/credit particularly for large scale fishermen, shrimp hatchery operators, fish landing operators, fish handling operators,

Medium-term/long-term capacity building needs (including counselling) of fishers and their organisations identified so far include:

- Training in natural disaster and sea safety for habitants in fishing communities including the development of demonstration fishing community for early warning on natural disaster such as radio warning system
- Training fishermen for boat building and repair
- Capacity building for village fisher organisations in micro-credit and revolving fund management
- Training in alternative marine-based livelihoods such as sea farming or offshore fish cage culture
- Planning for recovery among village fisher organisations

ii. At the institutional level

Medium-term/long-term capacity building is needed for supporting institutions, including government and NGOs:

- Training of DOF personnel on food safety particularly on toxicology analysis technique to address concerns of the public about safety of seafood that has depressed local markets and for longer term monitoring
- Training of trainers (DOF officers and TAO officers) on natural disaster preparedness and management and safety at sea.
- Participatory planning and co-management of coastal zone and fisheries resources management
- Responsible fisheries and aquaculture management

b. Coastal and fisheries resources rehabilitation

Very large amount of debris were scattered over the marine and coastal ecosystems in particular on corals, beaches and seagrass beds. The clean up of these systems was of top and immediate priority and started on 9 January. The clean up was practically finished by end of March. It was coordinated by the Ministry of Natural Resources and Environment (MoNRE)

Medium-term/long-term

In the medium and long term it is believed that these ecosystems will recover naturally from mild impacts such as siltation, in particular during the monsoons. Long term rehabilitation work will require detailed impact assessments guided by systematic monitoring of the status (health) of the marine and coastal ecosystems.

- Coastal and Fisheries resource assessment and rehabilitation—provide mapping of fisheries resource and develop mitigation plan such as restoration of fish habitats, mangrove rehabilitation, and so on.
- Enhance capacity of Marine Research and Development Center of Andaman Sea in Phuket, and the Units in Phang-nga and Satun in order to strengthen the capacity on the

assessment, monitoring and rehabilitation program for the fisheries resources and coastal areas in six affected provinces of Andaman

c. Risk preparedness

Following the disaster the establishment of a regional early warning system has been mooted. The Thai Government has announced it will establish its own national early warning system, which will collaborate with the regional early warning system. In addition to early warning systems, attention is being given to enhancing the capabilities of the population to prepare for and manage natural as well as man-made disasters. Education and information campaigns should go hand with the setting up of early warning systems.

III. Mechanisms for Support and Coordination

1. Relief phase.

For relief and rescue, a department of disaster prevention and mitigation is operating within the ministry of interior. It has the lead role in coordinating all government relief efforts in tsunami-affected provinces. It established a database on casualties, damages, and information on relief operations and plans including employment, relocation and rescue of tourists.

2. Recovery phase

Four national committees – on tourism, natural resources, livelihoods, and hazard early warning system – were set up to coordinate the response of government on these priority concerns. To coordinate international support, the government also established a sub-committee on environmental and livelihoods rehabilitation, and three task forces, namely, coral reefs and coastal habitats, geohazards, and community livelihoods.

For efficient coordination of assistance to the recovery process (in particular to fisheries), DOF has been trying to gather existing information on household and community level needs and developing a database. The database will identify the name, address, and extent of their loss of fishing assets (such as boat type, requirement for replacement or repair, type of fishing gears) and aquaculture assets (such as fish cages, shrimp hatchery, shrimp pond, bivalve culture grounds etc.). Information on inputs or assistance to a particular household will be identified such as relief fund, international donors assistance that goes to boat replacement or fishing gear provision. This DOF database will serve as the backbone of information on livelihoods rehabilitation and will be used to integrate with NGO- Coordination Network's (NGO-COD) data. This "core" information provision by DOF together with NGO-COD will enable provide a clearer picture of support requirements including: Geographical areas (village/community), Village and household level assessments, Most vulnerable households, Specific vulnerable groups that are not covered by household registration, Needs of particular village(s), Activities required, Actors for particular aspects and activities already undertaken.

This is meant to avoid duplication of assistance and contribute to better allocation of resources. The task on database updating is assisted and coordinated by the Andaman Forum — a Coordinating Body for tsunami rehabilitation on livelihoods aspects. To support the effective matching of needs with support, a ***coordinating body*** was established. The coordinating body needed to have the confidence of, and be accountable to, government, communities and donors. At the Tsunami-response Workshop on 14-15, Feb 2005 in Phuket, it was agreed upon by all parties—DOF, NGO-Network, Community Organizations and the local government or the Tambon Administration Organization (TAO) as well as FAO/NACA/SEAFDEC/EU-RTG CHARM

Consortium to set up the **"Andaman Forum**" as a coordinating body. DOF has provided the office space (in the Andaman Fisheries Development Centre, Phuket) and volunteered some of its staff for the Forum secretariat office. EU/RTG-CHARM project supports the establishment of the office and staff for coordination and information. Another office serving as a coordinating office of DOF will be in Bangkok at the Department of Fisheries, Fisheries Foreign Affairs Division.

Responsibilities of Coordinating Body

- Coordination of a joint government-NGO-donor program to support the rebuilding of livelihoods of tsunami victims
- Facilitate matching needs with support, and track interventions
- Management of a database and communication system that would include updated needs assessments, tracking of interventions and exchange of experiences in tsunami relief and recovery
- Assistance with management of projects implemented through joint programs
- Management of funds (as required—normally funds should go directly to the beneficiaries in the villages)
- Monitoring and evaluation
- Assistance with procurement (according to donor policies and procedures)
- Report to the Sub-Committee on International Cooperation and/or Task Force 3 on the outcomes, and organise meetings as required
- Generally facilitate more effective communications and exchange of experiences in tsunami relief and recovery

Acknowledgement

This write up is based on:

1. The paper presented by the Department of Fisheries of Thailand at the Regional workshop on the rehabilitation of fisheries and aquaculture organized by the Consortium to Restore Shattered Livelihoods and Communities in Tsunami-Devastated Nations (CONSRN) at FAO RAP in Bangkok on 28 Feb-2 March 2005. It was developed by the Department of Fisheries of Thailand. For more information, contact: Dr. Jaranthada Karnasuta , Deputy Director-General, Department of Fisheries, Bangkok, Tel: 662-562-0526, Fax: 662-562-0493; Jaranthada@hotmail.com; and Dr. Waraporn Prompoj, Chief, International Cooperation, Fisheries Foreign Affairs, DOF, Coordinating Office
Tel: 662-579-8213, 662-562-0529; Fax: 662-562-0529; prompoj@inet.co.th or wprompoj@yahoo.com

2. "Rapid Environmental Assessment Repot, Thailand". A draft report of the Ministry of Natural Resources and Environment, provided by the Department of Marine and Coastal Resources. For information: Dr Maitree Duangsawasdi, Director General, DMRC. Ph 662 298 2640

3. Report of the Regional Workshop on Rehabilitation of Fisheries and Aquaculture in Coastal Communities of Tsunami affected countries in Asia, 28th February-1st March 2005, Bangkok, Thailand. Contact: Dr Derek Staples, Regional Fishery Officer, FAO RAP, Bangkok, Derek.Staples@fao.org

Annex 1

Table 1. Participants in rapid assessment activities (Coastal Resources and Human Environment)

Participants	Areas of Concern
Department of Marine and Coastal Resources (MonRE), Universities, Private Sector, NGOs	Coral Reefs Seagrass Mangroves
Department of National parks, Wildlife and Plant Conservation MoNRE	Impacts on infrastructure and facilities in protected areas
Department of Health, Ministry of Health	Well water and groundwater quality
Department of Fisheries	Impacts on fishing vessels, gears and aquaculture
Department of Mineral Resources	Land subsidence, vulnerability to land subsidence, coastal erosion, surface water quality
UNDAC (UN Disaster Assessment and Coordination)	Emergency needs
UNDP/World Bank/FAO	Medium and long-term impacts and possible partnerships in livelihoods recovery and environmental rehabilitation
UNDP/UN Rehabilitation/ILO/IOM/UNHCR/UNESCO/UNEP	Needs for shelter and resettlement, employment, environment, migrant workers, and indigenous communities and knowledge

Table 2. Tsunami response to fisheries rehabilitation in Thailand--who, what and where (March 2005)

Impact Assessment

Impact assessments in fisheries and aquaculture completed	Geographical areas covered
Government departments, universities, NGOS, volunteers	1. Six affected provinces: Ranong, Phang-nga, Krabi, Satun, Phuket, and Trang DO/DMRC/Health/others - Rapid needs assessment on the damage on fisheries and aquaculture sectors including small scale and large scale fishers, fishing gears, engines, cage culture, shrimp hatcheries, shrimp farms - Rapid fisheries resources assessment by the Andaman Marine Research and Development Centre in early January 2005 in Phang-nga and Phuket province.
International agencies and bilateral donors	2. FAO /NACA - Technical Damage and Needs Assessment Mission in Fisheries, Agriculture and Livestock Sectors UNDP, UNEP - environment, resources, livelihoods assets
	3. SEAFDEC - Compilation and sharing of information on the impacts of Tsunami on fisheries sector
International NGOs	4. ARC International - Needs assessment of small scale fishermen for boat replacement
National/local NGOs	5. NGOs Network in Andaman area - Sharing information on the impact of Tsunami on fisheries sector
	6. Save Andaman - Assess the needs of fishermen in boat repair, boat building and shipyard need and revolving fund for engine and fishing gear provision

Rehabilitation Initiatives

Existing rehab initiatives in fisheries and aquaculture	**Description/form of activity/input**	**Geographical areas covered**
Government departments	1. DOF - provide relief fund for affected fishermen in amount of 1.3 million baht (on going)	6 provinces in 422 villages
International agencies and bilateral donors	2. FAO emergency provision of fisheries inputs for 2.1 Coastal aquaculture for 200 fishermen (fish seed, fish cage structure and fish cage net) 2.2 Coastal fisheries (wood to repair fishing boat, and fishing gear such as gill net, fish trap and crab trap)	6 provinces
International NGOs	3. ARC International provide 800 unit of small wooden and fiber glass fishing boats	Phang-nga and Ranong provinces for 14 fishing villages
National/local NGOs	4. NGOs network in Andaman area - provide boat repair, boat building and shipyard building - provide revolving fund for fishing communities to purchase fishing gear and engine	6 provinces

Planned Rehabilitation Initiatives

Planned rehabilitation initiatives in fisheries and aquaculture	**Description/form of activity/input**	**Geographical areas covered**
Government departments	1. DOF - Coastal and Fisheries Resource Assessment in Andaman Area - Provision of additional relief fund for unregistered fishermen and appealed fishermen in 6 affected province - arrange the establishment of coordinating body as Andaman Forum for coordinating of the assistance among donors and beneficiaries through government, NGOs and communities	
International agencies and bilateral donors	2.EU/CHARM project - capacity building for fishing community development by setting the pilot villages	6 affected provinces
	3. Czech Republic by Czech Red Cross Society through CARMAN, a.s. company - provide the joinery sawn timber and building sawn timber to build permanent home for fishermen	Under discussion

Planned rehabilitation initiatives in fisheries and aquaculture	**Description/form of activity/input**	**Geographical areas covered**
	4. USAID - Sustainable Coastal Communities Program – 3 years To implement a model rehabilitation effort in a cluster of communities along the Andaman Coast in Ranong province serving as a demonstration of sustainable and diversified coastal livelihoods for other communities and nations in the region. (joint program with Dept. of Marine and Coastal Resources, Dept. of National Park, University and NGOs)	Ranong province
	5. AIT - provide training for government officer (trainee) and fishermen on Natural Disaster and Sea Safety	Under discussion
	6. Norway - Technical support for off-shore fish cage culture in concept design and assessment of appropriate sites for off shore cage culture in Andaman sea	Under discussion
	7. CANADA - provide technical support for fishing community development and fisheries through the Chulabhorn Research Institute	Activities to be identified
	8. Australia - Coastal zone management - Enhancing/strengthening capacity of Marine Research and Development Center of Andaman Sea, Phuket DOF	Under discussion
	9. Japan (Kochi University) - Technical assistance on aquaculture development and fish toxicology	
International NGOs	10. ARC International - Boat replacement	on going (14 villages in 2 province)
National NGOs	11. NGOs network in Andaman area - villages in 2 provinces - more boat repair and boat building - more shipyard building - revolving fund management - alternative occupation for fishermen	6 provinces
NACA/CONSRN, CHARM, REST, TAT, LOCAL GOV'Ts	12. Model self-help rehabilitation and long term development of the community, integrating ecotourism into various livelihoods options	1 island district in Phang Nga and 1 coastal village in Trang

Annex 2

Future needs for rehabilitation (fisheries and coastal livelihoods)

	Fisheries	**Coastal Livelihoods**	**Aquaculture**
What do you think are the 5 key challenges for medium-to-long-term rehabilitation?			
1.	fishing boat replacement; engine and fishing gear provision	Revolving fund, micro credit for community fund	Revolving fund and micro credit
2.	Coastal fisheries resources assessment	Fishing pier repair/replacement	Aquaculture inputs (seed, materials)
3.	Coastal fisheries mitigation plan development	Shipyard building	Effluent treatment system
4.	Off-shore cage culture development	Permanent housing	Training on water treatment system
5.	Natural disaster and sea safety training for fishermen	Training for alternative occupation	Biosecure system
What do you think are the 3 most important principles that should govern medium-to long-term rehabilitation?			
1.	Sustainable fisheries	Co-management	Environmentally-friendly
2.	Responsible fisheries	Community development	
3.		Self-reliance	
What do you think are the 3 most important types of inputs that should govern medium-to long-term rehabilitation?			
1.	fishing boat replacement; engine and fishing gear provision	Revolving fund, micro credit for community fund	Revolving fund and micro credit
2.	Coastal fisheries resources assessment	Fishing pier repair/replacement	Aquaculture inputs (seed, materials)
3.	Coastal fisheries mitigation plan development	Shipyard building	Effluent treatment system

Annex 3

Guiding Principles for Rehabilitation and Development

(From the Report of the Regional Workshop on Rehabilitation of Fisheries and Aquaculture in Coastal Communities of tsunami affected countries in Asia, 28th February-1st March 2005, Bangkok, Thailand)

a) "Putting people first in rehabilitation".

A livelihood approach which ensures that natural systems have an enhanced ability to provide a broad and sustainable range of livelihood strategies, accessible to all members of these communities (including women, children and marginalized groups). This approach should also take into account the diversity of additional and existing livelihood strategies available to people in coastal communities, such as farming, fish processing, gardening, marketing etc. Key features are:

- *Reduction of vulnerability and potential risk for coastal communities from future natural disasters (through for example, efficient and consistent design and placing of infrastructure and protection of the coastal zone environment).*
- *Partnership and national ownership through extensive stakeholder consultation and public participation regarding fishers and fish farmers' objectives, which ensures respect for traditional uses, access and rights.*
- *Action is based on a practice of co-management that involves all stakeholders in policy formulation and decision making, based on adequate representation of the stakeholders and the best scientific information available.*
- *An emphasis on flexible and adaptive methods that respond to the complexity and differences in rehabilitation work in different areas.*
- *Respect the human rights of all participants, especially with respect to labor standards, equity of distribution of benefits, access to land. Provision of assistance and rehabilitation based on humanitarian needs rather than legal status.*

b) "Rehabilitation that is consistent with International and Regional agreements and guidelines".

Any rehabilitation activity should positively contribute to the following agreements and guidelines:

- *The goals on poverty alleviation and food security contained in the Millennium Declaration*
- *The ASEAN Resolution & Plan of Action adopted by the Millennium Conference and BIMSTEC declaration.*
- *The principles of sustainable development of fisheries and aquaculture that are set out in the FAO Code of Conduct for Responsible Fisheries (CCRF), NACA Principles for Sustainable Aquaculture, SEAFDEC Regional Guidelines for Responsible Fisheries in S.E. Asia.*
- *The recently agreed UNEP principles for tsunami reconstruction*

In particular, action will follow a multi-sectoral approach which ensures that the natural resource base of the coastal zone is sustained. This includes:

- *integrated coastal zone management that recognizes the multiple use nature of the limited natural resources base and plans and fairly allocates that resource across users.*
- *Emphasis will be placed on provision of support for institutional and policy reforms that address fishing overcapacity, unsustainable fishing practices and unsustainable aquaculture*

c) Key principles of the sub-sectors will have the following features

The goal of rehabilitation is to achieve the following key features. **In particular, the fishery sector:**

- *Is based on a fishing capacity that is commensurate with the productivity of the fishery resource, controlled through the allocation of user/access rights to fish;*
- *Is based on balance of small-scale artisanal fisher folk fishing inshore water with larger-scale "industrial" vessels restricted to off-shore areas supported by a "pro-poor" policy that gives preference to beach-based labour intensive fishing;*
- *Is based on non-destructive fishing gear and practices;*
- *Provides adequate safety at sea provisions and practices;*
- *Is based on healthy ecosystems that have been rehabilitated through participatory practices that involves the people that depend on them;*
- *Is based on good governance with strong institutional support from both government and NGOs;*
- *Is supported by high quality on-shore infrastructure that ensures food safety and value-adding potential in post-harvest processing and sale of fish products.*

… the aquaculture sector:

- *Is based on environmentally sound management practices that does not pollute, damage habitats or cause long-term irreversible harm, including use of feed that is taken from sustainable sources and seeds that are raised in environmentally sound hatcheries or taken from sustainable fisheries;*
- *Adopts technologies and farm-management practices that are appropriate to rural people with limited resources that minimize the impacts of aquaculture on other users of the coastal environment.*
- *Adopting an array of appropriate technologies and farm management practices, including those suitable to people with limited resources, which minimize impacts and which support:*
  - *Democratic self-determined farmer organizations.*
  - *Marketing, processing manufacturing of inputs and outputs.*
  - *Fair trade and markets.*
  - *International and regional partnerships.*
  - *Wide-scale communication, facilitation of dialogue and sharing of experiences*

and trade and markets:

- *That minimises losses and wastage, including during transportation.*
- *Based on fish handling at sea to ensure high quality of landed fish, and supported by high quality onshore infrastructure to ensure maximization of fish quality and value-added potential in the post-harvest processing and sale of fish products.*
- *Based on the provision of high quality and safe food for human consumption*

d) Rehabilitation processes

The implementation activities will follow a process approach and shall include the following elements;

- *Detailed impact/damage assessments and needs analyses to be the basis of all rehabilitation activities.*

- *Assessments of the institutional capacity of different organizations at all levels (and economic sectors) to deliver effectively, and the organizational ability of recipients to receive and utilize any inputs*
- *Action will be taken with a clear indication of measurable outcomes*
- *Emphasis will be placed on "accountability" and "transparency"*
- *Effective communication is a core element. Actions will support coordinated partnership between government, NGOs, international agencies and bilateral donors.*
- *The findings and outcomes should be communicated clearly to development partners throughout the process*

Annex 4

Rehabilitation Strategies

Key strategies and priority areas agreed by the Regional Workshop

Strategy 1 – Improve Policy, Institutions and Processes
• Set clear policy objectives which acknowledge trade-offs between competing objectives (economic, social and environmental). • Strengthen fisheries management institutions • Promote integrated coastal management as a governance process for facilitating discussions between stakeholders. • Ensure consultation with and participation of stakeholders
Strategy 2 - Provide physical assets
• Provide physical assets through conducting needs assessments, purchasing, and identification targeted beneficiaries, to ensure timely delivery to those in need. • Provide physical assets that support broad livelihood activities, involving both CONSRN partners and other agencies with the competency and mandate. • Control the provision of physical assets to avoid over-capacity, recognising the trade-off between the need for rapid inputs (such as boats), versus good governance and legislation. • Provide policy advice and advocacy on over capacity issues through regional meetings. • Support development of legislation (which reflects local level needs, monitoring, registration for example) at national level to reduce over capacity. • Supply physical assets that are compatible with the needs of the affected people ("like for like" principle) • Monitor the process of procurement and distribution by all suppliers
Strategy 3 - Ensure equitable access to inputs and the sustainably managed resources
• Carry out stakeholder analysis to ensure participation and equitable access to resources, determination of levels of fishing capacity and equitable planning for aquaculture activities. • Consult with the fisher communities and fish farmers in a transparent way before considering relocation. • Rehabilitate important habitats and ecosystems (such as coral reefs and mangroves) through participatory approaches with communities and in cooperation with the concerned Government Departments, Ministries and Institutions. • Ensure access to supplies of seed and broodstock for aquaculture.
Strategy 4 - Provide appropriate financial mechanisms
• Assess and understand the existing financial mechanisms (formal and informal) in their cultural context. • Ensure overcapacity is not encouraged through provision of loans to repair and replace vessels. • Support the establishment of an enabling environment for financial institutions and systems (formal, informal) to ensure their rapid return to normal operation • Provide all players in the supply chains have access to appropriate finance but with a focus on small scale non-commercial lending. • Collaborate with APRACA through providing technical inputs to their assessments and (through APRACA collaboration) to the Banks for their lending guidelines.
Strategy 5 -Improve community livelihoods and responsible coastal resources / management.
• Facilitate the empowerment of communities (through development of human skills) to ensure greater community organization and participation in networking, negotiation and self-reliance [such as development of marketing or micro-enterprise organisations]. • Increase skills, knowledge, ability to work and health of all those in affected fishing and aquaculture communities with emphasis on small-scale, marginalized, resource poor people, and • Enhance the capacity of the institutions working to support them (to be implemented at the community and national level).

- Facilitate the empowerment of communities (through development of human skills) to ensure greater community organization and participation in networking, negotiation and self-reliance [such as development of marketing or micro-enterprise organisations].
- Train and plan in the implementation of responsible community coastal resource management strategies and enforcement.
- Provide training in sustainable livelihoods approach

Strategy 6. Re-build and enhance the social asset, resources and networks upon which people in affected fishing and aquaculture communities draw in pursuit of their livelihood strategies and psychosocial well-being (to be implemented at the community and national level).

- Establish, rebuild and strengthen community organizations (e.g. fisher groups, cooperatives, religious groups, women's support groups, etc)
- Strengthening existing social institutions
- Identify existing expertise and skills in particular disciplines and sectors and map to needs.
- Network and communicate with existing organizations and ensure expertise and activities publicised.
- Support establishment of structured mechanisms for consultation, interaction, communication and coordination between governments donors and NGO's.

Coastal Tourism, Habitat Restoration, and Hazard Management

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Introduction

The Indian Ocean tsunami of 26 December 2004 is one of the world's worst natural disasters, but not the worst in recent history. The tsunami was deadly for a number of reasons

- low-lying populated coasts within a short distance of the tsunami source (tsunami waves reached Sumatra in less than half an hour and Sri Lanka within 2 hours)
- no tsunami warning system in the Indian Ocean
- little public awareness of tsunami hazards (the last major disaster of this type in the Indian Ocean was set up by the Krakatoa eruption in 1883)
- destruction of some natural coastal protection, e.g. mangroves, coastal forests
- affected people outside the region (e.g. tourists such as the Swedes who recorded their worst disaster in the post-war period)

The objective of this short paper is to provide an overview of some related critical issues on coastal tourism, habitat restoration, and hazard management. To understand these, it is necessary to briefly understand the impacts of tsunamis on the coast first.

Tsunami impacts on the coast

As a tsunami arrives at the coast, the most damage occurs from its direct physical impact of a rapidly moving wall of water against all objects in its path. Any tsunami run-up (i.e. the height measured relative to a datum such as mean sea level) over a metre is dangerous. Secondary effects relate to inundation and scouring.

The impact of the tsunami depends on nearshore and coastal conditions, such as the bathymetry, coastal configuration, the direction of tsunami travel, and the stage of tide. For example, wave refraction can increase the impacts and furrows across reefs can channel the flow. At the same, the character of coast can reduce the impact, e.g. lesser impact on a rocky coast as compared to a sandy coast.

On a developed coast, such a tourist coast, the impacts would include buildings and structures. Structures will be subject to at least four forces from the tsunami: scouring, wave breaking, overturning, and sliding as the water passes through (NTHMP 2001). The run-up charged with debris from the coast and buildings is often very deadly to human life.

Coastal tourism

In Southeast Asia, coastal tourism has developed largely in an unplanned fashion. Although planning laws are available, there is a lack of enforcement and this led to undesirable impacts on the coastal environment. Hotels have no proper setbacks (the minimum distance of buildings and permanent structures from the shoreline) and sometimes constructed up to the edge of the beach and affected by high waves during the onshore monsoon season. The coastal environment is largely degraded as a result of the removal of coastal vegetation, coastal dunes and coastal forests, degraded corals, diverted river mouths, pollution, and other negative impacts (Wong 1996). Integrated resorts are considered as a panacea to the

problems of unplanned tourism development but they cannot be implemented easily due to high costs. The importance of corals for ecotourism development has led to the creation of marine parks.

As tourism is largely a private sector activity, international organizations are not concerned with the post-tsunami recovery of the tourist coasts. Thus, their recovery is left in the hands of national governments and the private sector. The most vigorous efforts are seen in Phuket, which is responsible for one-third of the tourist arrivals to Thailand.

Several issues emerge in the planning and development in the post-tsunami recovery of coastal tourism on Phuket. In the high priority areas, such as Patong beach, there is division between various groups on the type and extent of redevelopment. The environmentalists favour building setbacks and the reconstruction of the natural coast with some natural protection (e.g. dunes, coastal forests). The tourism authority has planned a safer beach that emphasizes on both safety and accessibility and includes hardened structures and high towers to watch the arrival of tsunamis. The local businessmen want to set up their businesses on the beach without new restrictions (*Bangkok Post*, 5.1.2005; *Phuket Gazette*, 22.1.2005; *The Nation*, 23.1.2005).

For some areas, and especially on small islands, where recovery is not so imminent, tourism recovery may be more difficult. It may be a wise policy to leave them as nature areas (best gazetted) for day visits and without permanent structures. For example, Maya beach (which was damaged in the filming of the movie “The Beach”) on Phi Phi Le has recovered almost to its original state after the tsunami (*The Nation*, 2.3.2005) and could be left as a natural area. Also, Phi Phi Don could also be kept as natural as possible for day visits (*The Nation*, 25.2.2005).

Coastal habitat restoration

Coastal ecosystems such as coral reefs, mangroves, sand dunes, coastal forests, are important in reducing the impacts of the Indian Ocean tsunami based on preliminary environmental assessment, anecdotal evidence, and satellite images before and after the tsunami event (UNEP 2005). For example, in the Pichavaram mangrove wetlands, six hamlets did not suffer damage compared to total devastation of those located on or near to the beach (Wetlands International 2005a). Of 418 villages affected by the tsunami in the Andaman coastal provinces with their rich mangrove forests, only 30 were severely damaged (*Bangkok Post* 12.2.2005).

The degree or success of coastal ecosystems in reducing the tsunami impact is not a straightforward case as it depends on a number of factors, e.g. the distance from the tsunami and the spatial extent and structure of the ecosystem. Satellite images of Aceh, which was subject to high tsunami waves, show a complete loss of beaches, mangroves and severe localized damage to corals. Away from the epicentre of the earthquake and tsunami, there are many anecdotal reports of the reduction of damage behind mangroves, corals, and coastal forests but quantitative data are lacking (Wetlands International 2005a).

The replanting of mangroves is not an easy task as various factors have to be considered. For example, a plantation-style approach to mangrove rehabilitation programme could result in damage to the coastal ecosystem if done without sufficient preparation. Existing mangrove plants cannot be removed to put in new saplings and mangroves cannot be planted in all intertidal areas. In the proposal for a mangrove belt for the west coast of Aceh, there are doubts on its suitability as the coast does not have an extensive mangrove belt but only fringe mangroves in the lagoons, bays and on some islands. This is evident from the discussion forum conducted by the Global Environment Centre (River Basin Initiative).

Various methods - fixing substrate, installing artificial reefs, transplanting corals and coral seeding - have been used for coral rehabilitation and restoration. For reefs damaged by the tsunami, debris removal is most important although some natural recovery could take place, e.g. sediments covering corals can be removed during the monsoon seasons. The restoration of beaches, coastal dunes, lagoons, and the coastal vegetation as well as the replanting of coconut trees and bamboo demands less skills and could achieve a higher success rate with the local population.

Whatever methods or programmes are being implemented for the restoration of the coastal ecosystems, it would be paramount to involve the local populated affected by the tsunami, many of whom have lost their livelihood. Coastal habitat restoration should not be concerned with just the restoration of coastal ecosystems. It should now be seen as a process in which the livelihood of the local population is also restored sustainably. Coastal habitat restoration must include livelihood restoration.

Coastal hazard management

Figure 1 is a simple classification of the coasts that utilizes coastal geomorphology and human modification of the coasts as a primary basis for hazard assessment. For local governments involved in community development and redevelopment, the focus should be mitigation through land use and development policy, building design, and site planning. The NTHMP (2001) has listed seven basic principles to reduce community risk.

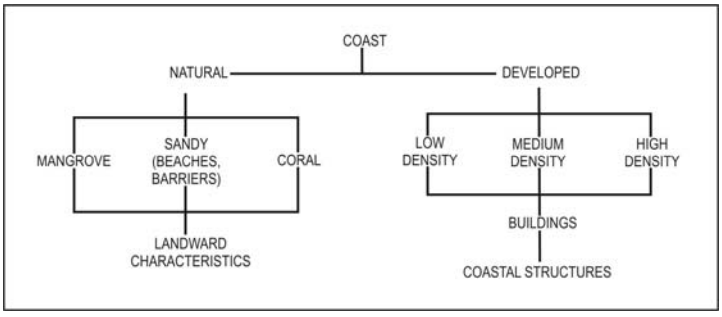

Figure 1. Simple coastal classification for hazard assessment

For hazard mitigation a number of immediate needs should be examined.

- Implement public education on hazard awareness in the coastal villages as this is the least costly of all measures.
- Locate essential buildings such as schools and hospitals on higher ground.
- Promote various types of coastal vegetation that can prevent erosion.
- The introduction of setbacks has to be more flexible. For tourist coasts, it is not possible to ban hotels completely from beaches, but the buildings can be better designed, e.g. a ground floor with walls that break away from the supports or windows and wall panels that can be washed out. Similarly, the relocation for the local population is not easy as many depend on the sea for their livelihood. Although their homes can be improved, an effective warning system and a public education programme would be better measures.

For the medium long term, the hazard mitigation measures would include the rehabilitation of coastal ecosystems, e.g. mangroves, corals, etc, with possible integration with aquaculture, paddy cultivation, tourism development, etc.

For the long-term an effective warning system is required. Until a regional system that can detect tsunamis is set up, some countries have already set up their own simpler systems.

The recent earthquake of 28 March 2005 leading to evacuation from the coastal areas has shown some value of such systems. Long seawalls and similar types of hard structures in various plans for hazard mitigation cannot guarantee full protection and are costly. The mega-engineering approach is not suitable compared to conserving or replanting coastal forests and mangroves which can offer a degree of protection.

Paradigm shift in coastal management

The terrorist attacks in the United States on 11 September 2001 have created a change in the travel paradigm. Previously, the fear factor (arising from hijackings) was not to be publicized, but it now forms the basis of safety requested by the tourists and the travel industry. Similarly in coastal management, the Indian Ocean tsunami will create a shift in coastal management paradigm at least in the Indian Ocean and Asia-Pacific region. We have learnt coastal management principles from mid-latitude countries, but seldom in relation to natural hazards. In tropical coastal management, we must now include tsunamis and other coastal hazards. In relation to reducing the risks, integrated coastal management (ICM) need to re-examine the role of the coastal ecosystems in relation to aquaculture and paddy cultivation, selective development of beaches and islands for tourism, appropriate design criteria and setback lines for tourist infrastructures, marine parks for the protection of coral reefs, and other related aspects.

The following programmes are suggested for tsunami-affected areas in Aceh :

- Provide a number of off-road vehicles to bring public education on earthquakes and tsunamis to the coastal villages. They could also provide information on the importance of the restoration of coastal ecosystems and need to preserve them.
- Spend less energy and money on surveys and focus more on the restoration of the coastal ecosystems that integrate job opportunities, increase human welfare and reduce the people's vulnerability to risks. Cleaning the coastal environment itself is a major task.
- Select suitable sites for the demonstration of ICM that includes hazard mitigation. This could include the development of appropriate coastal greenbelts (mangroves, coastal forests, the possibility of using more eco-engineering (soft engineering) practices, etc. At least for Aceh, Wetland International (2005b) has surveyed more than a dozen areas, some of which would be suitable for implementing the ICM.

Conclusion

Several issues and suggestions relating to coastal tourism, habitat restoration, and hazard mitigation in the post-tsunami phase have been discussed briefly. Ultimately, the implementation of the measures depends on the collective efforts of various agencies and various levels of government, especially the local governments, to implement integrated coastal management with hazard mitigation.

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Disaster Risk Reduction Strategies and Sustainable Development

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The tsunami, spawned by a magnitude 9 earthquake in the Indian Ocean wrought direct havoc in 12 countries in South and Southeast Asia and on the east coast of Africa. The earthquake/tsunami event is now considered as one of the deadliest and costliest in the last century. The disaster killed more than 250,000 people and overall damage could exceed US$10 billion (UNEP 2005). United Nations refer to it as the worst humanitarian crisis ever in modern times. The magnitude of the devastation is horrific, with the needed relief and reconstruction work reaching tremendous scales.

Just like putting salt in a fresh open wound, disasters struck one after the other barely two months from the tsunami tragedy. The flooding, breaching of dams and avalanches from heavy rains and snow in northern Pakistan and Afghanistan, the worst coal mine disaster in China, the earthquake in central Iran and the mudslides in California happened in a span of just one month – February 2005 and caused hundreds of deaths. The most recent is the magnitude 8.7 earthquake in Indonesia with epicenter near the Nias Island south of the December quake. Scientists refer to the December 2004 and March 2005 quakes as fraternal twins; fortunately another dreaded tsunami did not materialize but just the same lives and properties have again been lost. In terms of lives lost and economic loss, the foregoing natural and technological disasters pale in comparison to the 2004 tsunami. One hopes that succeeding disasters will not be sidelined, and that the same empathy and concern as witnessed during the tsunami disaster will not be diminished.

Actually, the tsunami tragedy has now become the focal point of the renewed refocusing of how to deal with disasters and how partnership efforts could be effective to reduce risks. This paper acknowledges though, that numerous initiatives were started in the last 30 years. The recent Kobe Conference which was thrust into more prominence due to the tsunami, came up with the Hyogo Framework and five strategic actions in the next ten years. This paper describes the principles underpinning such risk reduction strategies and will present a number of case studies which support the Framework. The paper concludes to a call to action to apply strategies which already have been codified and mainstreaming risk reduction into development planning.

Disaster Risk Reduction Initiatives

From among the numerous risk reduction strategies in the past, the more significant is when the United Nations designated the 1990s as the International Decade for Natural Disaster Reduction. Although the decade may be derisively remembered as the International Decade of Disasters, with the upsurge of natural disasters and destruction, positively, the trend has heightened the awareness of being prepared in times of calamities and increased the demand for safer living conditions.

Coming at the heels of the 1990s UN declaration was the Yokohama Strategy and Plan of Action put forth at the World Conference on Natural Disaster Reduction in Yokohama in 1994.

The Strategy calls for each country to institute measures that can protect its people, infrastructure and national, social or economic assets from natural disasters. It also emphasized the role of human action, given socio-economic vulnerabilities, in reducing effects of disasters.

These initiatives provided important direction towards seeking ways to mitigate impacts of disasters. For example, across East Asia, most national disaster management organizations (NDMOs) have been set up to mainstream national policies for disaster management (see Bildan 2003; UN-ISDR 2004 for list of NDMOs). Also several regional mechanisms exist - ASEAN Experts Group on Disaster Management (AEGDM); ASEAN Regional Forum-Inter-Sessional Meeting on Disaster Relief (ARF-ISMDR); ASEAN Regional Cooperation on Transboundary Haze Pollution; Mekong River Commission (MRC); Asian Disaster Preparedness Center (ADPC) and Asian Disaster Reduction Center (ADRC) to name a few (Bildan 2003). The involvement of local authorities and communities is now increasingly being regarded as a major factor to successful disaster reduction. Emerging strategies call for establishing disaster resilient communities.

At the close of the 1990's the UN General Assembly founded the International Strategy for Disaster Reduction (ISDR) to continue the commitment in reducing human, social, economic and environmental losses due to both natural and man-made hazards. In 2002, the World Summit on Sustainable Development (WSSD) adopted the Johannesburg Plan of Implementation including risk assessment, vulnerability and disaster management as main targets in 2015.

The publication in 2002, later revised in 2004, of ISDR's *Living with Risk – a global review of disaster reduction initiatives* consolidated global efforts which are instructive and useful. The document plus UNDP's *Reducing Disaster Risk: A Challenge for Development* served as important references as a run-up for the January 2005 World Conference on Disaster Reduction in Kobe, Hyogo, Japan. The conference was initially planned to commemorate the 1995 Kobe earthquake and the remarkable recovery that have since been made. But the 2004 tsunami struck which gave another tremendous boost and political windows of opportunity to push for an international agenda towards mainstreaming disaster risk reduction strategies within the sustainable development framework.

The conference concluded by adopting the Hyogo Framework for Action 2005-2015: Building Resilience of Nations and Communities to Disasters (UN, 2005) which envisions "the substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries". Five priorities for action in the next ten years were adopted in order to:

1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation;
2. Identify, assess and monitor disaster risks, and enhance early warning;
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels;
4. Reduce underlying risk factors; and
5. Strengthen disaster preparedness for effective response at all levels.

Disaster Risk = Hazard x Vulnerability

The Hyogo Declaration is predicated on the fact that risk from disasters has become commonplace that greatly erodes development gains. People affected by disasters have reached, annually on average, more than 200 million in the past two decades (UN 2005). This awareness is coupled with the appreciation that disasters are not only one time extreme event and temporary disruptions; that they are not only isolated single events that can only be satisfactorily managed by warning systems, humanitarian relief and rescue operations, and structural reconstruction. Disasters can also result from slow-onset, series of successive man-made decisions and actions (or inactions).

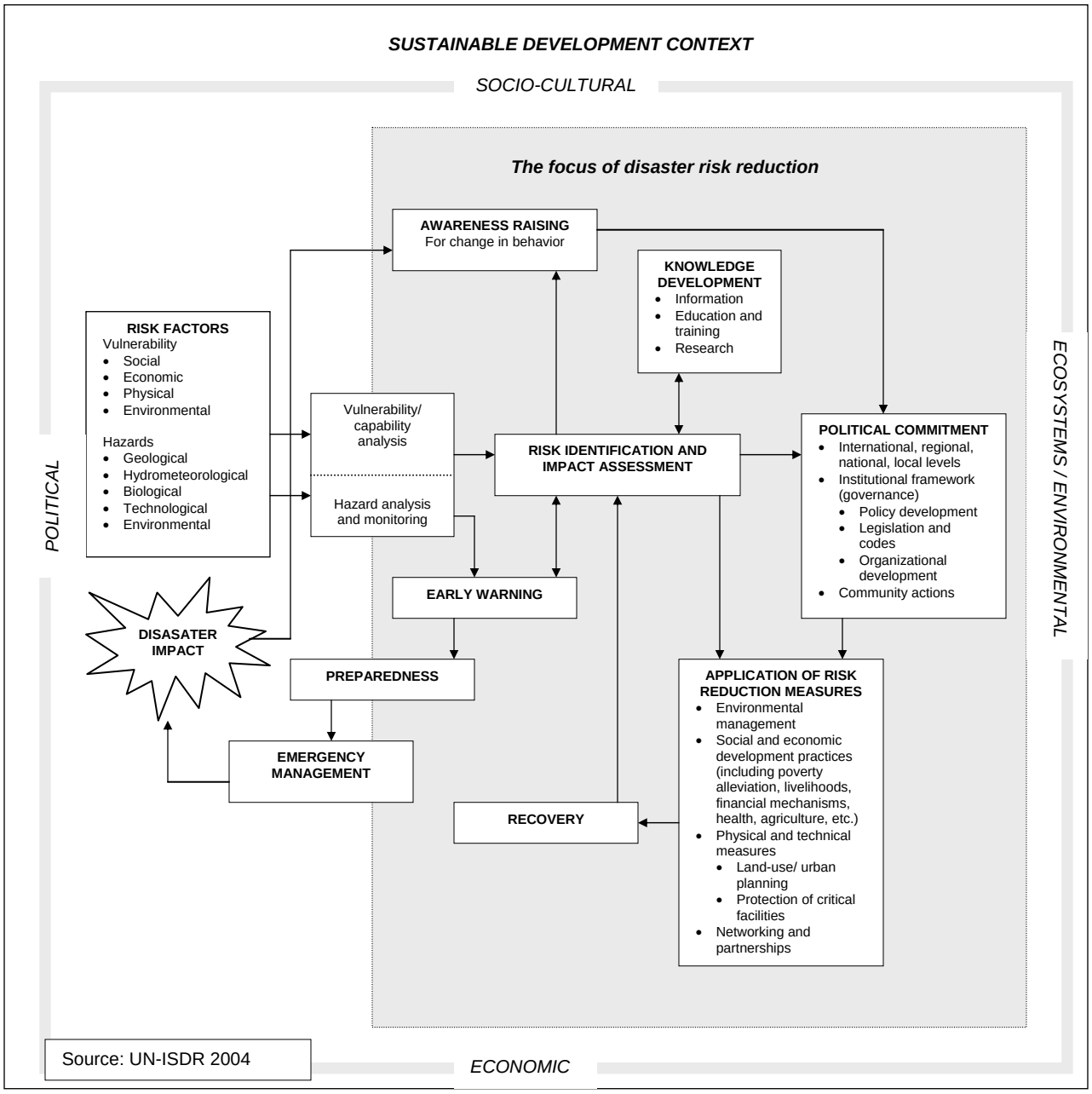


Figure 1. Framework for Disaster Risk Reduction

Milletti (1997) thus argues that “disasters are designed” and that “while most natural hazards may be inevitable, disasters are not” (UN-ISDR 2004). Semantics now argue against the use of the term ‘natural disasters’ as disasters are largely caused by higher vulnerabilities from human decisions.

Viewing disaster risk as mainly coming from a hazard has thus now been expanded to include a community’s vulnerability. The shift in risk reduction strategies has, in addition to being reactive - utilizing early warning, preparedness and emergency management tools, to becoming more proactive - utilizing awareness raising, risk management and risk reduction strategies. Both strategies, when combined, are being envisioned to immensely reduce deaths, as well as social, economic and environmental losses. The framework put forth by UN-ISDR (**see Figure 1**) encompasses both with sustainable development as the overarching principle. As seen from the diagram, and from the list of indicators to benchmarking progress (**see Appendix 1**), it can now be appreciated that disaster risk reduction and other management programmes like integrated coastal management, poverty reduction and good governance have mutually supportive objectives. As with other programes, disaster risk reduction acknowledges both the social and physical dimensions of the risks, calls for a stronger political commitment and puts significant importance to changing human behavior and attitudes. Strategies are geared towards management of the physical environment (e.g., zoning, mangrove and habitat restoration); promotion of sustainable livelihood, poverty alleviation and promotion of public participation.

Table 1 Spheres of vulnerability factors (Source: UN-ISDR 2004)

Physical	• susceptibilities of location and built environment • the site, design and materials used for housing and infrastructure • remoteness of settlement • population density levels
Social	• level of well-being of individuals, communities and society • social equity, class and caste structure, gender issues • level of literacy and education • physical, mental and psychological well-being, basic water and sanitation and healthcare facilities • traditional knowledge systems • collective organizational systems
Economic -	• economic status, poverty • levels of individual, community and national economic reserves, levels of debt, loans and insurance • other basic socio-economic infrastructure like communication, utilities and supplies, transportation
Environmental	• extent of natural resource depletion • state of resource degradation • pollution

Vulnerability is a Central Theme

It is clear that the other part of the equation - vulnerability - must be central to risk reduction strategies. Four vulnerability factors are very obvious – physical, social, economic and environmental factors (Abramovitz 2001, UN-ISDR 2004; **see Table 1**). The actions to reduce vulnerability must be tied at identifying and strengthening the individual, institutional and societal capacities and coping mechanisms. This is at the heart of acting proactively – of instituting mitigations during lull periods when disasters are not wreaking havoc. This is the time of building the culture of safety and prevention. As always the case with rhetoric, this is easier said than done.

Koffi Annan said, "*Building a culture of prevention is not easy. While the costs of prevention have to be paid in the present, the benefits lie in distant future. Moreover, the benefits are not tangible; they are the disasters that did not happen.*" This is a paramount concern to our society which has grown to complacency, is often fatalistic and is wont to instant tangible results.

Barriers to pushing for proactive reforms may come from cultural norms. Communities may believe that disasters are god-sent. Although the belief may have declined, traces still linger, and some communities take disasters as their fate. This attitude plus the argument that extreme events happen infrequently in any given place create complacency. The initial worries after a disaster are soon replaced with more immediate and day-to-day problems.

Politicians may also view responding to disaster as creating more political mileage than instituting mitigation measures whose effects may not be seen during an incumbent's term. It is a fact that after a disaster, funds for relief come a-pouring and officials look good when seen distributing relief goods.

Terry Jeggle, also a long-time proponent of disaster management, also notes that; "It is hard to find institutions willing to say, "Let's invest now for deferred benefits later to prevent something that may not happen.'" In a study by Tearfund, an international relief and development organization, donor institutions and government put low priority to mitigation measures because risk reduction strategies are not mainstreamed in their development policies primarily resulting from lack of knowledge of the nature of reduction strategies, the cultural divide between relief and development sectors and the competing needs among relief and development practitioners (La Trobe and Venton 2003).

One way to overcome this is to highlight time and again that risk reduction strategies are cost-effective. Dollar estimates have since changed. Abramovitz (2001) quoted that on the average, $1 invested in mitigation can save $7 in disaster recovery costs. USAID OFDS reports that a disaster mitigation project in Kinshasa, in its first year, saved over $45 for each $1 invested (Kelman 2004). In Vietnam, planning and protection of 12,000 hectares of mangroves, to protect the system of dykes and as a disaster mitigation measure, has cost around $1.1 million; but has reduced the cost of dyke maintenance by US$ 7.3 million per year (IFRC 2002). Factoring the enormous cost of the 2004 tsunami tragedy, and if appropriate mechanisms and structures had been in place, easily, the world could have saved several billions of dollars, probably enough to feed one nation in hunger-stricken Africa or buy lands for millions of informal settlers in Indonesia and the Philippines.

Poverty is also at the heart of vulnerability assessment and management. The numbers are out and they show that disaster victims in developing countries are 150 times higher than among richer nations; economic losses are disproportionately 20 times greater when expressed as a percentage of their GNP (UNDP 2004). The poor are incredulously affected – first in-the-line-of-fire, they are located in very risky areas and are unable to quickly recover from effects of the disasters.

Rapid urbanization is also a major vulnerability concern. Densely populated communities in a very risky region are disasters waiting to happen. The urban population is growing disproportionately faster than the rural population. Most of these cities are also in coastal areas, further aggravating the risks (Abramovitz 2005). Of the world's 19 megacities—those with over 10 million inhabitants—13 are in coastal zones. For Kelman (2005) the risk in coastal megacities, for instance, Jakarta and Manila, stem from losing coping mechanisms held from traditional coastal and marine knowledge when migrants move from their traditional settlement

to oftentimes chaotic and 'dog-eat-dog' character of coastal cities; the value of being one with the community is often eroded. He further notes that the factors, particularly livelihood options, which led to the migration to coastal cities, are largely not addressed.

Vulnerability also stems from a badly managed environment which alter resource base and affect natural processes. Highly degraded ecosystems severely erode the capacity of natural ecosystems to defend us from disasters. They can exacerbate impact of natural hazards and lessen our resilience. Mismanagement in most cases resulted from unplanned development; a classic example may now be said of Banda Aceh, a town-once flourishing with extensive mangrove that had been converted to fishponds (**see Box 1**).

Box 1
Conversion of mangrove forests in Banda Aceh

Banda Aceh was once a large mangrove forest, in the delta of the Krueng Aceh River and in an area within a series of lagoons covering an area of about 8,000 ha. However, most of the forest on the shallow islands was cleared during the development of the town for settlement, while the remainder of the lagoons were practically converted to fish and prawn ponds. The only remnants of the mangroves are small patches in the river channels or along the fish ponds. When the tsunami hit Banda Aceh all the buildings and houses on the islands were destroyed. All the fishponds were wiped clean. In hindsight, had the town been developed inland of the lagoon – the mangrove would have acted as a defense barrier against the tsunami.

Source: Parish and Lee (2005)

Link Between Disaster Reduction and Environmental Management

The disaster reduction – environmental management link is well recognized. But the research and policy actions linking them presents a different trend. Both are being done apart from each other. van Aalst and Burton (2002) and UN-ISDR (2004) sadly note that past risk reduction initiatives seldom promote environmental actions and that environmental management tools are not systematically integrated into hazard-vulnerability assessment and mitigation agenda.

The lens of the ninth principle of the Yokohama Strategy – "environmental protection, as a component of sustainable development and consistent with poverty alleviation, is imperative in the prevention and mitigation of natural disasters" - can now be refocused given that both disaster reduction and environmental management processes utilize risk assessment and sustainable development frameworks. Again UN-ISDR (2004) notes that what is pressing is to create a common platform and language for disaster reduction and environmental management and enhanced collaboration among institutions working on climate change adaptation, biodiversity conservation, integrated coastal management practitioners, land degradation, wetland management, sustainable development and poverty alleviation. On the first instance, when these challenges are met, and when efforts are coordinated and not duplicated, valuable resources and manpower are effectively utilized and more monies can be made available to other equally significant efforts.

The Environmental Risk Assessment (ERA) approaches together with other environmental tools now stand to be promoted widely with this awareness. Strengthening environmental legislation, for example, initiatives on the development of national and marine policies in the People's Republic of China and Republic of Korea (PEMSEA 2003a; 2003b) can now be more keenly

appreciated given the recent developments. The Integrated Environmental Impact Assessment (IEIA) is now more relevant given how knowledge of cumulative impacts of development and proper land use planning can be integrated into risk reduction. A sea-use zoning plan is a recent initiative which is instructive; its comprehensiveness, which includes conservation, sustainable livelihood and appropriate coastal development strategies merit a second look for disaster management practitioners. Other approaches like the ecological and environmental valuation and environmental management systems and certification would show benefits accruing to communities when standard globally recognized systems are practiced; in effect they can lower coastal areas vulnerabilities to disasters. PEMSEA's promotion of a Port Safety Security Health and Environment Management System (PSSHE-MS) and ISO certification for ICM sites create very valuable contribution to a world-class suite of risk reduction strategies.

Specific Strategies

The following discussion list running accounts from case studies that embody significant components of disaster risk reduction. They form but a small part of a wider body of experiences in East Asia. They are examples of best practices and also form probably the best argument for supporting specific activities that are recommended in the Hyogo Framework and why mainstreaming risk reduction to development policies can lead to sustainable development

Early Warning Systems

Early warning saves lives. That's a very obvious lesson from the tsunami event. Early warning systems are considered the foundation of disaster reduction. With the advances in science and technology, accurate forecasting of the occurrence of a natural hazard has saved thousands of lives and protected properties. For example, landfall of a tropical cyclone can be made 48 hours ahead while drought warnings are known several months in advance (UN-ISDR 2004). It is very unfortunate indeed that the Indian Ocean lacks a tsunami warning systems just like the one installed in the Pacific.

World leaders, who gathered in Jakarta on 6 January 2005 all agreed that a tsunami warning system should be established in the Indian Ocean as quickly as possible. They target that the system be in place by mid-2006. Recently the plan has hit a snag due to two reasons. One, the cost of the tsunami detecting ocean buoys and their maintenance can reach a prohibitive US$10 million annually. Two, assigning Thailand as the regional hub for the system created dissent during the regional tsunami meeting. Some consider Indonesia as more appropriate, given that is where the majority of earthquakes occur. *Ad hoc* measures called for individual nations to set up their own tsunami alert and response mechanisms based on information released from existing warning systems. India, Thailand and, of late, Malaysia have recently strengthened their ability to send out fast and accurate warnings.

What has to be emphasized though is that installing an early warning system is but one part of the series of processes to effective disaster avoidance. An overly expensive technology is of no use when warnings are not heeded by soon-to-be affected communities. A warning has to be sent fast and accurately, and it has to be received and responded to appropriately. A people-centric warning is imperative. Appropriate strategies have to be created given the scale and intensity of hazards vis-à-vis the conditions and contexts of areas receiving the warning (e.g., remoteness, traditional norms and knowledge and capacities). For example, a community-based early warning system established in coastal community in Indonesia, is instructive (**see Box 2**). A simple communication network via two-way radios has helped prevent death and property losses; these same units can be used as effective risk awareness and education tools

when hazards are not wreaking havoc. Further, coastal communities may find use in enforcing coastal regulations with these simple communication tools.

BOX 2
Community based early warning system in central Java, Indonesia

Mirit, which lies in the southern coast of Kebumen, central Java, Indonesia, is prone to riverine flooding from heavy monsoonal rains. A number of their villages are located below sea level and thus experience prolonged flooding. The years 1992, 1999 and 2000 saw damages to their irrigation network, roads, houses, school and health center. A community organization, the Banorawan Farmers Association (PPB) set about installing an early warning system with the help of their villages situated upland and Oxfam GB to mitigate threats from flooding. The latter provided 2 two-way radios while the community matched the contribution. The villages upstream were tasked to provide information on rainfall level and duration via the radios. During a monsoon in 2001, and with torrential rains threatening, the process of hazard detection and dissemination was set into motion. The quick warning from upland villages and quick response from PPB while coordinating its efforts with government officials, meant evacuation of villagers before flooding occurred. Lives were saved and significantly lessened the losses. Initially the radios were used as early warning, but efforts to use them as effective risk awareness and education tools to disseminate information are afoot.

Source: Bildan 2003

The Pacific tsunami warning system could have saved lives last December 2004 given the adequate technology and a network of communication infrastructure. Blame was put on non-existent protocols and institutional agreements that could have facilitated transmittal of the warnings. The fact is that warnings were sent too late. Evan Thomas and George Wehrfritz said it best in their Newsweek 4 January 2005 article *Tide of Grief* - "If there was a single tragedy repeated over and over again, it was the failure to act –usually the inability to act-until it was too late."

Life-saving Belts

Recently, UNEP (2005) released interim results of environmental assessments done in Indonesia, Maldives, Seychelles, Somalia, Sri Lanka, Thailand and Yemen. Immediate findings validate the claims that coastal habitats including coral reefs, mangroves, vegetated sand dunes and other coastal vegetation buffeted the effects of the tsunami. For example, Naluvedapathy Tamil Nadu, India is protected by a kilometer-thick forest composed of *Casuarina*, coconut and other varieties of trees. The village lies adjacent to areas worst affected by the tsunami. The trees saved them because as early as 2002, they planted 80,244 saplings in the hope of entering into the Guinness Book of World Records (Raman 2005).

IFRC (2002) highlighted that since 1994, Vietnam Red Cross (VNRC) has been planting and protecting mangrove forests in northern Vietnam. Quite a peculiar undertaking for a humanitarian organization at that time, VNRC is fully cognizant of the importance of the activity in saving lives and properties as Vietnam is often ravaged by typhoons. About 12,000 hectares has so far been planted with different mangrove species. They now protect 110 kilometers of the 3,000-kilometer sea dyke system that snakes down Vietnam's coastline. During the 2001 Typhoon Wukong, three northern provinces took a beating, but no death was reported. And the dykes have been protected by the mangroves. In the past, waves from storm surges destroy the dykes causing deaths and flooding. As an additional benefit, the communities generate

income from selling crabs and shrimps as well supplemental food from the now abundant mangrove fauna. VNRC hopes to continue the activity, this time cognizant of the fact that climate change is right now being experienced and Vietnam is at high risk of sea level changes. Protecting the mangroves is another way of adapting to the change.

Land Use Planning

The landslides that destroyed a housing development in Antipolo, Rizal in the Philippines in 1999 represents a grave miscue and an oversight to land use planning. Nestled on hilly portion of the province, the houses were built on soft foundation that proved very disastrous when heavy and continuous rainfall from a tropical cyclone came. One after the other the houses tumbled on to each other seemingly like an accordion. As always the case, soon after the grief, accusations flew fast; the housing developers bearing majority of the brunt while local government is accused of corruption, allowing the development without the necessary geological testing of the site and strict enforcement of compliance to building regulations.

Land-use planning in this case would have been useful in identifying risky areas while at the same time targeting those which can handle the physical demand of human settlements. It might seem straightforward, but land use planning is a complex iterative process. Much of the contentious issues revolve around the conflicting values different sectors place on land. The planning process happens within a political context and oftentimes, short-term gains take priority over what is beneficial and what is safe in the future (EMA 2002, UN-ISDR 2004). The operative word thus has to be a strong political will and leaders and constituents who are goaded by love of their community not by greed. The case study of Naga City (**see Box 3**) operationalizes strategies that streamline disaster risk reduction into their development plans. Land use planning and environmental management in this case address multiple hazards and enhance the quality of life in an urban area.

BOX 3
Streamlining disaster risk reduction with development strategies

Naga City, in the Philippines, was one of the ten demonstration sites under the Asian Urban Disaster Mitigation Program (AUMD). The focal point, Naga City Disaster Mitigation Project (NCDMP), was cognizant of the link between **hazard mitigation and land-use planning to address multiple hazards**. Aimed at uplifting the quality of urban life by undertaking strategies at managing hazards as well as preventing environmental degradation, the NCDMP initiatives involved streamlining disaster risk management activities with development strategies. Their strategies include:

Hazard mapping and risk assessment – A hazard map was developed using technical data from the weather service flood forecasting division vis-à-vis the community-based surveys. All information was translated to the GIS platform, significantly refining areas which could easily be flooded and which specific households, in times of emergencies, need to be evacuated immediately. They now use GIS as an effective tool for land-use and urban planning; on the drawing board are areas appropriate for watershed development on nearby Mt. Isarog.

Relocating centers of economic activities – Relocating centers of economic activities and settlements received further focus after delineating the most vulnerable areas. The goal is to shift activities away from the flood-prone central business district to less risky areas. New growth areas were developed in accordance with their five-year development plan, land-use regulations and economic incentives. By doing so, economic activities will not stop, even during calamities, lessening economic loss and the earlier communities could get back on their regular activities. Included are the creation of new markets, new roads and additional social service facilities away from the urban center.

To address, problems on informal settlers, the Naga Kaantabay sa Kauswagan (Partners in Progress Programme), relocated to date more than 12,500 households to safer areas with basic social service facilities

Safer building construction – Local building ordinances were refined based on the existing national building code. The new ordinances, appropriately suited for Naga, expedited enforcements and prosecution of violators. In turn, this has dramatically improved compliance.

Transboundary partnerships – Naga City lies on tributary of the Bicol River, which crosses two other provinces and other localities. Thus Naga City is fully aware that solutions to recurrent flooding lie not only on efforts instituted at the city but also elsewhere, beyond its boundaries. The Metro Naga Development Council, a partnership of 14 neighboring local areas, is instrumental in pursuing basin-wide approaches to disaster mitigation. For example, flood control strategies from ten previous studies within the river basin area, which have remained paper strategies for many years, would now be pursued using the resources of the Council.

Institutional management capabilities – Naga City adopted the Naga City Integrated Emergency Management System, a broadly-based approach which includes periodic hazard inventories and capacity assessment. As such, a medium-term development plan was prepared to measure all resources, both internal and external to the city government, to utilize optimally available resources.

Source UN-ISDR 2004

Research and knowledge management

Research is fundamental to risk reduction strategies. Recent research agendas have become multidisciplinary, which look not only at comprehensive knowledge about hazards, but also on their likely impacts to societies and how communities interact and find solutions given knowledge of multi-hazards affecting them. Research data are important inputs that drive policy directions and significantly affects at how governments formulate informed decisions. It also feeds into the other components of risk reduction such as continuing education, public awareness, advocacy and information management. A case of a research project in La Union, Philippines (**see Box 4**) about coastal erosion articulated both the natural processes and human actions that aggravated the hazard. Several local government actions have since been instituted as a response to the data and information generated by the research.

Box 4
Coastal erosion in La Union, Philippines

A project on coastal erosion in the province of La Union was funded by City of San Fernando, the Province of La Union, the Poro Point Development Authority and the World Bank – ProVention Applied Research Grants in Disaster Risk Management. Worth noting is that the initial seed grant came from a private individual whose scientific inclinations and her love for the community, started the project.

Data from maps and images taken at different years, anecdotal as well as historical records, and repeated beach profiling, reveal that segments of the coasts have been eroded from 30 meters to as much as 500 meters in the last 40 years. Both natural processes and man-made actions account for the observations. One cause is the shifting of the river mouths that have affected the delivery of the amount and quality of sediments. A strong earthquake in 1990 caused a widespread land subsidence which in turn caused seawater inundation and subsequent erosion in coastal plains. The regular typhoons that lash the coastal province also cause erosion. Historically around 5-10 meters are eroded after every typhoon but usually the beaches have the ability to recover. However accounts show that starting in the 1990s recovery has not taken place. Last 2001, Typhoon Feria eroded as much 20 meters of the beaches.

Human activity has also severely eroded the coasts. The extensive mining of the heavy magnetite sand from 1964-1974 along 100 km of the coast caused retreat along the shore and deepening in some portions. Corals, sand dunes and mangroves, which have the ability to attenuate incoming waves, have been destroyed. Human settlements and structures have also interfered with the natural distribution of the sediment. To protect these structures, seawalls, sandbags and groynes (or structures constructed perpendicular to the coasts) have been erected. The most extensive is the 1.5 km seawall in Sta Rita. Around 60 groynes have also been constructed. These structures may have solved localized erosion but in effect aggravated those at proximate areas by not allowing the longshore drift hence depriving them of sediment nourishment.

Using the information generated from the project, the City of San Fernando planned relocating informal settlers in the heavy eroding eastern portion to the accreting southern portion of the coast. Owners of tourist pavilions have been asked to construct stilts instead of ripraps in their sea front to allow normal distribution of sediments. Mangrove rehabilitation is to be adopted to stabilize river mouths. The provincial government will relocate instead of repair two school buildings threatened by the coastal erosion.

Source: Siringan et al 2005

Partnerships

The earthquake which devastated Nias island in Indonesia last March 2005 was reported to have been predicted. As reported by Associated Press, two days before the quake the journal Nature came out with an article which informed readers of stress on faults in Sumatra that could trigger another large earthquake. Although the researchers stopped short of reporting when the earthquake would occur, several events in the past point to a coupling of events, especially in major active subduction zones, within a few years or even months after a destructive earthquake. Clearly we haven't learned our lessons well. Perhaps the experience of Qinglong County, China needs to be re-learned again

Tangshan, west of Bohai Sea, experienced the Great Tangshan Earthquake (GTE) in July 1976. The earthquake registering a 7.8 magnitude, flattened physical structures and killed 240,000 people (**see Figure 2**). The effect reached as far as away as Beijing, 200 km west of Tangshan. In Qinglong County, 115 km from Tangshan, amazingly no one died although about 180,000 of their buildings collapsed. Their unbelievable story is made up of accounts consisting of exemplary government action and community spirit borne out of information from their national scientists (**see Box 5**). The partnership of the triad is instrumental to preventing loss of lives. This same partnership became an inspiration for the United Nations Global Programme for the Integration of Public administration and the Science of Disasters (UNGP-IPSD) to call for strategies that integrate public administration, science and community action. (**see Figure 3**)

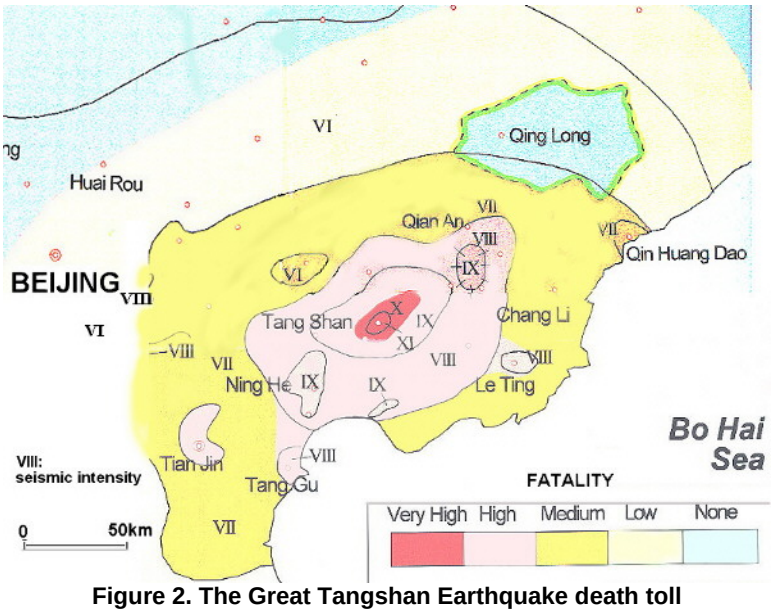
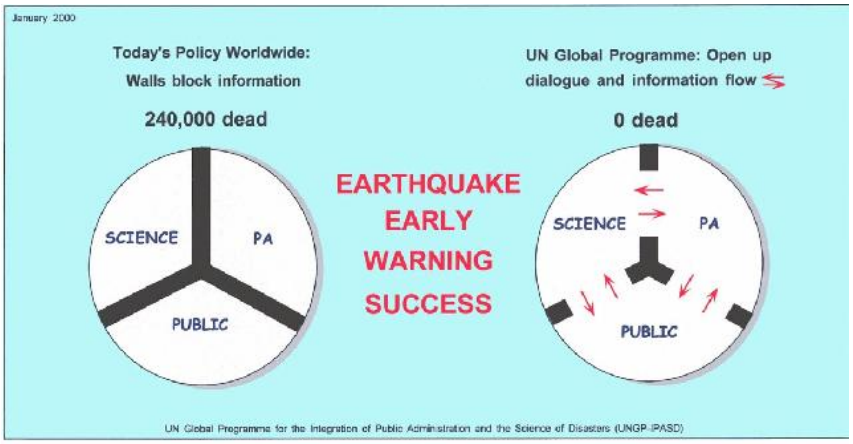


Figure 2. The Great Tangshan Earthquake death toll



Past Success Offers Model for Future Quake Early Warning: Scientists, public administrators (PA), and lay public shared information in early warning success for Qinglong County, China, during 1976 magnitude M7.8 Tangshan earthquake. While there were 240,000 deaths in the surrounding region, no one died from the destruction of 180,000 buildings in Qinglong County, located 115 km from the M7.8 epicenter (http://www.globalwatch.org/ungp/).

Figure 3. Integrating public administration, science and community action.

Box 5
The Great Tangshan Earthquake, China

Two years before the Great Tangshan Earthquake, the warning from the State Seismological Bureau (SSB) alerted officials in North China – Bohai region of an impeding earthquake of magnitude 6 or greater. For Qinglong, this meant becoming prepared for the incoming devastation. A county disaster management programme was designed. Initially it called for distributing 70,000 books and 14,000 posters and slide shows from the SSB to educate the public. By mid-1976 practically everybody knew about earthquake and steps they are going do in the event of one happening. County, commune and village level observation stations were also set-up to monitor changes in color, clarity, temperature and level of water wells. Manned by community volunteers, they were also in-charge of monitoring unusual animal behaviors, geoelectricity and geomagnetism. Days before the GTE, and with fresh alerts from SSB, public administrators took more drastic measures like school classes and businesses being held outdoors; earthquake warning through telephone and public broadcasts, frequent monitoring at the observation stations, (by this time strange animal behaviors were observed like nocturnal weasels and rats moving about in broad daylight unmindful of humans) and setting up of temporary earthquake tents as transient shelters. When the earthquake struck everybody was safely ensconced in their earthquake tents outside of their homes and buildings.

Source UNGP-IPSD, Delica-Willison

Conclusion

The 2004 tsunami served as a painful reminder – the application of the strategies to prevent deaths and social, economic and environmental losses have been largely ignored. It took another devastating event to enable us to re-think and re-evaluate viable options which in the deeper analysis have been there all the time. For those directly and indirectly affected by the tsunami, the guiding mantra has become – “It is the most opportune time to make things right’.

But this attitude and response to disaster is becoming cyclical: disaster-relief operations-damage assessment-planning workshop; in due time the strategies will soon be forgotten until another disaster strikes again.

Maybe this time it's different. The tsunami is too great a loss that the 'political commitment window' has been opened much wider given the tremendous mileage which resulted from the media coverage, the vast amount information disseminated and the apparent locking of heads of various institutions, governments and states. This time, several UN Agencies and international organizations put up various recommendations for actions. The IUCN, UNEP/GPA, ISDR, Asian Wetland Symposium, and IOC/WESTPAC, to name a few, immediately published guidelines and/or organized symposiums and forums to articulate the lessons learned and the ways of moving forward. Both UNEP and IUCN for example highlight that reconstruction should proceed that rebuilds not only infrastructure but also biodiversity and livelihood mindful of the overarching sustainable development principles and MDG goals.

The tsunami reconstruction is now serving as a significant platform given the tragedy's immense power to focusing empathy into strategic actions. But the bottom line has to pursue objectives that serve multi-hazard mitigation as these guidelines, when properly established, are strategies that can apply also to other natural and man-made hazards, be they recurrent or extreme infrequent events.

The best practices had been codified; they only need to be applied. Mainstreaming the risk reduction strategies to development policies is imperative because it creates the platform for instituting the culture of safety, preparedness and prevention. It calls for a strong political will from our leaders and participation from an informed community of stakeholders. It calls for partnership among practitioners from different disciplines – disaster reduction, climate change, ICM, biodiversity conservation and poverty alleviation. Burton (2005) allays the fear that there might be "danger in attempting to integrate disasters with everything." It would actually fast-track our actions as "it is a race against time to bring human achievement into harmony with the limits of the earth." Making parallel and common objectives with many other professional from other disciplines is a two way give and take proposition. As Kelman (2005) points out "commitment to environmental management, sustainable development, good governance and human rights are all pertinent for effective disaster risk reduction. Similarly, for success to occur in these areas, disaster risk reduction is essential."

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Appendix 1

Tentative criteria for benchmarking progress in disaster risk reduction (culled from UN-ISDR 2004)

Political Commitment and Institutional Development (Governance)		**Knowledge management**	
Policy and planning	• National risk reduction strategy and plan • Disaster reduction in poverty reduction strategy papers, in national Millennium Development Goals reports • Disaster reduction in National Adaptation Plan of Action on climate change • National follow up on WSSD Plan of Implementation	Information management and communication	• Documentation and databases on disasters • Professionals and public networks • Dissemination and use of traditional knowledge and practice • Resource centers and networks, in particular educational facilities
Legal and regulatory framework	• Requirement of compliance by law • Existence and update of codes and standards • Existence of systems to ensure compliance and enforcement	Education and training	• Educational material and references on disaster and disaster reduction • Specialized courses and institutions • Trained staff • Evidence of systematic capacity development programmes
Resources	• Evidence of budgetary allocation • Staffing allocation • Public-private partnerships	Public awareness	• Coverage of disaster reduction related activities by media • Public aware and informed • Visibility of reduction day
Operational structures	• Existence of an administrative structure responsible for disaster reduction • Sectoral programmes in line ministries • Consultation with and role of civil society, NGOs, private sector and the communities • Existence of 'watchdog' groups	Research	• Existence of a link between science and policy (evidence-based policy and policy-oriented research) • Indicators, standards and methodologies established for risk identification • Regional and international exchange and networking
Risk Identification and Assessment		**Disaster preparedness, contingency planning and emergency management**	
Risk assessment and data quality	• Hazards recorded and mapped • Vulnerability and capacity indicators developed and systematically mapped and recorded • Risk scenarios developed and used • Systematic assessment of disaster risks in development programming	Preparedness and contingency planning	• Testing and updating of emergency response networks and plans (national/local, private/public) • Coverage of community training and community-based preparedness • Emergency funds and stocks
Early warning systems	Effective early warning systems that include: • Quality of forecasts • Dissemination channels and participation at local level • Effectiveness of response warnings	Emergency management	• Effective response to disasters and mobilization of volunteers, including NGOs, in particular Red Cross/Red Crescent Societies
Risk management applications and instruments			
Environmental and natural resource management	• Use of wetland and forestry management to reduce flood and landslide risk • Trends in deforestation and desertification rate • Use of environmental impact assessments in disaster reduction planning		
Social and economic development practices	• Access to social protection and safety nets as well as micro-finance services for disaster risk reduction • Use of safety nets and social protection programmes in recovery process insurance take up • Public-private partnerships for microfinancing and insurance at community level		
Physical and technical measures	• Construction reduced/ zoning plans enforced in floodplains and other mapped hazard-prone areas • Compliance of public and private buildings with codes and standards • Public buildings (health facilities, schools, lifelines, etc.) at high risk retrofitted • Regular maintenance of hazard control structures		

SITE PROGRESS BRIEF

Progress Brief for the Bali National ICM Demonstration Site, Indonesia

A five-year integrated coastal management (ICM) demonstration project in Bali is undertaken within the framework of GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). This program is jointly funded by PEMSEA and the Bali Provincial Government. The aim of this project is to build local capacity in protecting and managing the environment and resources in Bali's coastal regions. The demonstration project site covers the South Eastern coast of Bali and includes four regencies (Badung, Gianyar, Karangasem and Klungkung) and one municipality, (Denpasar).

The site is in near completion of its *developing stage* in the cycle of ICM programme development and implementation. Several activities are still being finalized and will be adopted in due time, these include: the development of an integrated coastal use zoning plan and institutional framework for implementation; the implementation plan for the Bali coastal strategy; the strengthening of institutional arrangements for ICM; and the development of an integrated environmental monitoring program. All of these frameworks will be adopted as the basis for guiding the local government in establishing policy in the development of coastal area and in sustaining its ICM efforts.

Key Progress and Achievements

The following are progress and major achievements of the ICM implementation in Bali since the 3rd RNLG forum meeting:

Development of an integrated coastal use zoning plan and institutional framework for implementation in Bali.

Through extensive stakeholders' consultations, involving local governments, community members and NGOs, a final draft of the coastal use zoning plan has been prepared for adoption by local leaders and stakeholders. The proposed zoning scheme consists of six major zones, namely: (1) Conservation Zone, (2) Low-intensity Use Zone, (3) Eco-tourism/Marine Recreation Zone, (4) Fishery & Aquaculture Zone, (5) Port Management Zone and Shipping Lanes, and (6) Multi-purpose Zone, which well reflects existing and future coastal resources uses in Bali. Senior-level political support was secured for the adoption and the implementation of the zoning plan under the leadership of the Vice-Governor of Bali Province. The Project Coordinating Committee (PCC) also agreed that the implementation of the zoning plan would be formalized through the Governor Decision Letter and Regent/Mayor Decision Letter of concerned regencies and city. Specific regulations, which are relevant to the implementation of specific management policies under each zone, have also been identified. A ceremony for the stakeholder endorsement of the coastal use zoning plan is being organized to be held during the Bali ICM workshop scheduled on 29 April 2005.

Implementation Plan for the Bali Coastal Strategy

A series of action programs, -- doable primarily with local capacity and resources -- have been identified to operationalize the implementation of the Bali Coastal Strategy.

Specifically, the action programs were grouped into four classifications: (1) education program, (2) regulatory program, (3) solid and liquid waste program, and (4) habitats, natural resources and cultural site program, and will be implemented in varying time frameworks: (1) short term priority, (implemented within a five-year program); (2) medium term priority (5-10 years); and (3) long term priority(> 10 years). For the effective implementation, stakeholders and policy makers need to build necessary partnership arrangements that will bring the local and provincial Governments, stakeholders, NGO's and the community to work together. Sustainability of the implementations also needs to be ensured through financial commitment, human resources and political will.

A ceremony for the stakeholder endorsement of the Implementation Plan for the Bali Coastal Strategy is being organized to be held during the Bali ICM workshop on 29 April 2005.

Concerned stakeholders at various levels are already implementing the Bali Coastal Strategy with their own resources and capacity. Among them, key activities in place include:

- Conducting annual marine water monitoring along the tourism beaches in Bali (by the local government and hotel management);
- Conducting several public awareness activities in cooperation with the local NGOs;
- Involving traditional village leaders and their communities in environmental management;
- Enhancing the management efforts for protected areas;
- Undertaking re-forestation activities and mangrove restoration;
- Undertaking community communication forums;
- Conducting coral reef rehabilitation activities; and
- Undertaking the beach rehabilitation programs that restore erosion along the beaches in Bali with the support of JBIC.

Strengthening Institutional arrangements for ICM

A final draft for local ICM legislation is prepared for stakeholder review and consultation. The draft was prepared based on an institutional analysis of national and local laws and regulations relevant to the implementation of integrated coastal management in Bali. The analysis illustrated the urgency to establish an institutional mechanism that can effectively coordinate relevant activities of concerned government sectors in the management, development and conservation of natural resources and environmental services of coastal areas. The proposed option is to transform the existing PCC into a permanent structure, such as the "Provincial Coordinating Committee for ICM". Phased approaches will be undertaken to officially adopt the proposed ICM legislation in the form of local government regulation, which is on a higher level than the Governor's Decree. At the first phase, the Governor's Decree on formalizing the Project Coordinating Committee into the Provincial Coordinating Committee for ICM will be prepared. Efforts will then be made to strengthen existing legislation such as environmental regulation, incorporating the key elements in the proposed ICM legislation. Finally, efforts will be made for the official adoption of the ICM local regulation by the end of this year.

Development of an Integrated Environmental Monitoring Program (IEMP)

The primary objective of setting up an IEMP is to facilitate the use of monitoring information to support environmental management and decision-making. Since Bali is popular for coastal and marine tourism, a monitoring program in support of beach improvement and management, the Integrated Beach Environment Monitoring Program (IBEMP), is being developed in order to ensure the safety of beach users and the environmental and economic sustainability of tourism activities.

The long-term goal of the IBEMP would be to contribute to sustainable tourism development in Bali by strengthening the local capacity for beach environmental quality management. Specifically, the IBEMP aims to determine the environmental quality of bathing beaches and develop measures to enhance the overall quality of the beach environment.

A draft plan for the IBEMP for the southeastern coast of Bali has been prepared and the pilot testing will be launched in the forthcoming Bali ICM workshop on 29 April 2005.

Constraints

- Limited technical knowledge on coastal resources management, environmental technology and marine policy are still constraints to implementing the ICM program. Continuous efforts are needed to improve local capacities in planning and management.

- Due to the lengthy process of ICM program implementation, the impacts and benefits of the ICM program could not be clearly recognized by many stakeholders. Cross-sectoral action programs to address their specific concerns can be developed and implemented to bring their interest and commitment to work together.

Impacts

- The ICM working model of PEMSEA provided a stepwise approach to apply the ICM framework and processes in Bali. The process involved the establishment of appropriate institutional arrangements such as inter-agency, multi-sector PCC and Technical Coordinating Committee (TCC) as a mechanism to mobilize key policymakers, representatives of regency and municipal governments, local experts, and representatives of civil society groups.

- ICM provided a framework to actively engage and communicate with various stakeholders through the process of identifying priority coastal environment and resources management issues, formulating strategic plan to address priority issues, and implementing specific action programs such as coastal use zoning and environmental monitoring program.

- The ICM framework thus catalyzed the ownership of the program by local stakeholders, and enabled the formation of partnership, synergies and linkages among local leaders and various civil society groups including NGOs, media, village/religious leaders, and private sectors.

- Bali's experiences show that the ICM framework and process can provide an enabling environment and a platform for partnership arrangement between government and various sectors of civil society. The partnerships generate greater understanding, synergies and linkages amongst local leaders and civil society groups, and thus strengthen local management capacity, and improve cooperation towards achieving common goals and targets.

- To address the multiple-use conflicts in Benoa Bay, a coastal use zoning plan covering the entire bay and the waterfront area, has been developed and submitted for official endorsement by stakeholders scheduled on 29 April 2005. Through the consultation process on preparing the draft zoning plan, the Provincial Government as well as concerned regency and municipal governments reached an agreement to stop the execution of the airport expansion project, which was identified as a potential threat to Benoa Bay's ecosystem and resources.

- With a better understanding on the benefits of ICM, the local government leaders have initiated to integrate the ICM program into the Bali strategic development plan.

- The implementation of the National ICM Demonstration Project in the Southeastern Coast of Bali has also inspired the scaling up of ICM programs to cover all the coastal regencies in Bali Island.

Lessons Learned and Strategies for Sustainable ICM Implementation

Institutional Arrangements

Stakeholders must be involved at the planning, implementation, monitoring, and evaluation of ICM programs. Hence, an appropriate institutional mechanism should be provided, which can enable stakeholders to participate in every stage. An enabling framework for integrated management and participatory development is obviously important for the implementation of the ICM program in Bali, which can provide a venue and a conducive environment for various stakeholders to participate in marine and coastal resources management and environmental protection.

Institutional arrangements for cross-sectoral and inter-agency coordination are critical in addressing cross-agency management issues related to coastal and marine resources management.

Coastal Strategy Implementation Plan

The Coastal Strategy Implementation Plan will strengthen the policy and institutional foundation of ICM program implementation. It will also provide an enabling environment for effectively achieving sustainable development goals and objectives. In principle, the Coastal Strategy Implementation Plan prioritizes management actions that could resolve major environmental problems and associated risks; however, it is also important to avoid designing unrealistic and complicated programs. The program must be politically, socioeconomically and culturally viable in Bali. The availability of human resources and experts in the site is also critical in considering the program priorities.

In Bali, the Coastal Strategy Implementation Plan attempts to:
- Identify potential economic development;

- Provide opportunities to mobilize potential resources for marine and coastal resources management and environmental protection;
- Increase the effective partnerships among various stakeholders; and
- Increase the effectiveness of marine and coastal resources management and environmental protection.

Capacity Building

The trainings of local government officials and university staff provided by PEMSEA prior to the implementation of the ICM program activities were quite useful in giving first hand experiences of ICM operation in Bali. Building the capacity of local university staff may also enhance the expertise of the local academe in the field of ICM implementation, which in turn provides technical expertise to local government officials.

Aside from training, local capacity can be built by giving the local community better education on the many values of coastal and marine resources and bringing them to be full partners in coastal and marine management.

The involvement of the local academe in providing scientific inputs to local government also strengthened the capacity of government in providing data and information required for management intervention.

Multi-Stakeholders' Participation

In Bali, environmental concerns are deeply rooted in religious practices. The fact that the Bali ICM program has built on the *Tri Hita Karana* philosophy was one of the key success factors in promoting the participation of important civil society members such as religious and village leaders, and thereby effectively utilizing traditional laws and mobilizing community support and involvement. The Bali ICM has also built on various environmental protection initiatives of other civil society groups, which created synergies and wide social impacts; promoted sharing information, knowledge and expertise; and increased the effectiveness of management interventions.

Civil society partnerships created through the ICM process contribute to the effective implementation of the ICM program by:

- Facilitating the consensus- building amongst stakeholders;
- Mobilizing local human and financial resources;
- Promoting the sharing of information, knowledge, expertise and experiences;
- Increasing cost-effectiveness in implementation of action plans;
- Increasing social acceptability and reducing multiple-use conflicts; and
- Promoting open and transparent policy environment for the conflicts resolution.

To further strengthen their contribution, mapping out unique strengths and capabilities of different civil society groups would be necessary. It will help identify suitable partners for undertaking specific ICM program activities, especially when different members of civil society have varied interests, expertise and resources. An effective institutional arrangement must be in place to sustain the civil society partnerships, with clear roles and responsibilities identified in the implementation of strategies and plan of actions.

Financing Arrangements

A fundamental concern in environmental management initiatives is the ability of the government to continue the efforts being initiated and programs implemented in the target areas (Chua, 1998). One essential element that contributes to achieving the level of sustainability is the readiness of local government to commit financial resources, particularly to implement the long-term action program. This can be done by integrating the ICM program into the local government development plan.

However, there is a significant amount of financial capacity within the community and it is believed that the tourism sector in particular could be harnessed to assist in implementing the environmental programs, especially when it is recognised that tourism in Bali requires the better condition of the marine and coastal resources and environment.

Conclusion and Recommendations

The Bali ICM Program is gearing towards setting-up a sustainable mechanism of ICM implementation. Among major efforts included are the strengthening of institutional arrangements such as formalizing the PCC and PMO, adopting the Bali coastal use zoning plan and the implementation plan for the Bali Coastal Strategy, and replicating ICM experiences in the northern coast of Bali Island.

The challenges ahead would be on how to promote stakeholder participation beyond the level of consultation. Various stakeholders should be mobilized to form a full partnership to share in the responsibility, resources, expertise, risks and benefits of implementing the Bali Coastal Strategy and zoning plan.

The Bali ICM Workshop, which is being organized on 29 April 2005, will be the first step towards consolidating multi-stakeholder partnerships for the long-term sustainable operation of the Bali ICM program.

Progress Brief for the Bataan ICM Parallel Site, Philippines

1. The BIGKIS-BATAAN ICM Program: A brief description

Bataan is a peninsular province endowed with rich natural resources, which offer various opportunities for development. This common resource base is subject to different uses and diverse perspectives among resource users or stakeholders. Without a sense of interdependence, connectivity and awareness of consequences, diverse resource use will heighten the conflict between users, especially when ranged along the concept of free and open access to resources and unlimited use. More often than not, this led to inequitable access to resources – A RESOURCE USE CONTROL CRISIS.

Bataan has lost most of its forest and upland resources and negative impacts are already being felt along its extensive coastal area. Previous coastal resources management efforts in Bataan have largely been sectoral and tend to duplicate, if not contradict each other. These are also hampered by limited awareness among target beneficiaries and lack of institutional support from local government units (LGUs) aside from distrust between key sectoral groups – LGUs, the private sector, NGOs and other civil society groups. Along this line, the need to establish partnerships between sectors becomes paramount, as one group or sector alone cannot successfully pursue resource management programs without the participation and strength of other sectors. More importantly, people need to be mobilized and empowered to care for their resource base through tangible and participatory efforts for them to gain a better grasp of the environmental situation in Bataan and to act concertedly for their own benefit.

The program practically started in September 18, 1999 during the first **KONTRA KALAT SA DAGAT (KKD).** This is a campaign against sea littering -- a response to the International Coastal Cleanup Day in 1999 organized by the private sector, through the Petron Foundation, Inc. in partnership with the Bataan Provincial Government. That cleanup campaign covered the towns of Limay, Orion and Mariveles. The event showcased the potential of establishing a partnership between the local governments of Bataan and the province's business community to address issues and concerns in the coastal areas of the province. By December 1999, a team from the Global Environment Facility/United Nations Development Program/International Maritime Organization (GEF/UNDP/IMO) Regional Program on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), evaluated the possibility of implementing integrated coastal management (ICM) in Bataan.

By February 2000, a Memorandum of Agreement between the Provincial Government of Bataan, the Bataan Business Community represented by Petron Corporation and the GEF/UNDP/IMO PEMSEA was signed to establish the **Bataan Integrated Coastal Management Program (BICMP).** Bataan, thus, became the first parallel site of PEMSEA, a province having its own integrated coastal management program purely funded by the provincial government in partnership with the private sector and fully supported by other stakeholder organizations.

A Project Coordinating Committee (PCC) composed of representatives from different stakeholders in the province was formed to act as the highest decision making body for BICMP. Also, a Project Management Office was established under the Governor's Office in April 2000 to handle the day-to-day activities of the ICM program. The private sector, in turn, organized a

foundation called the Bataan Coastal Care Foundation, Inc. (16 companies) in July 2000, to facilitate funding support to the program (*see Figure 1. BICMP Organizational Chart*). As such, the BICMP is implemented through a public-private partnership using the resources of the province and that of the private sector. Since then, the program engaged in various activities based on the ICM framework as promoted by PEMSEA, the **KONTRA KALAT SA DAGAT**, was used as a primary hands-on awareness campaign vehicle to promote the BICMP and ICM.

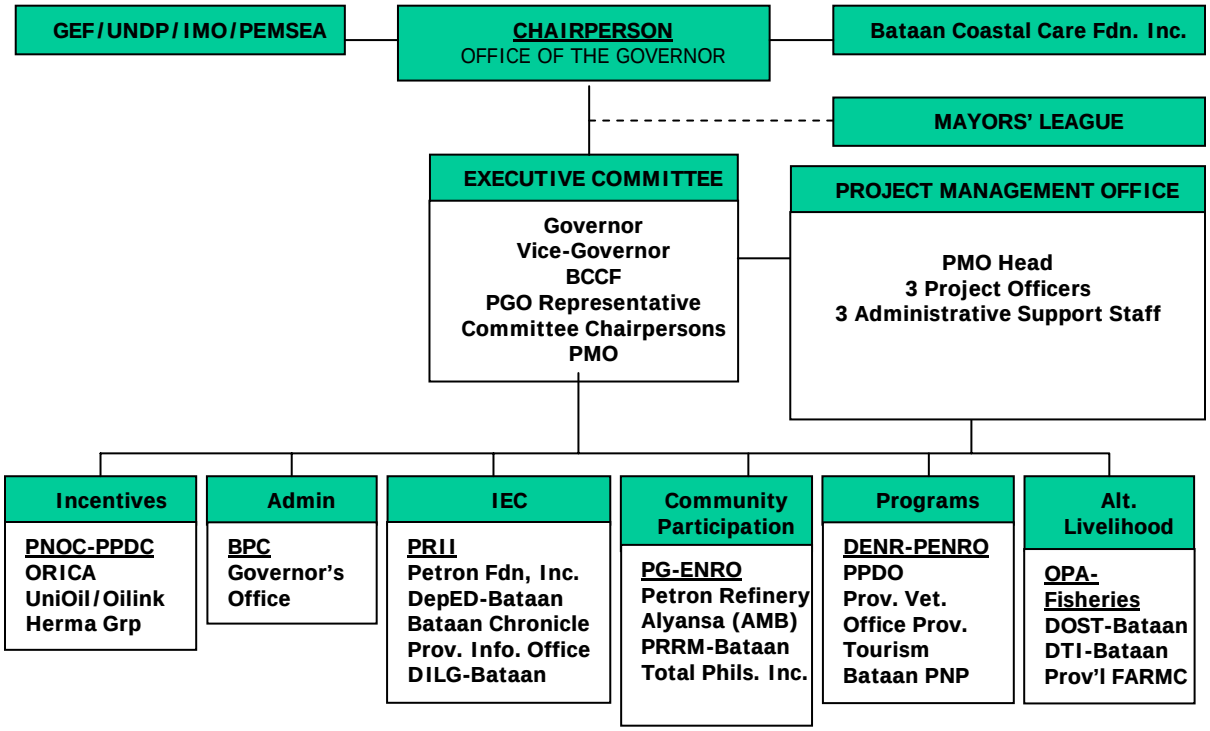


Figure 1. The BICMP Project Coordinating Committee

2. Key Progress and Achievements

The BICMP continues to assume its responsibility of integrating efforts by the provincial government, the private sector, civil society groups and individual stakeholders to achieve a common vision of sustainable development for Bataan.

Following the ICM Planning and Implementation Cycle formulated by PEMSEA, the BICMP implemented action plans and opened up on investment opportunities through the Project Management Office (PMO) guided by the Project Coordinating Committee (PCC) and managed by the Bataan Coastal Care Foundation and the Office of the Governor of Bataan. From 2000-2004, the program has achieved the following:

- *Implementation of supplemental livelihood projects for community-based organizations*

  Nine coastal community-based organizations from the municipalities of Abucay, Orion and Limay were selected to undertake a community-based mussel culture project to augment their limited income from fishing. The BCCF provided each organization with soft loans without interest amounting to PhP 30,000.00 (about US$ 555.00) as seed money. After two years, most of the partner-beneficiaries were able to harvest substantial amounts of mussel from their respective farms and were able to partially pay the amount loaned to them. Some groups re-invested their earnings to improve their mussel culture areas.

Figure 2. A young fisherman proudly hoists a generous collection of mussels cultivated from their small farm in Orion, Bataan.

- *Laid the foundation for the formulation of a coastal use zoning and sea-use plan*

  At the heart of the ICM principle is the resolution of multiple resource use conflicts among resource users. To achieve this goal, the BICMP with the support of the Manila Bay Environmental Management Project and PEMSEA, embarked on a province-wide consultation on coastal zoning and sea-use plan to gather data, prepare initial resource inventories and draw up a functional zoning scheme in all coastal municipalities in Bataan. These schemes are consistent with the respective land-use and development plans of each municipality. This undertaking would serve as a pilot project for the zoning of the whole Manila Bay area.

- *Sustained Environmental Awareness Projects and ICM Advocacy*

Figure 3. Mangrove planting in Bataan together drew thousands of volunteers and advocated resource conservation and rehabilitation in Bataan.

Since its inception, the BICMP has conducted hands-on awareness projects to promote environmental rehabilitation and protection among stakeholders in Bataan. These projects are the *Kontra Kalat sa Dag*at (regular coastal cleanup) and the *Bakawanan sa Bataan* (mangrove enrichment planting/rehabilitation), which remained as popular events that drew thousands of volunteers. The regular coastal cleanup is being conducted on a monthly basis managed by the respective municipalities while the mangrove rehabilitation areas are being maintained in the municipalities of Orion, Pilar, Abucay and the City of Balanga, covering total of 18.5 hectares.

These awareness projects are complemented by special activities such as a special art lesson on the environment called *Sining Para*

sa Kalikasan, conducted in Balanga City involving a selected group of public school. This aims to instill environmental awareness among the children and the youth. In addition, the BCCF also serve as a major sponsor of the annual *Pawikan* (marine turtle) Festival in Morong, Bataan wherein a marine turtle conservation center was established by a local organization with support of the local and national government. The BICMP PCC also gave out recognition awards (*Gawad ng Parangal)* to institutions and individuals who actively supported the activities of the BICMP. This *Gawad ng Parangal* award is an incentive for the stakeholders to take the cudgels of volunteerism in the province.

Likewise, the BICMP has been engaged in various activities of PEMSEA and the Manila Bay Environmental Management Project and remained one of the active advocates of ICM in the Manila Bay region and even in the East Asian Seas Region. The Cavite ICM Parallel Site followed both the Bataan and the Batangas ICM models to establish their own provincial ICM Program. Bataan also encourages other provinces not only in the Manila Bay region to participate in regular coastal cleanups not just once a year but throughout the year.

3. Lessons Learned and Strategies for Sustainable ICM Implementation

Institutional Arrangements

It is important to establish a working link with all stakeholders in the province. Given the challenge in this process, the BICMP invited representatives from key stakeholder groups to become part of the PCC. The PCC served not just as a management body to guide the implementation of BICMP but also as a venue to discuss issues and deliberate solutions to environmental concerns in the province. Membership in the PCC is purely voluntary.

In the next ICM cycle, some changes will be enforced, the PCC is envisioned to become a sustainable development council for Bataan while the PMO, which has served as the workhorse for BICMP in the last five years will now be integrated into the Bataan Provincial Environment and Natural Resources Office, which will oversee the continuation of the ICM process in Bataan to cover not just coastal area rehabilitation and protection but will also include projects to resolve concerns in other ecosystems in the province.

Coastal Strategy implementation and Capacity Building

Bataan has developed its own coastal strategy outlining several strategic action targets and strategies to address problems not just in the coastal areas of Bataan. Coastal strategy implementation will commence in the next ICM cycle (2005-2010) once a new memorandum of agreement between the Provincial Government, the BCCF and PEMSEA is signed (within this year). The provincial government through its PG-ENRO will oversee the implementation while the BCCF will continue to support the Provincial Government in terms of funding and project management. Among the projects being targeted as outlined in the coastal strategy is the curtailment of illegal fishing, increasing supplemental livelihood projects, riverbank and floodplains rehabilitation, continuous awareness campaign and the formulation of coastal use zoning and sea use plan.

The BICMP will also start focusing on municipal based ICM operations as part of its capacity building advocacy. This will also be part of the new ICM cycle.

Multi-stakeholder Participation

The success of the BICMP has always been anchored on multi-stakeholder participation. Through the hands-on awareness campaign activities such as the coastal cleanup and mangrove planting, stakeholders not only gained awareness but also recognized the impact of volunteerism in such activities. Through the BICMP, stakeholders not only gained a venue to air their concerns, but also a venue to participate and become empowered citizens of Bataan.

Financial Arrangements

The BICMP has an operational budget of PhP 4M (about US $75,000.00) annually, divided equally (50-50) between the Provincial Government and the BCCF. The Provincial Government shouldered the maintenance and operating expenses of the PMO as well as the salaries of the PMO staff while the BCCF provided the funds for the different projects of the BICMP, which are implemented and monitored by the PMO.

Through this the BCCF support is crucial, as it has to maintain the participation of member companies to give their annual shares for the project. As it is difficult for the local government to secure funding, it is the BCCF which provide the means to secure funding from other sources. The BCCF also conducts a yearly Forum of CEOs to report on the progress of the project so that the private sector will know where their contributions are going. For the private sector, giving their annual share is just a small price to pay in exercising meaningful corporate social responsibility.

4. Conclusion and Recommendations

At present, the BICMP will be embarking on a new ICM cycle. The Provincial government, the BCCF and the host of other stakeholder groups would all like to see the following: (a) sustained collaboration and partnership among the local governments, the private sector and civil society groups; (b) more members from the Bataan business community joining the BCCF; (c) more comprehensive and sustained information, education and communication campaign not just for awareness building but also for social mobilization for championing the cause for environmental protection; (d) more action programs in the immediate future; and (e) more resources (time, financial, expertise, and technical assistance).

Five years into the program, the BICMP has indeed become an instrument of change in Bataan. The seemingly difficult goal of finding harmony in the use of precious natural resources alongside socio-economic development is slowly yet surely being realized through the combined efforts of every stakeholder in the province, and even those outside of it. People who once remained indifferent to the concerns of the environment are now being very passionate in its preservation. Thus, it is not unusual for volunteers outside of Bataan to travel to the province, raring to get rid of the garbage from coastlines, only to find out that coastal communities have already taken care of it.

The partnerships between sectors in Bataan continuously grow and being strengthened as the program gained more adherents to the cause for the environment. Boundaries, both literal and figurative, are being transcended as we move from doing things individually, to making things happen together to achieve a common vision for Bataan. At the end of the day, efforts big and small will ensure that the vision of BICMP will be a reality, that of a **“well-developed**

community with abundant natural resources, clean environment and a responsible citizenry committed and empowered to care for nature and its bounty."

Progress Brief for the Batangas National ICM Demonstration Site, Philippines

Brief Description of ICM Project

The Batangas Bay including its influence areas comprising of 14 coastal and inland local government units had been selected by the GEF/UNDP/IMO Regional Programme for Marine Pollution Prevention for the East Asian Seas (MPP-EAS -- *pilot phase of PEMSEA*) in 1994 as one of the demonstration sites in the East Asian Seas wherein Integrated Coastal Management (ICM) approaches and strategies were tested/applied in an industrializing local economy. After 5 years of successful implementation, the Province of Batangas ventured to expand ICM having adopted it as a statutory program in partnership with various collaborating institutions. Thus, after another 5 years of continuing implementation, ICM has likewise successfully expanded to four (4) other bays in the province benefiting 12 additional coastal and inland local government units.

The components and activities of the Batangas Bay Demonstration Project (BBDP) in the first (1st) ICM cycle from 1995 to 1999, aimed to collectively address the critical environmental issues in the Batangas Bay Region (BBR) and attain the objective of showcasing a working model of ICM. By the end of the 1st cycle implementation, major achievements with regards to institutional arrangements, management tools and techniques, multi-sectoral water quality monitoring, public-private sector partnerships, scientific and information services and capability building have been reported (GEF/UNDP/IMO, 1999). The efforts and activities in the second (2nd) cycle (CY 2000-2005) were focused in order to overcome apparent gaps in the 1st cycle; to apply refinements that would ultimately lead to the widespread adoption of a truly-working ICM model; and introduced new approaches which demonstrated some very useful models in enforcement (side by side with planning) thus providing opportunities for “quick wins” which were effective tools to sustain stakeholders’ interest in implementing ICM.

Key Progress and Achievements

First ICM cycle (1995-1999)

Under technical assistance of the Regional Programme on MPP-EAS as one of its two demonstration sites and within the context of a strong local government commitment and political leadership and support; active private sector and multi-stakeholders’ participation; complemented by both financial and manpower mobilization, the program components had been successfully demonstrated from 1995-1999 and sustained through the various mechanisms put into place.

Legal and Institutional Mechanism

The legal and institutional mechanism component involved the establishment and strengthening of legal and institutional framework and organizational structure necessary to plan and implement ICM initiatives in Batangas. The structure included (i) the creation of a multi-sectoral policy-making body, i.e. the Batangas Bay Region Environmental Protection Council (BBR-EPC), and (ii) the creation of a central coordinating unit, the Provincial Government – Environment and Natural Resources Office (PG-ENRO) which serves as technical secretariat to BBR-EPC and facilitates the integration of existing and planned actions from conceptualization

to implementation stage of environmental policies and programs. Both organizations were created through provincial ordinance, based from the provision under the Local Government Code that local government units have the option to create its own environmental arm. Membership to the BBR-EPC is multi-sectoral, including local government units, national agencies, industry, non-government organizations and academe.

With the direct involvement of the PG-ENRO under a system of ICM co-management as early as 1996 (second year of the project), the provincial government has gained enough exposure and experiences in ICM institutionalization and implementation.

Integrated Policy and Planning Systems

Under this component, a suitable policy and planning environment was created for the implementation of major environmental interventions. A Coastal Environmental Profile was developed by a multi-disciplinary team of experts which is a comprehensive technical document describing and assessing the bay region within the framework of ICM. Likewise, a Strategic Environmental Management Plan (1996-2020) was formulated for the BBR by the multi-sectoral Strategic Planning Committee to serve as the blueprint in prescribing the manner by which development and ICM endeavors should proceed without compromising the environment. Again, early involvement of the province, as chair of the planning committee, provided the necessary exposures for a more in-depth/meaningful participation advantageous for equipping for sustainability.

An environment monitoring and assessment program was developed to periodically assess the state and trend of marine pollution in Batangas Bay and ascertain improvements as a result of pollution management strategies and interventions. An analytical laboratory was established and water sampling is being done quarterly at designated sampling stations in the Bay. To ensure sustainability of this activity, appropriate institutional arrangement was put up which initially required multi-sectoral involvement. Participation in the monitoring program included both local and national government agencies, private companies and academic institutions.

A land and water use zonation scheme was also developed which delineated water use zones for Batangas Bay into restricted use zones, exclusive use zone and multiple use zone.

Integrated Waste Management Systems

An Integrated Waste Management Action Plan was developed through intensive consultation with stakeholders and was implemented in four phases which include preparation, mobilization, implementation and development. Implementation activities include waste identification and characterization, signing and enforcing voluntary agreements and waste minimization through pollution management appraisals. Long-term options emphasized on putting up of appropriate waste management facilities.

Improvement of Information Base

Geographic Information Systems (GIS) was developed for Batangas to enhance local capability in integrated planning and management using GIS and to establish a spatial data base system for storage and analysis of spatial and non-spatial data. An Environmental Management Atlas was designed and was complemented by a CD-ROM version which can access, annotate and print digital maps from spatial database. Various institutions using said spatial database were duly trained and given copies of CD-ROM.

Modeling of the bay's circulation was also done to determine the hydrodynamic variables that affect the transport of pollutants in the bay. Results showed that tidal currents are not strong enough to flush waters in the northern part of the bay.

A fisheries assessment study was likewise undertaken which showed that the potential annual yield of pelagic fishes has been exceeded in Batangas Bay.

Navigational information was generated through a vessel traffic routing study which illustrated the different vessel routes under the current vessel traffic separation scheme. The need for an updated routing system in anticipation of increased maritime traffic was highlighted.

An initial risk assessment from pesticide use was conducted and it was noted that the first signal of warning is already evident in the Batangas Bay Region (BBR).

Capability-Building

Management and technical skills were provided to key actors and stakeholders in the BBR through training, study tour and staff exchange.

Public Awareness, Information and Education

To disseminate information on the activities and directions of ICM in Batangas, various modes were adopted which include the cleanest village contest, the formation of Batangas Bay Watch, use of print and broadcast media and workshops/meetings/dialogues.

Sustainable Financing

An innovative financing mechanism called the public-private sector partnership was pursued with the objective of promoting joint investments between the private sector and local governments to address the solid waste problems but did not progress successfully in view of some apparent weak points both on the part of public and private partners. The public sector failed to completely establish a final sanitary landfill (SLF) site for political reasons while the private sector partner failed to ascertain the aspect of fund source for putting up the SLF (capital investment) and address concerns on protected/prohibited areas (legal constraints) within their preferred site.

Meanwhile, the Batangas Coastal Resources Management Foundation, which is a private sector organization of industrial firms operating in the Batangas Bay Region, continued to undertake some environmental projects geared towards protecting and conserving marine resources in Batangas Bay. Moreover, partner local, national and international institutions continued to share resources in the implementation of ICM. The Province likewise continues to allocate substantial budget for ICM-related activities.

Second ICM cycle (1999-2005)

On its tenth (10^{th}) year of continuous implementation, the Province of Batangas had replicated the ICM program to four (4) other bays namely Balayan Bay, Pagapas Bay, Talin Bay and Nasugbu Bay in its coastal jurisdiction. Multi-stakeholders collaboration had been strengthened through strategies and activities to further integrate efforts and localize down to the grassroots the knowledge and application of ICM. Such activities include peer learning network establishment; piloting/replication of environmental programs (e.g. establishment of

environmental cooperative, Marine Protected Areas in the 5 bays, etc.); more vigorous enforcement of existing and new laws especially in the areas of fishery (e.g., activation of Baywatch volunteers) and solid waste management; amendment/improvement of existing local laws on ICM, enlistment of other relevant stakeholders in the existing institutional mechanisms, activation of support interagency technical working groups; continuing public and private sector collaboration; improvement of public information and education campaign through greater collaboration with media; enhancement of community participatory projects such as simultaneous coastal and roadside clean-ups, barangay-level integrated waste recycling and segregation, establishment of materials recovery or redemption facilities, and riverbanks and tributaries tree planting programs. PEMSEA supported through additional collaborative projects such as ICM Case Study preparation, Strategic Management Plan Updating, establishment and strengthening of ICM Training Center, establishment of Integrated Information Management Systems, and preparation of the Batangas Coastalink Website. The Province, meanwhile, through a grant from the Department of Energy as host to several power generating plant, had acquired more state-of-the-art laboratory equipment and (province) provided new building for its Environment Laboratory.

Initial Assessment of ICM Impacts

According to a recently drafted case study on Integrated Coastal Management in Batangas Bay,[1] several indicators were applied to assess progress of ICM including the physical and environmental state, economic state, social state and local governance/political state. In this report, the author culled certain parameters and results stated in the case study report to illustrate key progress, achievements, constraints and impacts as well as made some assessments based on actual experiences gained in coordinating ICM implementation in the province though the same may not be very comprehensive for the purpose of this brief.

Figure 1 below summarizes the state indicators for the Batangas Bay Region ICM demonstration site.

State Indicators	Before ICM	3 Years of ICM	5-10 Years of ICM
Physical/environmental			
• Coastal extension (km)	220 km		220 km + 226,000 hectares
• Area under ICM (sq km)	1,461 sq km		2,550 sq km
• Levels of key pollutants	No data	DO=6.68 mg/l Nitrates=111.35	DO=6.01 Nitrates=96.5
• Solid wastes in the beach	Significantly high	Moderately high	Relatively lower
Economic			
• Average household income	P104,008	P152,277	P170,277
Social Indicators			
• Public awareness on coastal issues	Low	Low	High

[1] Draft Case Study on Integrated Coastal Management in Batangas Bay, Philippines prepared by Xceed Consultancy Services for PEMSEA, in coordination with Batangas PMO/PG-ENRO (as of October 30, 2004)

State Indicators	Before ICM	3 Years of ICM	5-10 Years of ICM
• Intellectual capital	Cannot be determined	Low	High
Political			
• Vision and perception of local leaders and stakeholders	Existing but limited to governor	Existing but limited to BBR area	Existing in more municipalities around Balayan Bay
• Participation of people/sectors	Cannot be determined	Low	High
• Enforcement of ICM related policies and regulations	Cannot be determined	Low	High
• Intergovernmental, inter-agencies and cross-sectoral partnerships	Non-existing	Existing among LGUs, NGAs and BCRMF	Existing among LGUs, NGAs, BCRMF, NGOs, POs, media, academe

Figure 1: State Indicators for the ICM Program in the Batangas Bay Region

On the physical and environmental state, ICM, as both an adopted management strategy and a continuing program of the provincial government, has directly contributed to the improvement of the physical conditions of the coastal environments especially evidenced by a relatively maintained water quality and significant reduction of solid wastes in the beaches. There is also a significant expansion of ICM area coverage from the initial demonstration of a 1461 sq. km. site in Batangas Bay to cover four (4) other bays namely Balayan Bay, Pagapas Bay, Talin and Nasugbu Bay with collectively 226,000 hectares of coastal area. Facilities to support ICM implementation had likewise markedly improved from a modest 1-room project management office located in the Provincial Engineer's Office into a full-time coordinating institution, i.e. PG-Environment and Natural Resources Office (PG-ENRO) with separate building and laboratory facilities complete with communication facilities and other amenities not to mention the availability for use of relevant facilities of other concerned agencies collaborating in various aspects of ICM implementation. Over the 10-year period, when ICM localization strategies were adopted and facilitated through the formation of an inter-agency ICM Technical Working Group (chaired by the PG-ENRO) to further strengthen the grassroots implementation, the seventeen (17) directly participating local government institutions practically added to the effective "ICM facilities" supporting its implementation.

Economic indicator was also cited in the case study mentioned earlier by way of relative increase of average household income from P104,008/year before ICM to P170,277/year with ICM. Positive impacts on marine resources such as healthier coral cover and improved fish catch were reported by several partner institutions and research groups[2].

Social indicators show high impact in the areas of public awareness on coastal issues and intellectual capital (expertise, knowledge skills) within 5-10 years of ICM implementation. Among the identified political impacts and indicators are the following: existence of vision and perception of local leaders and stakeholders; high-level of participation of people from various

[2] "Scaling-up Marine Biodiversity Conservation in Balayan Bay Region, Philippines," Paper presented for the World Conservation Forum held on November 17-20, 2004 at Bangkok, Thailand, E. L. Estigoy.

sectors; high-level of enforcement of ICM-related policies and regulations and continuing existence of intergovernmental, inter-agencies and cross-sectoral partnerships.

In the matter of sustainability, there were significant progress in the areas of perception and behavior changes among the stakeholders in the region; sustainable financing systems in support of ICM, integration of ICM into local government development program and established/operational mechanisms for knowledge generation, sharing and extension.

Conclusion and Next Steps

Encouraged and inspired by the successes of the ICM programs implemented in the Province of Batangas, the concerned stakeholders from the local government, non-government organizations, and the community are set out to pursue and/or continue with the following activities:

1. Replication of ICM programs tested and tailored-fit for Batangas Bay and Balayan Bay & adjacent bays in Calatagan Peninsula to the Tayabas and adjacent bays completing the ICM program for the entire coastal areas of Batangas Province;

2. Integration/harmonization with regional and national ICM Strategy by being a model for replication among provinces with coastal areas in the Philippines;

3. Preparation of the Batangas Integrated Environmental Management Plan and Integration with Provincial Development Plan (to include integrated land and water use planning); and

4. Institutionalization (through Provincial Ordinance) of the Batangas Integrated Coastal Management Council as a multi-tiered stakeholders mechanism.

Progress Brief for the Cavite ICM Parallel Site, Philippines

BACKGROUND

The Province of Cavite is bounded in the northwest by Manila Bay and China Sea, in the east by Rizal and Laguna and in the south by Batangas. It is one of the Provinces along Manila Bay with a total land area of 142,706 hectares and coastline of about 85 kilometers (Figure 1).

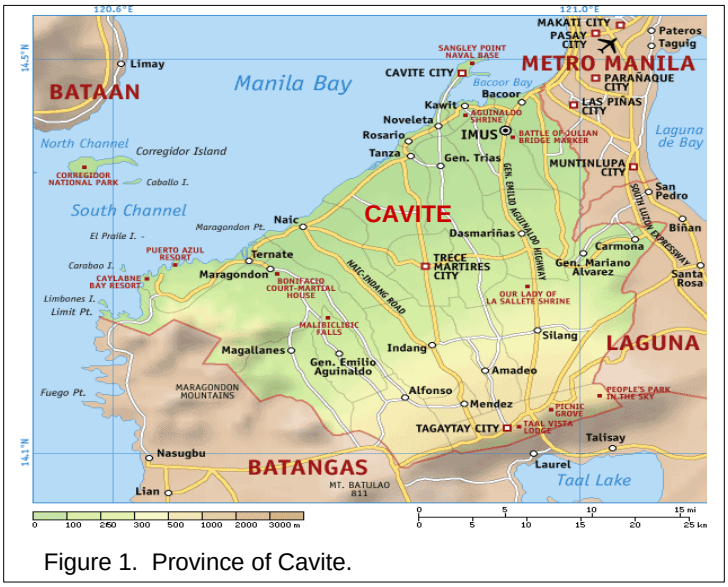


Figure 1. Province of Cavite.

Cavite was considered as one of the pollution hot spots of Manila Bay. This situation is aggravated by the de facto open access to its coastal and marine resources, coupled by uncontrolled development, land conversion, pollution from industrial and commercial establishments and residential areas, illegal fishing, multiple use conflicts and burgeoning population in the watershed and coastal areas. Thus, the Provincial Government of Cavite in cooperation with the Department of Environment and Natural Resources (DENR) and PEMSEA has adopted integrated coastal management (ICM) as a framework for addressing critical management issues and environmental threats in Cavite.

Initial actions taken by the Provincial Government took place when **Gov. Ayong S. Maliksi** requested to PEMSEA and DENR to consider the province of Cavite to be one of the parallel sites in the implementation of ICM program on August 18, 2003. On March 08, 2004, the Memorandum of Agreement (MOA) among the Provincial Government of Cavite, Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and Department of Environment and Natural Resources (DENR) was signed.

The Cavite ICM Project is in line with the implementation of the Manila Bay Environmental Management Project (MBEMP). It facilitates on-the-ground implementation of Manila Bay Coastal Strategy at the provincial and municipal levels by replicating the ICM experiences in Batangas Bay and Bataan. Initially, ICM has been implemented at the 8 coastal municipalities and one city with the municipal and provincial governments' own financial capacity and resources.

The Cavite ICM framework provides the local government units (LGUs) with mechanisms, processes and methodologies to harmonize economic development and environmental management of the coastal and non-coastal areas. The PMO started unique and more strategic actions for the program implementation, which is to have a ***strong mass-based stakeholders involvement***. This is also done to promote transparency in the implementation and develop sense of ownership of the program by the stakeholders.

Box 1. ICM Goal and Mission.

ICM GOAL

The ICM in Cavite aims to enhance the quality of life of the Caviteños and maintain the ecosystems' functional integrity through the improvement of environment quality and conserving the coastal environment toward a secured and congenial future.

ICM MISSION

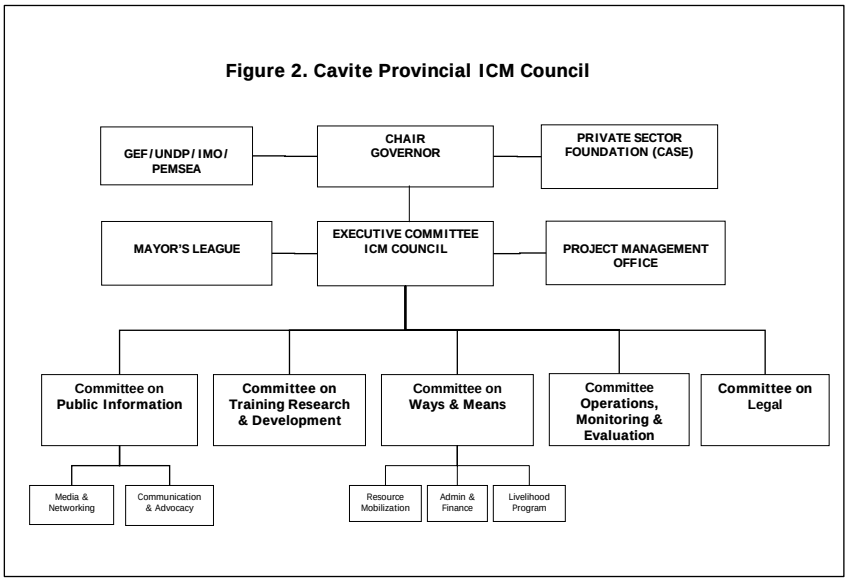
To safeguard the marine, coastal and non-coastal resources of Cavite to make it safe, clean and habitable place, with rich bountiful fishing ground and world class economic center and tourism site through coordinated efforts and responsible stewardships of the different sectors; government, private sectors and civil society.

KEY PROGRESS, ACHIEVEMENTS, CONTRAINTS AND IMPACTS

1. Institutional Arrangements

ICM Cavite has been institutionalized from provincial to barangay or community levels. This involves creation of the Provincial ICM Council (PICMC) and Municipal/City ICM Council in 9 coastal towns, consisting of representatives from government agencies, private sector and the civil society (see Figures 2 and 3). Both councils act as a policy making body of the program at the provincial and municipal levels respectively. The convening councils are being undertaken. At present two municipalities have convened their respective ICM councils and have undertaken activities such as addressing issues on solid waste management, illegal fishing and coastal clean-up. The other seven municipalities are on the process of selecting representatives to the council.

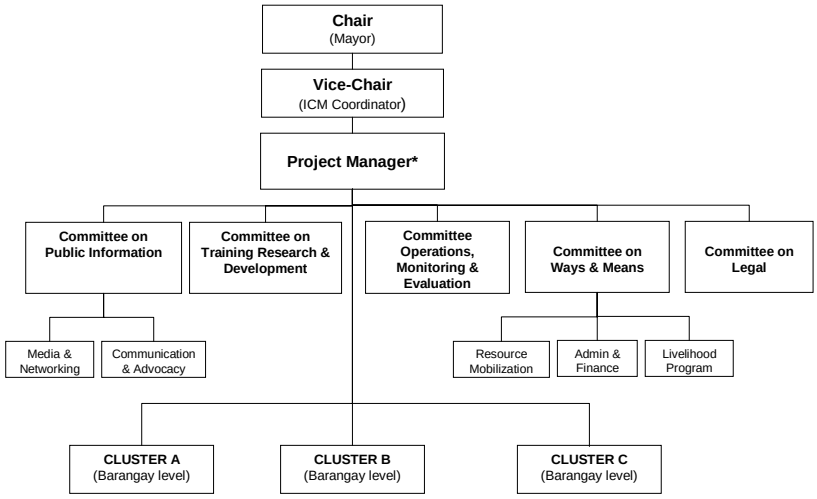
Figure 2. Cavite Provincial ICM Council



Likewise, the **Project Management Office (PMO**) was created under the Provincial Environment and Natural Resource Office on November 16, 2004 through the **Executive**

Order of the Governor No. 48. The PMO was institutionalized as a permanent outfit of the provincial government that will coordinate day-to-day activities of the ICM project.

Figure 3. Municipal/City ICM Council



* To be elected by different committees involved.

The Governor through the PMO and PG-ENRO mandated the nine coastal Mayors to designate one permanent coordinator either from Municipal Planning and Development Office (MPDC), Municipal Environmental and Natural Resources Office (MENRO) or Municipal Agriculture Office (MA). The coordinators will automatically act as a Vice-Chair of the Municipal/City Council. The said approach was undertaken for the sustainability of the project. All the nine towns have designated their respective coordinators. They have been actively playing the role as leaders in ICM activities in their respective municipalities.

The private sector has been mobilized to be an active partner in ICM. A private sector group consisting initially of 16 companies formed the *"Cavite for A Sustainable Environment, Inc. (CASE)*". CASE aims to support the ICM program by promoting corporate social responsibility among the private sector and implement some key programs in close coordination with PMO. It will also be represented in Provincial ICM Council as seen in Figure 2. Box 2 contains the vision and mission of CASE and its focus areas.

Box 2. CASE Vision, Mission and Focus Areas.

Vision

A safe, clean and habitable Cavite with bountiful ecological resources, world class economic center and tourism destination

Mission

To conserve, protect and restore the environmental resources of Cavite through responsible stewardship and strategic partnerships among key stakeholders.

Focus areas

Ecological waste management
Coastal resource management
Education
Research
Ecotourism

On the other hand, implementation of some ICM activities was hindered by financial resources of the provincial government. In order to resolve this issue, the municipal governments are being tapped to share their budget in the conduct of activities at their own municipalities. CASE is also a potential source of funding.

2. Capacity Building

As an initial step in implementing ICM, about 20 participants from local government, private sector, academe, non-government organizations and people's organizations of the nine coastal towns of Cavite were trained in ICM from October 4-8, 2004. Participants to the training program are now actively involved in their respective municipalities in the conduct of ICM activities. The training program was organized by PEMSEA and Cavite PMO, and resource persons were provided by Manila Bay Environmental Management Project, Batangas ICM Demonstration Project and Bataan ICM Parallel Site Project.

Two participants from the provincial government and a representative from a private sector attended the PEMSEA Regional ICM training program held in November to December 2005 in Philippines and Xiamen, China.

Being part of the Manila Bay Environmental Management Project, staff of PMO also attended training seminars being undertaken such as resource valuation, IIMS, advocacy and communication. PMO has been member to several technical working groups of Manila Bay, where capacities of the staff are being enhanced.

3. Multi-stakeholders Participation

ICM requires involvement and mobilization of the stakeholders to develop their sense ownership of the project. Stakeholders who benefit from the coastal resources cooperate and coordinate to attain sustainable development of the province. Aside from the representation in the ICM council, each of the stakeholder groups shall be involved at various levels of project implementation. A clear delineation of roles and responsibilities shall be spelled out in the Memorandum of Agreement to be forged by the local government and the stakeholder groups.

Series of consultation seminars were conducted for various stakeholders such as barangay (community) leaders, religious sector, non-government organizations, LGU, academe, fisherfolks, youth sector and private sector to present the ICM project, discuss issues and solicit their views and commitment in attaining sustainable development of the coastal areas of Cavite. In the creation of councils at various municipalities, massive consultations have been employed involving stakeholders from the municipal and community levels. So far, the acceptability of the creation of a council among stakeholder is high.

On-the-ground projects were also implemented in Cavite such as massive public awareness and participation in conservation of resources and provision of alternative livelihood to the marginalized communities in the coastal areas.

The PMO of Cavite started with an advocacy campaign aiming to develop a strong mass-based multi-stakeholders involvement in the project. The said advocacy is now leading the provincial government of Cavite to have a high public acceptability in the program as well as direct participation of the community in the project implementation.

4. Financial Arrangements

At present, the financing of the program is sourced from the Provincial Government. Contributions from the local government are being worked out. Potential sources of financing also include CASE. Financing arrangements with potential sources are being negotiated.

Naic, one of the coastal municipalities, however, has undertaken further steps in tapping the private sector and stakeholders as co-implementor in ICM. The Naic ICM Council has been in place and it is being used as a mechanism to entice the participation of the stakeholders. The Naic ICM Council has undertaken successful steps in resolving issues on illegal fishing and has been assisting the fisherfolks in undertaking alternative livelihood and establishing fish sanctuary. It has also strengthened the Bantay Dagat (Guard the Seas group) as a warden of the coastal areas.

The CASE has committed to complement the resources of the government sector. Among the CASE activities proposed projects include assistance for alternative livelihood projects for the coastal communities especially the fisherfolks groups, adopt a highway program, participating in conservation programs and involvement in regular coastal clean-ups of the coastal areas and other projects that may be implemented in the province.

5. Others

Cavite participated in the East Asian Seas Congress 2003 and the 3rd RNLG Forum at Putrajaya, Malaysia from December 8-12, 2003. Likewise, the province is also one of the members of the Site Coordinating Committee (SCC) of Region IV-A CALABARZON of the Manila Bay Environmental Management Project (MBEMP).

CONCLUSION AND RECOMMENDATIONS

ICM as an environmental management framework provides the government of Cavite a mechanisms and processes to harmonize economic development and environmental protection of coastal and non-coastal areas. It also provides the policy makers, planners and managers of the Province to meet the challenges of sustainable development and to find out a more strategic way of sustaining the ICM project.

Partnerships with the private sector in Cavite promote corporate social responsibility emphasizing that ICM will not only be the sole responsibility of the provincial government but rather both parties. Doing the best for conservation of the environment is the advocacies of ICM Cavite for promoting sense of commitment and responsible private sector.

At an early stage of ICM in Cavite, experiences and lessons learned in the implementation of ICM stressed out that the key element in the success of the program is to have a ***strong mass-based multi-stakeholders involvemen***t in the project. Even there is a budgetary constraint in the government side, projects can still be implemented with partnerships with stakeholders.

Continuous integration and coordination with the community builds a strong commitment among stakeholders. Public awareness and direct contact with the stakeholders leads the Provincial Government of Cavite to successfully achieve sustainable development in the province.

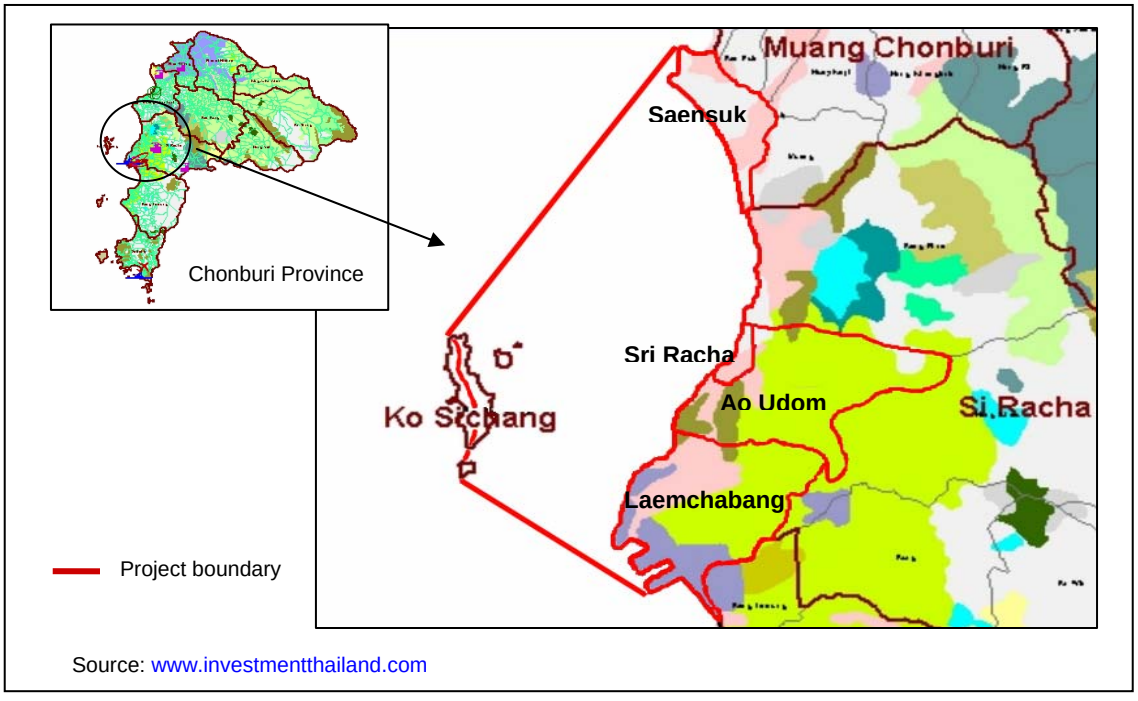
Progress Brief for the Chonburi National ICM Demonstration Site, Thailand

Background

Chonburi province is located on the eastern seacoast of the Gulf of Thailand, about 100 km from Bangkok. It has a total land area of 4,363 km^2 and coastline of 160 km. It is a popular destination for local and foreign tourists due to its natural, cultural and historical tourism sites. The potential for further development for tourism is high, owing to its convenient location close to Bangkok and good transportation system. It is also considered as an important economic center and a gateway to the eastern region, being one of the sites of the Eastern Seaboard Development Project, an expansive policy of the Thai government to extend the economic and industrial growth into regional and local areas. This 20-year project that was initiated in 1981 has transformed the economic structures of the province from agricultural business to industrial business.

The Chonburi National ICM Site covers four coastal municipalities and one island municipality of the Province: Saensuk, Sriracha, Chaoprayasurasak (formerly Ao Udom), Laemchabang and Si Chang Island (Figure 1). The land total area of the project site is 129.26 sq. km. with a coastline of 27.5 km. The Memorandum of Agreement between IMO and the Provincial Government of Chonburi for the development and implementation of the National ICM Demonstration Project in Chonburi was signed in August 2001.

Figure 1. The Chonburi National ICM Demonstration Project Area.



Key Progress, Achievements, Constraints and Impacts

Progress and Achievements

Since the previous meeting of the RNLG on December 2003, the following have been accomplished by the ICM Project:

- Publication of the Initial Risk Assessment Report on July 2004
- Publication of the Coastal Strategy for the Chonburi ICM Project Area and adoption through a Declaration Ceremony on 21 September 2004
- Presentation of project outputs and accomplishments during the Coastal Strategy Declaration Ceremony
- Production of information, education and communication (IEC) materials on the marine and coastal environment and the ICM project
- Conduct of on-site training on IIMS query system and external software linkages on 24-27 May 2004
- Strengthening of local capacity for ICM implementation through:
  - Participation in the 3rd RNLG Forum
  - Participation of six provincial and municipal officials in a study tour in Xiamen, China on July 2004.
  - Internship at the Regional Programme Office (RPO) of two municipal staff from Chonburi on August – October 2004 and participation in the PSC meeting in Xiamen, China on October 2004 as observers
  - Conduct of on-site ICM training on February 2005 in collaboration with the Thailand Environment Institute
  - Participation of two academic staff (from Burapha University and Kasetsart Fisheries Station) in the training co-organized by PEMSEA with the APEC Marine Environmental Training and Education Center (AMETEC) on impacts of oil spills in South Sea Institute, KORDI, R.O. Korea
- Coordination of PMO by Sriracha Municipality
- Designation of the Provincial Natural Resources Office as coordinator at the provincial level

Activities currently in progress include:

- Development of the Coastal Strategy Implementation Plan (CSIP), with Sriracha Municipality as the pilot site for the development and implementation. Preparation of the Draft CSIP is ongoing. The identified focus areas are 1) development of local oil spill preparedness and emergency response to support the national oil spill contingency plan; 2) wastewater management; and 3) mitigation of air and water pollution from ship-based activities.

- Capacity building and public awareness activities, which are being undertaken at the provincial level. This includes:
  - Setting up of ICM web site. The web pages for the ICM web site have been completed by the Chonburi interns while at RPO. The web pages are ready for uploading pending identification of a local host. One potential host is the Sriracha municipality web site, which is currently being developed.
  - Continuing public awareness and community mobilization activities

- Conduct of further training on ICM targeting potential trainors or community-level training aimed at formation of volunteer groups for coastal monitoring and hazard reporting

- Documentation of selected on-the-ground achievements on coastal rehabilitation and improvements

In the five years of project implementation, the key accomplishments of the ICM Project include:

- Setting up a Project Management Office (PMO) hosted by Sriracha Municipality, with local counterpart support from Sriracha and Laemchabang municipalities. Since October 2004, coordination of the PMO has been assumed by Sriracha municipality

- Increased interaction and collaboration of various agencies and sectors through involvement in project task teams

- Building of capacity with regard to the technical and administrative aspects of ICM implementation through participation in regional and local ICM trainings, conduct of on-site trainings for application of specific ICM tools, and participation in the internship programme at the Regional Programme Office (RPO).

- Identification of priority environmental concerns through the IRA. The IRA also directs attention to human activities that give rise to identified risks and provides recommendations for managing the risks. The IRA integrates existing scientific data and facilitates the use of scientific information in environmental management and decision-making. It also brought together experts from various disciplines and institutions.

- Adoption of the CS as a common platform and mechanism for stakeholder partnerships in achieving the people's shared vision for the sustainable development of Chonburi. The CS, which was formulated through extensive stakeholders' consultation, represents the values that Chonburi's people place on the coastal resources, and their aspirations and proposed actions for maintaining those values. Adoption of the CS signals political support for the implementation of the strategies and action programs.

- Consolidation of environmental and socioeconomic information through the Integrated Information Management System (IIMS) that can be used as decision support system for coastal management

- Incorporation of selected CS action programs into the municipal plans through workshops conducted with the municipal mayors and planning officers.

- Enhanced stakeholder awareness regarding environmental values and issues through participation of PMO in public events and dissemination of IEC materials such as pamphlets, brochures and ICM video

- Enhanced understanding of natural coastal processes and issues among local leaders leading to the implementation of coastal rehabilitation/improvement projects

- Demonstrating the benefits of ICM to other coastal municipalities in Chonburi by facilitating their participation in various ICM activities

Constraints and Impacts

The major constrains faced by the project in the course of implementation include:

1. *Lack of PMO staff.* The manpower at the PMO is insufficient to implement daily activities of the project and provide technical support to project activities. The project involves preparation of technical and administrative reports/outputs, which is beyond the capacity of the PMO in terms of human resources and technical expertise. Support staff from the government, preferably on a permanent basis would be important in enhancing project operations

2. *Turnover of PMO staff* has affected the continuity of project implementation. Intensive training had to be provided for new staff assigned at the PMO. The capacity and experience gained through years of involvement in the project cannot, however, be easily conveyed through trainings.

3. *Organizational and coordination mechanism.* The Project Coordinating Committee (PCC), a multi-sectoral committee composed of 70 members from various national and local government agencies, NGOs and private sector, was set up in 2001 but was functional only until 2002 due to difficulties in coordinating the large membership. The PCC was tasked with providing the policy direction and coordination of the project. In its absence, cross-sectoral and multi-agency participation was coordinated by PMO directly with the respective offices and organizations, and facilitated through direct coordination with the municipal and provincial government offices.

4. *Institutional arrangements.* Although the PMO was hosted by the Sriracha Municipality for five years, the PMO was not integrated into any government office (agency or department of the provincial government or municipal government). Working outside the government structure, it was more difficult to coordinate project activities and link with government programs. This resulted in delays in project implementation. With Sriracha Municipality assuming project coordination, easier harmonization of efforts is expected. The Provincial Natural Resources Office has also been designated by the Provincial Government to coordinate ICM activities at the provincial level.

5. *Government reorganization.* Periodic rotation of government officials has also affected the implementation progress. Although willing to support the project, new officials needed time to understand the project objectives and operational mechanisms.

6. *Language barrier.* Throughout the course of the project, translation of documents from Thai to English and vice versa has taken time and caused delays in implementation

The above factors have, in various ways, contributed to delays in project implementation. This has led to the re-direction of project implementation to selected key activities with emphasis on capacity building, and focus on Sriracha as pilot site for the implementation of the coastal strategy.

Lessons Learned and Strategies for Sustainable ICM Implementation

Institutional Arrangements

In spite of the above constraints, the PMO made a great effort to bring the project forward with the support of the municipal and provincial governments. The Sriracha Municipality has played a key role in supporting and guiding project implementation. However, it is now recognized that establishment of the PMO within a government structure and more systematic organizational arrangements (i.e., coordinating body) would have facilitated project implementation.

Coastal Strategy and Implementation

The stakeholder consultation process that was applied in formulating the Coastal Strategy makes it reflective of the sentiments and aspirations of various sectors and disciplines concerning the sustainable development of the ICM area. The consultation process was important in developing the shared vision and strong sense of ownership for the strategy.

The incorporation of selected action programs and strategies in the municipal plans of the five participating municipalities signals political commitment to implement the Coastal Strategy. The experience gained by Sriracha municipality in developing and implementing the CSIP should be shared with other municipalities.

Capacity Building

The capacity and confidence to implement ICM requires years to build, through actual involvement in project operations. Staff reorganization and turn-over are, however, inevitable. It is therefore important to continue generating sufficient manpower with knowledge on ICM through on-site capacity building activities.

Multi-stakeholders Participation

Stakeholders' participation is facilitated by enhanced understanding of environmental values and threats as well as available opportunities for participation. Public awareness campaigns that seek to inform and educate as well as enjoin people to participate are therefore very important.

Stakeholders also welcome opportunities to contribute to significant causes like environmental management. Through participation in working groups for the ICM project, technical experts from the academe and government institutions as well as representatives from the private sector have demonstrated their willingness to provide multidisciplinary inputs to support environmental management and decision-making. Other cooperative endeavors should be explored.

Conclusions and Recommendations

ICM implementation in Chonburi has generated sufficient interest among other coastal municipalities in the province. In spite of the constraints encountered, the ICM Project is still serving as a model for ICM implementation. This can be attributed to an inspired leadership that understands the value and benefits of ICM, and continuously seeks to promote it. However, in order to sustain the implementation of ICM and be able to demonstrate the long-term benefits, there is a need to strengthen the organizational and operational mechanisms for project implementation. The following recommendations seek to address these constraints.

- The PMO needs to be strengthened further particularly with regard to technical capacity in order to provide better administrative and technical support for the project. An assessment should be made regarding the minimum requirements for human resources and capacity for operating the PMO.

- As government reorganization and staff turnover are inevitable, it is important to continue expanding the human resource base and capacity for ICM implementation through further trainings.

- In order to streamline and guide ICM implementation, a Site Coordinating Committee (SCC) composed of the 5 municipalities that have adopted the coastal strategy and other key stakeholder groups needs to be established. Institutionalization of ICM in Chonburi could be done through the SCC. One objective of the SCC would be to promote and extend its membership to other municipalities/stakeholder groups and to institutionalize the SCC through municipal ordinances.

Progress Brief for the Danang National ICM Demonstration Site, Vietnam

Brief Description of the Project

The National ICM Demonstration Site Project in Danang City, Vietnam, which commenced in mid-2000 has two main objectives: 1) to enhance the city's capacity to plan and manage the coastal and marine environment through the implementation of ICM and 2) to serve as a working model of ICM for other coastal provinces and cities in Vietnam and the East Asian region at large.

The management boundary of the ICM project includes the five urban districts (i.e., Lien Chieu, Thanh Khe, Hai Chau, Son Tra, Ngu Hanh Son) and one rural district (i.e., Hoa Vang) and coastal water up to a depth of approximately 50 m (Figure 1).

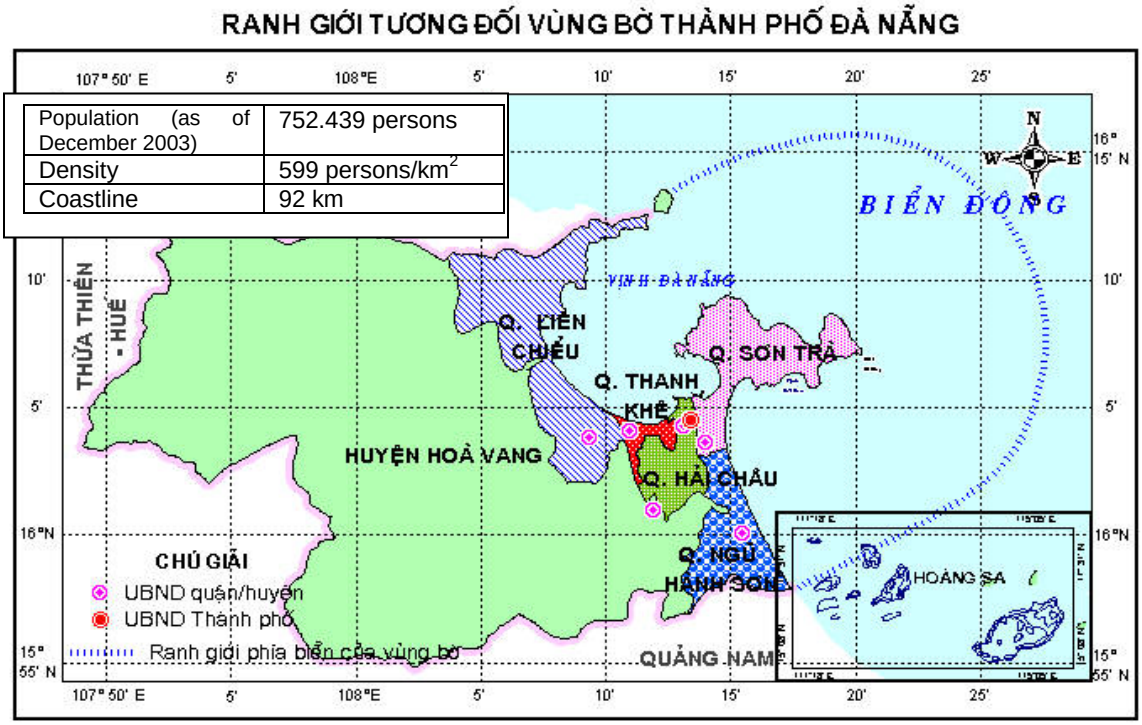


Fig. 1. Management Boundary of the ICM Project

Achievements

The following are the key achievements of the ICM project after almost 5 years of implementation:

- Established the PMO and PCC, which effectively carried out their functions in project management and in strengthening the cooperation and coordination between the different sectors, the local government and other relevant stakeholders

- Completed key activities under the initiating stage of the ICM cycle including a) environmental profiling, b) development and Implementation of public awareness plan, c) development of coastal strategy, d) initial environmental risk assessment and e) establishment of integrated information management system (IIMS).

- Currently completing key activities under the developing, adopting and implementing stages of the ICM cycle including a) development of coastal strategy implementation plan, b) coastal use zoning plan, c) integrated environmental monitoring program, d) development of institutional arrangements for ICM implementation and e) establishing partnership with potential private partners to plan, develop, construct, operate and manage an industrial wastewater treatment facility and a centralized hazardous waste disposal system on a self-sustaining basis.

- Documentation of lessons learned.

Constraints

- ICM is a relatively new approach in Vietnam. Project development and implementation therefore encountered many difficulties due to weak local capacity in planning and management and lack of technical know how.
- Changes in the human resources in the PCC and PMO affected timely completion of project outputs.
- Changes in the functions of state management units created many difficulties in steering, coordinating and implementing the project.
- Lack of comprehensive data on natural resources limited the collation, screening, standardization and encoding of information.

The abovementioned difficulties affected the progress as well as the quality of outputs of several subprojects such as initial environmental risk assessment, IIMS and development of coastal use zoning plan.

Impacts

- Public awareness was obviously enhanced resulting to changes in perception and attitude of the people including managers and leaders on how they regard their environment and natural resources.
- The quality of environment was remarkably improved, contributing to the development of tourism in the city.
- Knowledge as well as experiences in coastal natural resources and environmental management, sustainable development of managers in related sectors, organizations was improved.
- There is some degree of appreciation of the ICM approach involving all sectors, i.e., policy makers, scientists, civil society and the communities, which was catalyzed through public consultations and awareness activities.
- The multi-sectoral coordinating mechanism continuously played a critical role in providing guidance in project implementation as well as providing a platform for interagency collaboration and cooperation and regular stakeholders' consultation.

- Some specific outputs of the project such as coastal strategy and coastal strategy implementation plan, database and information sharing mechanism, coastal use zoning scheme, integrated environmental monitoring program and institutional arrangements for ICM implementation have provided the necessary information as well as direction for planning, managing and protecting Danang's coast and natural resources.

Lessons Learned

Institutional Arrangements

- All matters concerning the organization and operation of the ICM project were considered and implemented following the ICM approach with the involvement and active participation of relevant stakeholders particularly in the initial stages of project implementation. The establishment of the PCC, where the Vice Chairman of the People's Committee of the City serving as Chairman of the PCC and the members are leaders of related sectors, organizations, and local government units, created a harmonious mechanism to minimize interagency conflicts and promotes functional integration (Figure 2).
- The institutional arrangements for ICM implementation must be based on the practical as well as local needs while promoting synergy with policy and relevant laws of the Socialist Republic of Vietnam.

Fig. 2. A consultation meeting with the members of the Project Coordinating Committee

Coastal Strategy Development and Implementation

- The coastal strategy is a result of a long consultation process and the collective effort of various stakeholders including heads of line agencies, resource and environmental managers, scientists, representatives of the districts and communes and other stakeholders. The consultation process is essential in forging a shared vision, which resulted to strong commitment of the different sectors for its subsequent implementation.
- It is necessary to integrate concerns related to coastal environment and natural resources with the socio-economic development plan of the city including sector development plans.

Capacity Building

- The strong sense of ownership of the project encouraged the local government to assume an active role in ensuring that local capacity for planning and management of the coast is significantly enhanced. The project's organizational and management mechanism efficiently performed their functions. Team of local experts who are knowledgeable in various aspects of environmental planning and management were assembled and provided expert advice and assistance in the implementation of specific projects.
- It is important to continuously train core staff and representatives of key sectors to meet the changing needs of the city.

Multi-stakeholders Participation

- Stakeholders must be involved in all stages of ICM implementation. Integrate ICM concerns into their sectors' activities.
- Multi-stakeholders participation promotes cooperation and coordination among sectors through information sharing, consensus and commitment in coastal environment and natural resources protection.
- Mobilization of scientists to participate in project implementation ensures that scientific knowledge can be properly utilized for informed decision making.

Strategies for Sustainable ICM Implementation

- Danang is now on the process of developing the institutional arrangements for ICM implementation where mechanisms that will delineate the roles and responsibilities and authorities as well as working arrangements in relation to city's sustainable development are being established.
- The integration of the coastal strategy implementation plan with the city's socioeconomic development plans and sectoral plans ensures their effective implementation.
- Obtaining the commitment of the local government to allocate human and financial resources for project development and implementation is being undertaken.
- A new ICM program that will be built upon the results of the existing project and that would meet the requirements of socioeconomic development will be developed in Danang in the future.

Conclusion and Recommendations

The national ICM demonstration site project in Danang has a number of key achievements, which significantly contributed to the city's pursuit for sustainable development. Although the project has faced a number of difficulties such as weak local capacity in planning and management and the development of self-sustaining mechanism for ICM implementation, the achievements have so far outweighed the difficulties. This is the first project in Danang that promoted a multi-sectoral management approach and multi-stakeholders participation. Another outstanding feature of the project is that it encouraged the active involvement of local experts instead of relying on external expertise in the implementation of the different project activities. The achievements of the project were highly appreciated in Danang as well as in Vietnam. It has provided the much-needed example for many other coastal provinces in Vietnam that are currently implementing or in the process of implementing ICM.

With the achievements, knowledge and experiences gained on project implementation; there is a need for Danang to build on what has been established by developing a second cycle ICM using its own resources. As ICM is highly dynamic and continuously evolving, Danang still needs the continuing cooperation and support from PEMSEA as well as from the local and international organizations particularly on capacity building and sharing of knowledge, experiences and information.

Progress Brief for the Nampho National ICM Demonstration Site, DPR Korea

1. Status of Project Implementation

Implementation of the Project Activities since the 3rd RNLG Meeting

- The Land Planning Institute, Ministry of Land and Environmental Protection has developed, in collaboration with the PEMSEA RPO, the Nampho Coastal Strategy (in Korean and English) and the RPO has published it in English for distribution.

- The sub-contract for the Integrated Information Management System was completed;

- The Contract for PMO Operation 2003-2004 signed in December 2003 between The General Bureau for Cooperation with International Organizations (GBCIO) and the RPO was successfully implemented.

- As the Coastal Environmental Profiling developed, the People's Committee of Nampho City has got a blueprint on environmental status of Nampho City and its coast.

New Project Activities

The following projects were approved and entered into the implementation during the period of 2003-2004:

- Integrated Environmental Monitoring System;
- Establishment and Operation of ICM Training Center;
- Drinking Water Supply and Sanitation; and
- Development of Integrated Coastal Use Zoning Plan.

2. Major Achievements and Impacts

- The Nampho Coastal Strategy was developed on the basis of the coastal and marine environmental policies and laws of the Government, and in collaboration with the PEMSEA Regional Programme Office. As a result, a strategic document for implementing the national policy to develop Nampho City as a modern international port and culture city was provided. The Strategy was officially approved and adopted as a policy for the development of Nampho coastal area.

- An information and database for coastal environmental management has been established for the first time in Nampho City. This system is now operating using IIMS software developed by the PEMSEA. In order to maximize the value of this database and ensure coastal environment management in scientific manner, an IIMS Networking project is being developed. Once the project is successfully implemented, IIMS Networking involving national and local relevant agencies will be established in line with the Integrated Coastal Environmental Monitoring Programme. This will provide a base to successfully implement integrated coastal management in Nampho.

- The successful implementation of the sub-contract for PMO Operation 2003-2004 has improved the project management capacity of the PMO and ensured its institutionalization. In 2005, the People's Committee of Nampho City (PCNC) will make the necessary arrangements to transform the current PMO to Coastal Management Division under its Department of Land and Environmental Protection.

- The most important event among achievements during the period 2003-2004 was the establishment and operation of the National ICM Training Center at the Department of Global Environment Science at the **Kim Il Sung** University, the largest one in DPR Korea.

  The opening ceremony and the training of ICM trainers were conducted in July 2004 at the Center with the participation of Dr. Chua Thia-Eng, Regional Programme Director, two ICM technical officers, RPO and 20 trainers and experts. Based on knowledge and experiences gained in this training course and during the ICM study tour to Xiamen, our trainers organized themselves for the first time a pilot ICM training course in November 2004 and translated into Korean the ICM Manual developed and provided by the PEMSEA RPO to formulate training modules and materials taking into account the actual situation of the country. This is the first step for self-national capacity building in coastal management.

- Based on the Nampho Coastal Strategy and Coastal Environmental Profile, we developed a project on Integrated Coastal Use Zoning Plan in collaboration with the PEMSEA RPO and the project has been successfully implemented. Capacity of Land Planning Institute, which is the leading agency, has been improved through the implementation of project and a draft of Nampho Coastal Use Zoning Plan in Korean was formulated. The draft will be submitted in April to the RPO for review and refinement.

- In Nampho, the imbalance between water demand and the supply of safe drinking water was identified as one of priority concerns during the stakeholders consultation on Nampho Coastal Strategy Development. For example, the existing reservoirs and facilities with the total capacity of 100,000 cubic meter per day, can not meet the daily water demand and limit to the amount of 40,000 – 50,000 cubic meter per day due to outdated equipment and facilities. Nampho stakeholders therefore expressed their commitments to address this issue by formulating specific action programmes under the objective of "*Conserve water resources for sustainable use*" in Nampho Coastal Strategy.

  In response, a drinking water supply and sanitation project (2002-2005) was initiated by the PCNC. The project will increase the supply capacity up to 150,000 cubic meter per day and benefit about 330,000 citizens with daily supply of 500 liter per person. The project has been implemented using the locally allocated funds, manpower and techniques. Facing the difficulties in mobilizing enough funds to procure necessary equipment and facilities, however, the PCNC requested, during the mission travel of Dr. Chua Thia-Eng, Regional Programme Director in July 2004, PEMSEA's financial assistance to complete the project successfully.
  In this regard, special assistance project was developed in collaboration of the RPO and has been implemented. Two objectives of four of the project were accomplished. The project will be completed in September 2005 and an opening ceremony will be taken in October 2005.

- Based on marine pollution monitoring program implemented during the PEMSEA Pilot phase, we developed a project on Integrated Coastal Environment Monitoring Programme, which is being implemented. Once equipment and chemical reagents purchased, the project will be implemented by the end of third quarter.

3. Major Constraints and Suggestion for Improvement

Major constraints

- A lack of knowledge and experience in ICM among policy and decision makers at local level is one of major constraint due to institutional changes at the PCNC.

- Project implementation is being delayed than expected due to local physical conditions.

- Pending outputs of some sub-contract projects due to delay of procurement has affected the implementation of Nampho ICM project.

- Unstable power supply has been affecting the operation of the PMO, in particular, maintenance of the equipment procured.

Suggestion for improvement

The major constraints to project implementation over the past year have been the lack of local capability and physical conditions for the normal operation of PMO. To address these constraints the following actions are suggested:

- Organize a ICM study tour for local policy and decision makers to PEMSEA participating countries to increase knowledge and experiences in coastal management;

- Maintain normal operation of the National ICM Training Center to contribute to capacity building of local officials and experts through local ICM training and workshops; and

- Encourage participation of ICM trainers to PEMSEA regional training to improve skills and experience in ICM education.

4. Lessons Learned and Conclusion

Main lessons learned

- Increased public awareness in coastal environment and rational use of resources encouraged stakeholder participation in the coastal management. Stakeholder participation is vital in a comprehensive approach such as ICM, which covers various sectors and involves different agencies and institutes.

- It is critical to build up capacity of the core stakeholders for the successful implementation of the project. With the limited funds, it is quite difficult to strengthen the capacity of all the stakeholders, particularly when the responsibilities and roles of stakeholders differ from each other. From this point of view, during the last year, the Nampho ICM project has focused on strengthening the capacity of core stakeholders.

As a result, the stakeholders have played an important role in the implementation of the project.

- Addressing priority issues identified at the Coastal Strategy encourages active participation of stakeholders to coastal management and increase public awareness of value and benefit of ICM.

Conclusion

- There were difficulties and constraints during the implementation of the Nampho ICM Demonstration Project in 2003-2004. However, the PMO and the multidisciplinary team have worked together and overcome difficulties in collaboration with the RPO and with strong support of the PCNC, and gained valuable experiences. To achieve the goal of the Nampho ICM project, we have to overcome many difficulties still and will finally achieve the goal.

- The period 2003-2004 made a turning point in the implementation of Nampho ICM project. Many valuable outcomes have been produced, and capacity of our core stakeholders has been improved with strong support and active cooperation of the PESMEA RPO.

Progress Brief for the Port Klang National ICM Demonstration Site, Malaysia

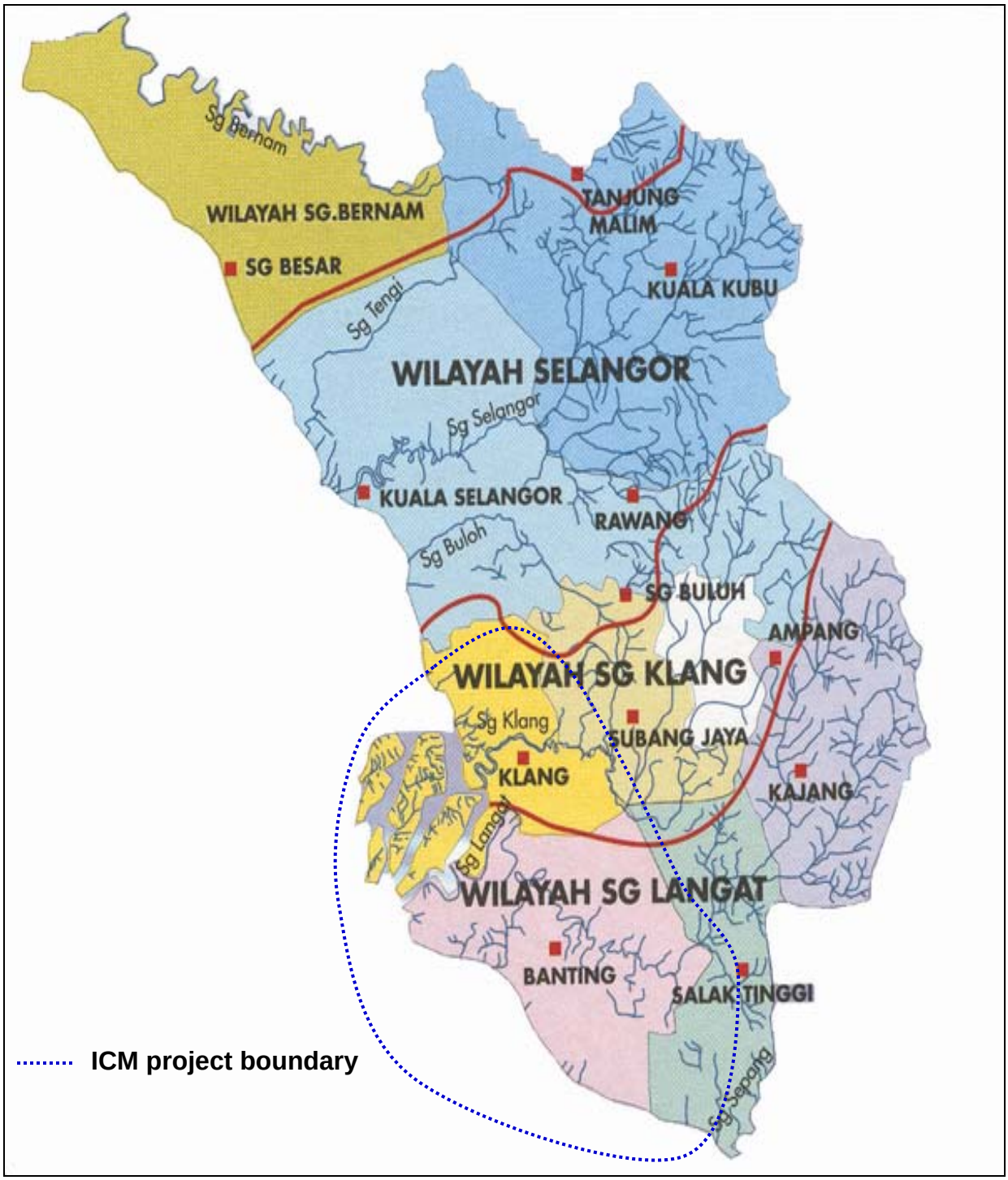
Introduction

Malaysia's induction into PEMSEA's ICM project began in July 2001 with the signing of MoA between IMO and Selangor State Government, represented by the Regional Programme Director of PEMSEA, Dr. Chua Thia Eng, and the State Government's Chief Minister, Dato' Seri Dr. Mohammad Khir Toyo.

The project boundary includes two (2) coastal districts, namely Klang district and Kuala Langat district, and encompassed two river mouths, the Langat River and Klang River. These two rivers cover 1,300 and 2,400 km^2 of catchment areas, respectively. The sea area (within 3 nautical miles (5.5 km) from the shoreline during spring tide) is 169.40 km^2. The length of coastline for Klang and Kuala Langat are 53.75 km and 48 km, respectively. The catchment basins of the two rivers include the most populous and highly urbanized areas in Malaysia, which are under continuous development pressure. Among the cities traversed by these rivers are Kuala Lumpur, Petaling Jaya, Shah Alam, Klang, Kajang and Putrajaya.

The project area also includes the main islands of Pulau Klang, Pulau Ketam, and Pulau Carey. User conflicts exist within the project boundary, and this is expected to increase in the future. Thus there is a great need to harmonize economic development and environmental conservation, with due recognition of social issues of the area.

Control and reduction of pollution from upstream sources and activities are crucial for the proper management of the environment. There are several developments in the upstream areas, including industrial and housing projects, which greatly contribute to the pollution of Sg. Klang and Sg. Langat. Within the project area, Port Klang (North Port and South Port) and West Port (Pulau Indah) are two busy ports that handle millions of metric tons of cargo, and this is on the increase every year.



Coastal Strategy

The coastal strategy was prepared as a foundation for sustainable coastal management in Port Klang. The strategy includes a vision statement, which is a reflection of the desired changes and future development activities in the coastal zone, as well as a series of objectives and action programmes to be implemented by the various stakeholder groups over the short and

long term. Stakeholder participation was further enhanced as a consequence of information, education and communication activities, which are designed to improve public awareness. The Federal and State governments, district offices, private sector, and academe worked hand-in-hand in the development and implementation of community awareness and participation programs. Example activities, including beach cleaning, mangrove replanting, local radio broadcasts and lectures to local students on the importance of sustainable development, have contributed to a new environmental awareness among the general population in Port Klang.

For those who don't have the chance to participate in such activities, but want to learn more about the ICM project, access to information on all the component activities of ICM, together with latest environmental news in the region, can be gained by logging on to the newly established information portal, www.portklangcoastalink.net.

Initial Risk Assessment

The initial risk assessment of the Port Klang coastal area served to identify priority environmental risks, as well as determining the probable sources of the identified hazards and effective ways to tackle them. The risk assessment of the Klang and Langat Rivers showed environmental and human health threats associated with organic contamination (sewage and agricultural wastes) especially along the middle stretches and estuary areas, sedimentation and siltation (construction and development), and bacteriological contamination (sewage and agricultural wastes), including *E. coli* contamination of drinking water sources.

The priority concerns identified in the risk assessment of Klang and Langat Rivers are consistent with the priority concerns for selected coastal areas, showing the strong influence of the two rivers on the water quality of these coastal areas.

Decline in mangrove cover was established for the Kapar and Klang Island mangrove forest reserves (MFR). In the Kapar MFR as of 1998, only 410 ha or 8% remained of the 4,865 ha mangrove cover in 1970. Also in 1998, the remaining mangroves in the Klang Islands MFR was estimated to be 10,871.4 ha or 88% of the 12,301 ha in 1984. The identified primary cause of decline in mangrove cover in the forest reserves was the degazettement or removal from legal protection of certain portions of the forest reserves and subsequent land reclamation to accommodate new developments. The extensive loss of mangroves, especially in the Kapar area, may have had adverse ecological impacts, such as the impairment of ecological functions and services provided by the mangroves including shoreline protection, habitat for marine life, and carbon storage.

A better understanding of the ecological and economic impacts of the decline of mangrove areas in the Klang District would be valuable in formulating future development plans that will integrate ecological as well as economic considerations.

Response Programme

Integrated coastal use zoning and environmental investment are among the tools being used to address the priority concerns in Port Klang. An integrated environmental monitoring program is also being implemented. A special project on developing an eco-tourism at Pulau Ketam is being formulated, but this will take a longer time as the area will first be incorporated into the local authority (Klang Municipal Council) area before any development will take place.

Although there are various opportunities for environmental investments, and the participation of the private sector in investment programs in Port Klang, there are also many challenges, not the least of which are policy issues between State authorities and the Federal Government. The ICM project has made significant efforts to build consensus and support at the local level for development of improved solid waste and sewerage systems. However, the concerned local authorities are governed by the overall planning and funding of the Federal Government, which was looking at these two issues on a grander scale. The Federal plan adopts a centralized approach, covering the central part of Selangor State including Kuala Lumpur and Putrajaya, and involves a major financial and technical commitment on the part of the Federal Government.

Sustainability and Replication of ICM

In the Malaysian constitution, land and water are a state matter. Thus, the State is entrusted with the legal authority to oversee environmental protection, and to keep an appropriate balance with development. The Selangor State government has set up a river basin management agency known as Selangor Waters Management Authority (LUAS) for this special task, a first of its kind in Malaysia. LUAS hosts the PMO for the ICM demonstration project. Being a river basin agency, while executing an integrated coastal management project, provided LUAS with a broader perspective of sustainable development and management of marine and coastal areas.

ICM employs a very comprehensive approach to solving multiple-use conflicts in a highly competitive coastal zone area. It is therefore imperative that the ICM framework and process be replicated along the Selangor coast, and beyond. The step-wise approach of ICM, and its use of scientific input, public awareness, and multi-tier stakeholder participation in problem identification and the application of simple but workable solutions, is recognized and appreciated. Obviously, the degree of success among local governments will vary due to political, economic, social, cultural and financial and human resource capacities and conditions. But by staying true to the ICM process, benefits will accrue and the goals of sustainable development are achievable.

Progress Brief for the Shihwa ICM Parallel Site, RO Korea

1. Brief description of ICM project

Lake Shihwa area is a typical site showing the deterioration of water quality as well as the destruction of coastal wetland due to large-scale dam construction and reclamation. After a 12.6 km seawall was built to seal off the mouth of the bay, tidal flat has disappeared and 133.7 km^2 of reclaimed land and 42.3 km^2 of a freshwater lake were created.

After the closing of the lake in 1994, the brackish lake suffered from severe eutrophication, and water quality became unfit even for irrigation purpose. Water pollution of the lake brought up social and environmental concerns, which led to project's failure.

To mitigate water pollution, seawater circulation was allowed through the sluices since January 1999. The government finally scrapped the plan for making a freshwater reservoir in December 2000. Following the decision to manage the lake as a seawater body, the Ministry of Maritime Affairs and Fisheries (MOMAF) began to play a leading role in establishing its management plan. Lake Shihwa and its coastal area was designated as a special management area under the Marine Pollution Prevention Act, and the Comprehensive Management Plan for Lake Shihwa (hereafter Shihwa Action Plan) was formulated in August 2001 by MOMAF in collaboration with all relevant stakeholders.

Lake Shihwa was designated as a PEMSEA Parallel site in November 2000 to implement integrated coastal management. Lake Shihwa Program funded by MOMAF launched in 2003 to support the implementation of Shihwa Action Plan.

2. Key progress, achievements, constraints and impacts

'Lake Shihwa Watershed Management Committee' was established in 2002 by the enactment of national legislation. The committee consists of senior-level representatives of central government agencies and local governments as well as experts and NGOs representatives, and functions as an integrated decision-making body on the management issues. The role of the committee is to supervise the implementation of Shihwa Action Plan and identify improvement measures through evaluations on the results of plan implementation. 'Shihwa Technical Advisory Committee' was also established in 2003 to support watershed management committee.

To further address complex, multiple-use conflicts among various stakeholders, 'Shihwa Area Sustainable Development Council' was organized by the Ministry of Construction and Transportation in February 2004. The council has been actively operated and it contributed to resolving use conflicts and enhancing information access as well as public participation in the decision-making processes.

To achieve the management goals, Shihwa Action Plan has four strategic focus areas; 1) management of water and sediment qualities, 2) management of ecosystems and biological resources, 3) management of coastal uses and spaces, and 4) strengthening of management system and capacity. Shihwa Action Plan provides an integrated framework for water quality improvement, habitat restoration and sustainable development of Shihwa coastal area. The

implementation of Shihwa Action Plan is supported by the investment plan of total US $746 million from 1996 to 2006.

By the end of 2004, national and local governments and government-funded corporation, Korea Water Association Corporation (KOWACO), invested US $452 million, which covers about 60.7% of total planned investment. US $365 million was allocated to construct two wastewater treatment plants, US $29 million to make artificial wetland, and US $30 million to repair stream waterways. Projects for tidal power plant (US $240 million) and sediment cleanup (US $45 million) were delayed.

Improvement of water quality in Lake Shihwa is limited in the area where seawater inflow through the sluices affects. It turns out that non-point pollution are major sources of water pollution in Lake Shihwa, and management of polluted storm water runoff is urgently needed. Construction and operation of tidal current plant will contribute to the increase of seawater circulation.

Lake Shihwa is a unstable ecosystem. Excess loads of nutrients from the watershed stimulate undesirable harmful algal blooms. As the algae die and settle to the bottom, they decay and consume dissolved oxygen that is crucial for benthic communities. Species diversity is still low and succession fails due to the depletion of dissolved oxygen in summer season. Explosive increases of opportunistic species are frequently observed in benthic ecosystem. Increase of seawater circulation after the operation of tidal current plant will revive tidal flats inside the Lake Shihwa and restore subtidal communities. Lake Shihwa area will provide suitable habitats for endangered waterfowl, and might be considered for the designation as a Ramsar site in the future.

3. Lessons learned and strategies for sustainable ICM implementation

ICM program formulation in Lake Shihwa area was successful in building constituencies and institutional capacity. Data and information related to specific management issues were gathered and strategic management plan was developed through appropriate stakeholders' consultation. Watershed management committee was organized to make integrated decision-making process.

It is noteworthy that about 99% of program investment was concentrated to water quality management and most of them were related with land-based point source control. Identifying and securing diverse funding sources and establishing sustainable financing mechanisms are yet to be major challenges for ICM implementation in Lake Shihwa.

In order to produce the favorable outcome of ICM initiatives, there is an urgent need to promote the application of consensus building and dispute resolution processes for achieving sustainable development. Capacity building will be essential for resolving use conflicts and enhancing information access as well as public participation in the decision-making process.

4. Conclusion and recommendations

Our challenge is to balance the protection and restoration of natural environment with the economic and social needs of the communities in the Lake Shihwa area. The reformation of policy and institutions without capacity building of individual stakeholders could not lead successful implementation of ICM programs, although the management plan was based on ICM principles to resolve multiple coastal use conflicts, minimize adverse impacts on ecosystems, and ensure sustainable socio-economic development of coastal areas.

Progress Brief for the Sihanoukville National ICM Demonstration Site, Cambodia

1. Brief Description of the Project

Sihanoukville is designated as one of the three economic development areas in Cambodia. It is the site of the country's only deep seawater port, serving as a commercial gateway to local and international trade. Sharing about 435 kilometers of the Gulf of Thailand, Sihanoukville's water is teeming with life, with its bays and estuaries abounding with fishery resources. The coastal resources of Sihanoukville have provided significant livelihood opportunities such as fishery production, trade services, industrial tourism, and eco-tourism. To protect the coastal resources, development activities are being undertaken in Sihanoukville, in line with the country's national economic development agenda. Consequently, there was a need to come up with a strategic approach to ensure that these development activities are carried out with little impact to the coastal and marine environment of Sihanoukville.

The Integrated Coastal Management Program was aimed at capacity building for implementers and beneficiaries in the Municipality of Sihanoukvillve for the prevention and the preservation as well as mitigation and reduction of multi-use conflict in coastal and marine resources utilization. Following the implementation process was the development and adoption of the Coastal Strategy of Sihanoukville by multi-stakeholders. The Coastal Strategy provides an outline on the vision for sustainable protection and management of coastal and marine resources in Sihanoukville. This was formally adopted by the Municipal Government of Sihanoukville and other stakeholders on June 05 2003.

The primary activities of the ICM Project in Sihanoukville have been directed to the following efforts:

1. **Environmental Education and Awareness** for stakeholders on their rights, ownership and other issues concerning coastal and marine environment to ensure their involvement and extensive participation in development and implementation of coastal and marine environment.

2. **Protection and conservation** of marine and coastal resources which is considered to be of foremost importance for Sihanoukville, to ensure sustainable development and redeem ecological and cultural value of its natural resources.

3. **Reduction of environmental damage** caused by human activities such as pollution from wastewater discharge, uncontrolled resource exploitation, natural habitat destruction and unsustainable development practices.

Management Structure and Framework

Several government agencies are responsible for the management of coastal area in Sihanoukville. Among the government agencies involved in this activity are The Departments of Environment, Agriculture; Fisheries and Forestry; Public and transportation, Tourism, Industry, Mines and Energy; Rural Development; Women's Affairs; the Land Management, Urban Planning and Construction and the Authority of Sihanoukvillle Port. These departments share the responsibility and resources in addressing specific issues pertaining to management and protection of coastal resources of Sihanoukville. The Project Coordinating Committee (PCC) which is composed of representatives from these institutions provides over-all direction in project implementation. The PCC and all government departments is headed by the Governor.

2. Key progress and Achievements

The implementation of the Integrated Coastal Management (ICM) is continually challenged with varying issues at different levels which require policy consideration and promote discussion between government and non-government sectors. Through regular dialogue and open communication, implementation becomes more effective. Nonetheless, notable progress have been made in concretizing the visions of Coastal Strategy by designing specific action plans as indicated below.

Sihanoukville Coastal Strategy Implementation

The Coastal Strategy was formally adopted and signed on June 05 2003. At present, the Coastal Strategy Implementation Plan which guides the process by which the goals stated in the coastal strategy will be realized is also being developed. Part of the development is the stakeholders' consultation conducted on March 25, 2005. Among the priority action areas include addressing solid waste management, habitat destruction, sewage and effluents, and tourism development and management.

To effectively address the four issue-areas, the following plans are currently being developed and are targeted to be implemented in the next few months:

1. **Coastal Use Zoning Plan.** Twelve zones for Coastal Use Zoning Plan (CUZ Plan) was prepared and developed for the protection and management of the following zones: Preservation Zone, Drinking Water Source Protection Zone, Rehabilitation/Restoration Zone, Low Intensity Use Zone, Agriculture Zone, Fishery Management and Fishing Port Zone, Aquaculture/Mari culture Zone, Tourism Development Zone, Port Management Zone and Shipping Lanes, Airport Development Zone, Multiple- Purpose Use Zone and Coastal Industry and Mining Zone. The CUZ plan aims to protect, preserve and reduce the impact of the multiple-use in natural coastal resource. The CUZ is due for presentation and adoption by the National Coastal Steering Committee. Upon its approval, the Municipal Government will start the implementation process.

2. **Tourism Development and Management Plan for Occheauteal Beach** is currently being developed to ensure that tourism and development activities in this

site will be done in accordance to the principle of sustainable tourism. Stakeholders' consultation was conducted in December and the plan is due for approval by the Project Coordinating Committee by April 2005. The Municipal Government has also committed to providing financial resources for the implementation of this project.

3. **Integrated Beach Environmental Monitoring Programme** is being developed to support the sustainable tourism development in Sihanoukville. In support to the implementation of the this project, the Sihanoukville Environmental Laboratory will be established and made operational on May 2005. Data gathered and analyzed will then be communicated to stakeholders for them to be informed of beach conditions. Municipal officials will also be guided in designing appropriate response strategies in managing beaches in Sihanoukville.

4. **Public Awareness Campaigns** Public awareness on integrated coastal environmental management is necessary for stakeholders to understand and appreciate the process of coastal and marine protection. Efforts to increase knowledge and skills among various stakeholders, across age groups and sectors are being done to inculcate the values of marine and coastal protection. With improved knowledge and skills, attitude change, which may constitute the most important aspect in project success, can be achieved.

Beach Clean-up Activities are results of public awareness campaigns

Development of new port (left) and Sokha Hotel (right) are among the efforts to strike the balance in pursuing economic growth versus marine and coastal protection.

3. Lessons Learned and Conclusion

Striking the balance between economic growth and sustainable development

The Municipality of Sihanoukville supports a range of development activities that benefit the public. Development is seen to happen on varying scales-from the dense urban form to low scale access tracks and facilities with primary considerations to protection and enhancement of the natural environment. However, this is not an easy task. In many cases, economic growth can be seen by many to be a priority over marine and coastal resources conservation. This is because, foreign and local investments readily translate to income opportunities while ICM efforts will only yield indirect income opportunities which can not be readily seen. As such, there is a need to strengthen the understanding and appreciation among local officials and communities regarding the long-term benefits of ICM.

Widening support for implementation

Stakeholders' participation is crucial to implementing the ICM program. For the project to be successful, the public participation in decision-making, particularly those that affect coastal development and resource use, needs to be carefully designed and implemented. Policies, plans and management strategy are difficult, if not impossible to implement without the involvement of different stakeholders. Participation among coastal communities and business sectors are equally important. Environmental awareness and educations programs as well as participatory action training programs are among the many exercise that encourage participation from different stakeholders. Knowledge, information sharing and dialogue among the different stakeholders is necessary in ensuring program success.

Common vision and collective efforts

The efforts given by the government of Sihanoukville over the past years towards managing the coastal resources while striking its balance with socio-economic growth have been supported by a wide range of national, regional and international projects and programs. The Municipal Government, being the primary institution involved in this endeavor promotes the solidarity, unity and cooperation to achieve the desired program goal. Strong leadership and a clear development goal are also among the most important aspect of program success. These can be achieved through intensive knowledge and skills enhancement, and more importantly, the gradual change in the attitude towards resource utilization and management. It may take years for these changes to happen and be appreciated by the people but the painstaking efforts in Integrated Coastal Management are worth the wait.

Progress Brief for the Sukabumi ICM Parallel Site, Indonesia

1. Overview of Sukabumi Integrated Coastal Management Program

The Sukabumi ICM Program was established through the signing Memorandum of Agreement MOA between the Regional Programme Director of the GEF/UNDP/IMO Regional Program on Building Partnerships in Environmental Management for the Seas of East Asian(PEMSEA) and the Head of Sukabumi Regency on 24 February 2003 in Palabuhanratu. The program is one of the ICM parallel sites developed and implemented under technical assistance from PEMSEA with the Ministry of Environment of Indonesia acting as the Indonesian focal agency for PEMSEA.

The Sukabumi ICM Program is managed by a Project Management Office (PMO) hosted by the Environment Board of Sukabumi Regency and is under the direction and supervision of a Project Coordinating Committee (PCC). The PCC is chaired by the Executive Secretary of Sukabumi Regency and consists of heads of regency government agencies, and sub-districts involved in the Program, as well as representatives from the Team for the Preservation and Management of Coast Palabuhanratu Bay (TP3TP), a united local non-governmental organizations, and universities. The PCC functions as a coordinating forum for integrated planning and management of Palabuhanratu Bay coast, Sukabumi Regency.

The Sukabumi ICM Program has implemented in past two (2) years various program activities according to cycle of ICM, including activities in the ICM *Preparation and Initiation* phase as well as the *Implementation* phase. The Program has conducted various PMO meetings and ICM stakeholder consultations. Capacity building activities have been conducted by PEMSEA and

other institutes, facilitated by the Central Government, with nine trainings performed in both Indonesia and abroad.

2. Key Progress and Achievements

Awareness and Commitment

The delivery of development and implementation activities by the Sukabumi ICM Prorgram has been positively influenced by some major factors:

Awareness and Understanding

Stakeholder awareness and understanding of the values of coastal and sea resources and the need to strive for their sustainable management have been proven as one of the determining factors in the success of the Sukabumi ICM Program implementation in Palabuhanratu Bay. Building awareness, harnessing active stakeholder participation and caring for related parties in the Palabuhanratu Bay represents one of the special activity programs that were developed and executed in the Sukabumi ICM Program. This Program was executed through various approaches, including meetings, stakeholder consultations, and the use of printed matter and electronic media.

The stakeholders that involved in the Sukabumi ICM Program represent related parties that use the natural resources in Palabuhanratu Bay. They include fishers, cloister merchants, booth owners, restaurant and hotel owners, coastal area settlers, elite figures, NGOs, TP3TP and profession organization, like HNSI (a fishers organization), PHRI (hotel owner), and Kompepar (tourism). Other stakeholders include representatives from the government sector (from the sub-district, district, central and provincial levels), and the academe (IPB, ITB and the Muhammadiyah University of Sukabumi).

Commitment

Following the public awareness and understanding program, stakeholder commitment to work in synergy in developing and implementing planned ICM program activities has been raised and strengthened. Of particular concern, the commitment of top-level policy makers in Sukabumi Regency, Head of Regency and Legislative Body, have significantly contributed to ensuring the consistent development and implementation of the Sukabumi ICM Program.

Coastal Strategy and Implementation

An important activity executed in 2004 by the PMO with wide participation of stakholders was the establishment of the Coastal Strategie of Palabuhanratu Bay. Four intensive stakeholder conslutation meetings were conducted to develop the strategies and two meeting were held to finalize the report. The strategy was developed in cooperation with the West Jave Provinical Government, Bogor Agriculture Univeristy, and the Ministry of Environment.

The costal strategy provides for a long-term vision and a series of strategies to achieve the common vision, followed by a series of objectives and indicative plan of actions.

Vision : Palabuhanratu Bay as clean, beautiful, balmy and sustainable coastal area as fulcrums of area development base on the tourism and fishery to establish the secure and prosperous society

Strategies: 1. Communicate
2. Manage
3. Protect
4. Preserve
5. Develop
6. Mitigate

Under the direction of the Coastal Strategy, a number of activities have been carried out:

- Performing radio broadcasts (2 times) to raise awareness of the Sukabumi ICM Program
- Producing an ICM website and video of Sukabumi ICM;
- Making and spreading 250 pieces of 'Palabuhanratu' Magazine Edition I ;
- Making and spreading 500 pieces of stickers on the Sukabumi ICM Program ;
- Conducting research on the environmental impact of Palabuhanratu in relation to flood potency and landslides ;
- Communicating with society, in cooperation with the Agency for Meteorology and Geophysics (BMG), on the tsunami issue;
- Development of street lighting which have been executed by the Tourism Agency; and
- Settlement and development of pavement and drainage channel, traditional market and fish market area.

Capacity Building

In 2004, with the assistance of PEMSEA, 3 trainings were conducted to build the capacities of the PMO. Two trainings were held in RO Korea and Hong Kong and one was held in Bali.

Efforts were made to build the awareness of legislative members and executives on environmental impact assessment regulations in cooperation with the Environment Ministry.

Multi-Stakeholders Participation

Realizing the important role being played by stakeholders in the implementation of the Sukabumi ICM Program, we have to involve the stakeholders from the planning phase, executing, and evaluating phase. One of the early steps done to build stakeholder commitment was the establishment of TP3TP. The Program also included the involvement of academic representatives from IPB , ITB and the University Muhamadiyah of Sukabumi. PCC members included various stakeholders from the local government (legislative and executive), NGOs, the academe, TP3TP, PHRI, HNSI, and Kompepar.

Stakeholders were involved in compiling documents needed for the development of the Coastal Strategy, the Site Plan and Environment Plan, the Regional Plan and Zonation Plan, including the determination of the coastal zone area.

Followings are the activities undertaken by various stakeholders:

Local Government Agency:

- Public service according to bureaucratic duty and function
- Education tourism operators and merchant along coastline
- Settlement and development of pavement and drainage channel, traditional market and fish market area

Team for the Preservation and Management of Palabuhanratu Bay coast (TP3TP):

- Conducted clean-up programs involving the citizenry
- Mosque development in Citepus as part of regional facility

Indonesian Association of Fishermen (HNSI), Sukabumi Regency:
- Conducted clean-up programs routinely by involving its members
- Counseling on coastal environment, and responsible fishery practice

Non-governmental Tourism Committee (KOMPEPAR):
- Conducted clean-up programs routinely by involving its members
- Seven Tourism Glamor Practice ("Sapta Pesona Wisata")

Indonesian Hotel and Restaurant Association (PHRI), Sukabumi Regency:
- Conducted clean-up programs routinely by involving its members
- Seven Tourism Glamor Practice (Sapta Pesona Wisata)
- Counseling and education on environmental practices of hotel management on waste processing and garbage management

Tourism Police and the Bay-Watch of "Balawista":
- Patrolling for security and orderliness, especially in tourism areas
- Observing tourist safety especially in accident-prone swim areas.

Youth Association of " Kidang Kencana":
- Conducted clean-up programs routinely by involving its members

Sub-district government administration:
- Conducted clean-up programs routinely by involving its members
- Guiding people to implement environmental friendly practices in water and energy use

Financial Arrangement

Total budget allocated for the ICM program and PMO operations during 2003-2004 was Rp. 200.000.000 (200 millions rupiah). The West Java Province supported the Sukabumi ICM Program by providing Rp. 50.000.000 for the development of the Coastal Strategy of Sukabumi. In 2005, a study on solid waste management to establish ecotourism in Plabuhanratu Bay is being conducted with support from the Sukabumi Regency Government.

3. Challenges Ahead

- Program management from planning, executing, reporting and evaluating have not yet been integrated with the system in Planning and Development Board, so the PMO, which is based in the Environment Board, has to collect the data itself and there is impression that the ICM program belongs to the Environment Board;
- Sharing of roles and responsibility between stakeholders in the course of executing ICM activities not yet clear;
- Communication mechanisms between stakeholders have not yet been formed or effectively developed;
- Institutionalization of PCC-PMO in local government structure still pending;
- The PMO cannot yet function as a clearing house to solve the *ad hoc* problems which need the quick sharing of information with concerned sectors, including making recommendations to the sectoral agency on its priority issues;
- Every year ICM-related programs proposed by technical agencies through the Development Coordination meeting (Rakorbang) do not go through the coordination forum among the PMO and PCC to determine its priority;

- People think that the Sukabumi ICM Program does not make achievements unless it solves some problems which have not yet been properly handled like planology collision alongside coastal border, the solid waste problem, the TWA Sukawayana problem, and the need to involve the Satpol PP to uphold the regulation; and
- Efforts to improve tourist visits which went down in the aftermath of the tsunami incident have not yet been conducted by ICM programs, but have more or less been strived by TP3TP in cooperation with BMG (Meteorology and Geophysics Board) and PHRI (Hotel Owner Group).

Progress Brief for the Xiamen National ICM Demonstration Site, PR China

Background

The ICM project in Xiamen is considered a successful example of ICM implementation in Asia having started back in the mid-1990s. Nearly a decade after, the ICM program continues to contribute in keeping the quality of Xiamen's marine environment under control and improving the quality of life for the 2.17 million residents while at the same time, achieving significant economic growth. For the period 2003-2004, the city's GDP grew by 16% with per capita disposable income reaching RMB 144.3 million. It likewise provided an opportunity for ICM to be recognized as a workable environmental management scheme and is being replicated elsewhere in China and in other countries (See Figure 1).

Figure 1: Xiamen Municipality is the recipient of the 2003 Nations in Bloom Award, an international competition focusing on best practices that improve the quality of life by creating livable communities

The Xiamen ICM project is now on its 2nd cycle and intends to build upon the good practices developed in the initial phase. It attempts to address other coastal and environmental management problems not previously dealt with adequately. The current focus areas include:

- Updating and implementation of the Strategic Environmental Management Plan
- Strengthening the operation of the Xiamen International Training Center for Coastal Sustainable Development as a PEMSEA ICM Training Center
- Development of a regional environmental management framework for the Jiulongjiang River Estuary
- Establishment and implementation of a suitable environmental management system for the Xiamen Municipal Government based on ISO 14001 standards
- Preparation of the Xiamen ICM case study

Progress and Achievements

Institutional Arrangements

During the first phase, the project demonstrated the effectiveness of ICM in handling marine pollution from land-based sources through the adoption of a decision-making framework and management process that attempted to involve all major stakeholders - government, government agencies, the private sector, local communities, scientific and

educational institutions. Under this mechanism, the various government agencies formulated a local marine legislative framework linked to the national legislative system; established a network of scientists and experts for policy and decision-making support; and, initiated a public participation structure. The administrative system enabled environmental quality improvement and reduced multiple-use conflicts.

At present, the focus has shifted from marine pollution prevention and management to the protection and restoration of marine ecological environment. To improve the coordinating mechanism, the Marine Management Office and the Fisheries Bureau were merged into a new agency in 2002, the Xiamen Oceans and Fisheries Bureau (XOFB), which is now in-charge with the marine and fishery affairs for the entire city (see Figure 2). Mayor Zhang Changping, now heads the Steering Group for Marine Management in Xiamen Municipality as the executive chairperson. Group members include the vice secretary-chief, directors or vice-directors of the major government agencies like marine affairs, transportation, environmental protection, aquaculture, land-use, planning committee, port affairs, urban construction, water police and the heads of various districts. Under the group, an administrative office was put up belonging to the XOFB. The major responsibility of this office is to coordinate the routine activities of the Steering Group and Marine Expert Team. Within the XOFB, full-time personnel have been assigned to the project management office of Xiamen ICM. The Marine Experts Group, composed of scientists and technical members mainly from planning, economy, legislation, marine, engineering, aquaculture and environmental protection institutions continues to play a vital role in governmental decision-making.

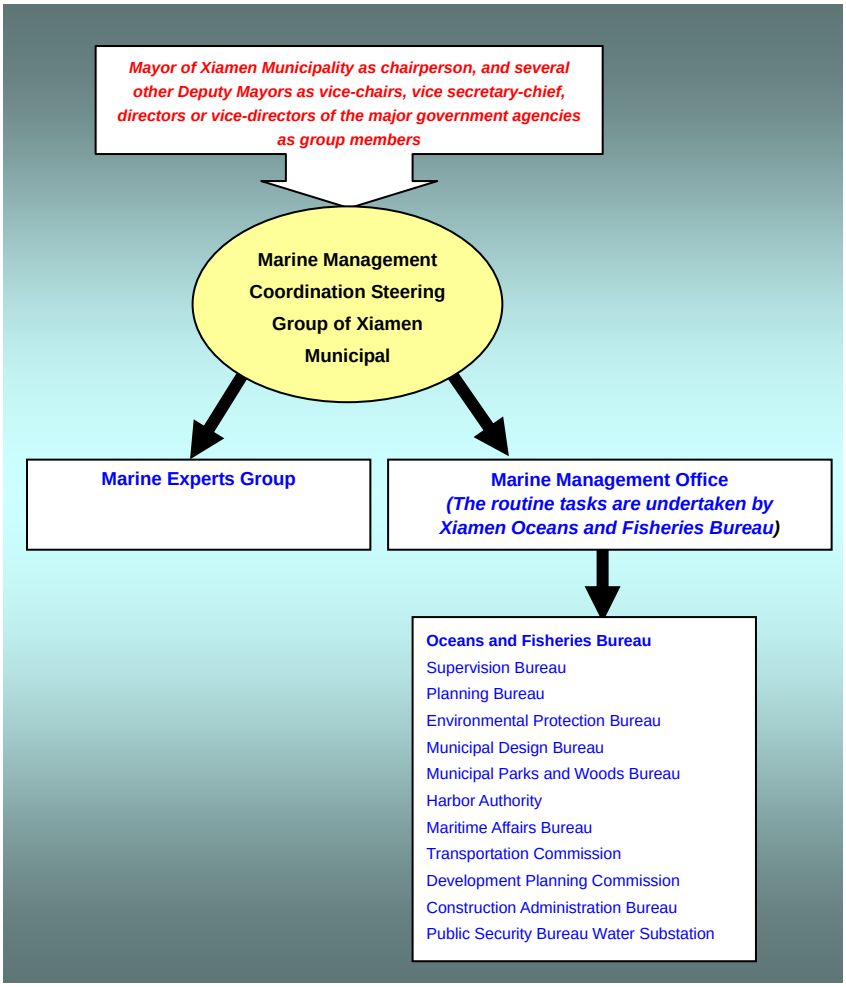


Figure 2: New Institutional Set-up for Administering ICM in Xiamen

Jiulongjiang River Management Framework

As part of the development of a management framework for the Jiulongjiang River, an environmental risk assessment is being carried out to identify and prioritize environmental issues in the area. The RA results will serve as an input to the development of a management plan on pollution prevention, treatment and ecological

protection of the Jiulongjiang River as well as the operating mechanism and monitoring network needed for executing the plan. This undertaking will expand the coverage of environmental management from local to regional boundaries as the estuary falls within the administrative jurisdiction of the cities of Longyan, Zhangzhou and Xiamen.

ISO 14001 Certification

Following the success of Gulangyu Island as one of the earliest local government units in China to receive ISO 14001 certification, the Xiamen Municipal Government is also working towards acquiring the said certification using ICM as a basis for its environmental management system. ISO 14001 adheres to the principles of continuous improvement and pollution prevention, which is seen as complementary to the practice of ICM.

Updating of SEMP

Despite the relative success of the ICM program, intensified marine development continues to exert pressure on its resources. The Updated SEMP intends to address this as well as the constraints and priority issues encountered in the implementation of the past initiatives. Work towards the development of specific action programs for the second ICM cycle addressing the problems in the city's coastal and marine environment and refinements in their ICM program is on going.

Capacity Building

Other activities such as the preparation of the Xiamen ICM case study, conduct of study tours and public awareness campaigns have been geared towards capacity building, promotion and documentation of the ICM implementation experience. The ITC-CSD in Xiamen University has participated in the conduct of regional ICM training courses and study tours organized for various site personnel, national and local government officials and staff of international organizations wherein local professionals share their experiences and expertise in ICM program implementation in Xiamen. National efforts are currently being made primarily to support the replication of Xiamen ICM experiences through the development of PEMSEA ICM parallel sites in China.

Other Initiatives

In addition, preliminary work for the development and promotion of an integrated environmental management and development project for Maluan Bay was undertaken. Similarly, new functions for the existing Marine GIS are being developed and satellite remote sensing pictures for the entire Xiamen Sea are updated. To protect non-inhabited islands and govern their utilization, local legislation has been issued.

Constraints and Challenges

Despite being considered an ICM model, there are still bottlenecks encountered. The government reorganization and turnover of staff involved in the ICM program affected the implementation progress. As this is inevitable, it is important not only to continue generating substantial manpower with knowledge in ICM concepts but also strengthen technical skills.

At the moment, the monitoring program tends to focus on water quality and pollutants but there are areas that also require attention. For example, research efforts on marine ecosystem and protective measures for endangered marine species needs improvement. Moreover, while Xiamen has a functional sea-use zoning scheme in place, establishing an integrated land and sea-use plan is an ideal set-up that is part of a long-term objective.

Given that certain external issues and factors influence the development of Xiamen, some problems arise where the local authorities have limited control. Such is the case of the Jiulongjiang River where the transboundary pollution cannot be solved within Xiamen alone and requires the cooperation of neighboring cities.

Lessons Learned and Strategies for Sustainable ICM Implementation

Institutional Arrangements

The Xiamen Municipal Government successfully continued its ICM program when the first phase of the ICM project initiated by the MPP-EAS ended in 1999. The most significant step the municipal government took to ensure the continuation of ICM activities was to institutionalize the Marine Management Coordination Committee (the precursor of the Xiamen Ocean and Fisheries Bureau). The transformation facilitated the passage and enforcement of environment or management related legislation as well as inter-agency coordination. Sustaining political support is a major factor for a successful ICM program.

Updated SEMP and Its Implementation

After evaluating the achievements against the set objectives, goals and some indicators, the updating of the SEMP noted the issues arising that have not been addressed in the original SEMP. The general objective of the SEMP is in line with the municipal government's goal to promote sustainable economic development. Even the proposed management framework for the Jiulongjiang River is expected to be integrated with the updated SEMP. Hence, plans and specific action programs have been extended towards the promotion of sustainable development of Xiamen's coastal resources and ecological system. Drawing up a coordinated plan ensures that individual or agency specific activities will not be contradicting each other, avoid unnecessary duplication and hence, makes use of resources efficiently.

Capacity Building

Regardless of the medium, whether through training programs and study tour or merely through reading materials and videos, the integrated coastal management program at Xiamen is now providing important "lessons-learned" for the management of coastal and marine activities both within and outside the region. Building local capacity and leadership in ICM is a means of addressing conflicts. It is evident that in order to broaden the application of ICM, new skills will have to be acquired and learning must continue for the persons involved in ICM.

Multi-stakeholders Participation

Whereas ordinary citizens have had an indirect participation into the decision-making process, relevant municipal government departments tried to gather feedback and address the communities' concerns. The approaches and methods of public involvement were also developed via Xiamen University and community linkages through a public education program. This served as a bridge to communicate between government and local community and enhanced the public participation in decision-making. This is a welcome development in a country like China. It is recognized that through public awareness programs, the people will be more equipped to participate and make more informed choices. As environmental problems know no boundaries, initiating cooperative endeavors with ones neighbors can be mutually beneficial and therefore, should be encouraged.

Financial Arrangements

The Xiamen Municipal Government allocates RMB35 million (about US$4 million) annually for the operations of the Xiamen Oceans and Fisheries Bureau and other coastal and marine environment related activities such as the enforcement of the marine functional zonation scheme. The local government also spends substantial amounts in providing needed infrastructure such as urban sewage treatment facilities and marine environmental protection related construction projects. At present, the economic growth enables the government to afford these expenses but in the long run, it will have to seek other sources of funds for the various environmental activities. The application of market-based instruments needs to be expanded and new innovative financing arrangements such as the public-private partnerships approach. This is one way of further encouraging the participation of the private sector in the ICM program.

Conclusion and Recommendations

The ICM program in Xiamen continues to inspire other coastal economies in search of a working environmental management system. Strong political commitment had been a major factor in its success. Nonetheless, there is still room for improvement. There are still problems and constraints to overcome. Expanding the scope of the ICM program requires refocusing efforts and taking on new and bigger challenges. Establishing productive partnerships where players complement each other's strength and weaknesses is an ideal means of sustaining ICM initiatives.

ANNEXES

ANNEX 1

Meeting Program of the Fourth Forum of the Regional Network of Local Governments Implementing Integrated Coastal Management

Monday 25 April 2005

	Arrival of Participants
18:00 – 20:00	Registration
20:00 – 21:30	Welcome Dinner (hosted by MOE)

Tuesday 26 April 2005

08:30 – 09:15	Registration (continued)
09:15 – 10:00	**Opening Ceremony** **Remarks** • **Mr. Kesuma Kelakan** Vice Governor of Provincial Government of Bali • **Dr. Chua Thia-Eng** Regional Programme Director of PEMSEA **Opening and Keynote Speech** • **Mr. Rachmat Witoelar** State Minister of Environment, MOE
10:00 – 10:15	Group Photo
10:15 – 10:45	Coffee Break
10:45 – 11:30	**Session 1: A Decade of ICM Practices in PEMSEA and ICM Initiatives in Indonesia** Chairperson: **Drs. Effendy Sumardja** GEF Council Member ***Presentation of Session Theme Papers*** • **A decade of ICM practices in PEMSEA: ICM in transformation** Dr. Chua Thia-Eng (PEMSEA) • **ICM initiatives, experiences and lessons learned in Indonesia** Dr. Harsono Soepardjo (Center for Marine Studies, Indonesia)

Panel Discussion: Lessons learned from ICM implementation and strategies for sustaining ICM practices

11:30 – 12:30 ***Panel 1: Institutional arrangements***

Moderator: Ms. Elizabeth Johnstone (Victorian Coastal Council)
Panelists: Vice Mayor Nong Thi Ngoc Minh (Danang, Vietnam)
Ms. Ni Wayan Sudji (Bali, Indonesia)
Dr. Kim Jong Deog (Korea Maritime Institute, RO Korea)
Dr. Tommy Purwaka (Indonesia)

12:30 – 13:30 Lunch

13:30 – 14:30 ***Panel 2: Coastal strategy and implementation***

Moderator: Dr. Jihyun Lee (PEMSEA)
Panelists: Vice Gov. Prak Sihara (Sihanoukville, Cambodia)
Mayor Chatchai Thimkrajang (Sriracha, Thailand)
Ms. Ni Wayan Sudji (Bali, Indonesia)
Mr. Mazlan Idrus (Port Klang, Malaysia)
Mr. Alam Syah Mapparessa (MOE, Indonesia)

14:30 – 15:30 ***Panel 3: Capacity Building***

Moderator: Drs. Sudariyono (MOE, Indonesia)
Panelists: Mr. Heru Waluyo Koesworo (MOE, Indonesia)
Mr. Ri Song II (Nampho, DPR Korea)
Mr. Prak Visal (Sihanoukville, Cambodia)
Ms. Apiradee Sujarae (Chonburi, Thailand)
Ms. Catur Yudha Hariani (Center for Environmental Education of Bali, Indonesia)

15:30 – 15:45 Coffee Break

15:45 – 16:45 ***Panel 4: Multi-stakeholders participation***

Moderator: Ms. Marilou Erni (Bataan Coastal Care Foundation)
Panelists: Drs. H. Yuyun Muslihat, MM. (Head of Sukabumi Regency, Indonesia)
Mr. Pham Kim Son (Danang, Vietnam)
Drs. Dharma Putra Ketut Gede (Bali, Indonesia)
Ms. Anabelle Loyola (Cavite, Philippines)
Mr. IGA Prana (Bali Tourism Board, Indonesia)

16:45 – 17:45 ***Panel 5: Financing arrangements***

Moderator: Mr. Heru Waluyo Koesworo (MOE, Indonesia)
Panelists: Gov. Enrique Garcia (Bataan, Philippines)
Ms. Maria Corazon Ebarvia (PEMSEA)
Mr. Zhou Lumin (Xiamen, PR China)
Mr. I Made Anom Wiranata (Bali, Indonesia)

17:45 – 18:30 ***Session Conclusion and Recommendations***

19:00 – 22:00 **Reception Banquet (hosted by Bali Provincial Government)**

Wednesday 27 April 2005

08:30 – 10:30 ***Session 2: ICM and Coastal Hazard Management***

Chairperson: Dr. Wong Poh Poh
National University of Singapore

Presentation of Session Theme Papers

- **Impacts of Indian Ocean tsunami on Aceh Province, Indonesia**
  Dr. Agus Prabowo (BAPPENAS, Indonesia)
- **Impacts of Indian Ocean tsunami on fisheries, coastal resources and human environment in Thailand**
  Mr. Pedro Bueno (NACA)
- **Managing the coastal zone: What lessons to draw from the tsunami?**
  Dr. Anjan Datta (UNEP/GPA)
- **Coastal Tourism, habitat restoration and hazard management**
  Dr. Wong Poh Poh (National University of Singapore)
- **Disaster risk reduction strategies and sustainable development**
  Mr. Danilo Bonga (PEMSEA)
- **ICM as a framework for coastal hazard management**
  Ms. Ingrid Narcise (PEMSEA)

10:30 – 11:30 ***Panel Discussion***
Moderator: Dr. Wong Poh Poh (National University of Singapore)
Panelists: Vice Gov. Pisit Boonchoang (Chonburi, Thailand)
Mr. John Ginivan (Victorian Coastal Council, Australia)
Dr. Jihyun Lee (PEMSEA)

11:30 – 12:00 ***Session Conclusion and Recommendations***

12:00 – 13:30 Lunch

13:30 ***Session 3: Better coastal governance through stronger local alliance***

Chairperson: **Dr. Chua Thia-Eng**
PEMSEA

Presentation of Session Theme Paper

13:30 – 14:00
- **Draft resolution on the establishment of the PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG)**
  Dr. Jihyun Lee (PEMSEA)

14:00 – 15:30 ***Panel Discussion***

Moderator: Dr. Chua Thia Eng (PEMSEA)
Panelists: Vice Gov. IGN Kesuma Kelakan (Bali, Indonesia)
Vice Mayor Nong Thi Ngoc Minh (Danang, Vietnam)
Ms. Elizabeth Johnstone (Victorian Coastal Council Australia)
Dr. Ockyung Hur (Former Mayor of Haewoondae, RO Korea)

15:30 – 15:45 Coffee Break

15:45 – 16:30 Panel Discussion (continued)

16:30 – 17:00 ***Session Conclusion and Recommendations***

18:30 – 20:00 Dinner (hosted by PEMSEA)

Thursday 28 April 2005

07:00 – 08:30 **PMO Director' Meeting (for Invited Participants only)**
Learning from ICM experiences at demonstration and parallel sites: What has worked and what has not?

Chairperson: **Dr. Chua Thia-Eng**
PEMSEA

- Operational issues related to ICM Project Management
- Elements of ICM Demonstration
- Views on ICM replication and the role of PMOs

09:00 – 18:00 **Field trip to Bali Coastal Area**

ANNEX 2

List of Participants

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ANNEX 3

Bali Resolution on the Establishment of the PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG)

BALI RESOLUTION
ON THE ESTABLISHMENT OF THE PEMSEA NETWORK OF LOCAL GOVERNMENTS FOR SUSTAINABLE COASTAL DEVELOPMENT (PNLG)

RATIONALE

The Regional Network of Local Governments implementing Integrated Coastal Management (RNLG) was officially launched by the UNDP/GEF/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) in March 2001 as a forum for exchanging information and experiences in integrated coastal management (ICM) practices among local governments of the region. For the past several years, we have witnessed how ICM practices lead to improved governance of marine and coastal resources, and result in on-the-ground social, economic and environmental gains in our communities. The network has proven to be a unique and valuable tool, focusing on the special challenges of coastal cities, municipalities and provinces with regard to sustainable growth and development, and providing a vehicle for sharing practical experiences, technical skills and management know-how on ICM practices among its members.

The Sustainable Development Strategies for the Seas of East Asia (SDS-SEA), as adopted by our national governments in December 2003, recognizes the vital role of local governments in the collective effort of all stakeholders to reverse the continuing destruction and decline of our common heritage. The Strategy challenges local governments in coastal areas throughout the region with the formidable task of reducing conflicting and non-sustainable usage of natural resources in their respective watershed and coastal seas, through the application and replication of ICM programmes.

Our network can make a valuable contribution to this regional effort, by encouraging local governments to develop and implement ICM programmes. We have the advantage of experience, and the skills and knowledge that are required for successful ICM application. Working within the framework of PEMSEA, we also have the advantage of accessing higher levels of government, international agencies, donors, and the private sector to support our cause and to ensure that local governments of the region are well equipped to turn environmental concerns into economic and employment opportunities and to facilitate their speedy resolutions.

We find a critical need to enhance the objective of the existing regional network in order to fully respond to the challenges of consolidating and scaling up ICM practices.

A SUSTAINABLE REGIONAL NETWORK

We are committed to transforming our existing regional network into a PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG). At the heart of the PNLG is our common desire for member local governments to consolidate, sustain and expand the benefits of ICM by:

- serving as working models of ICM;

- sharing information and transferring knowledge about ICM experiences among local governments of the region; and
- advocating local government contributions to sustainable development and management of the Seas of East Asia through the replication of ICM programmes.

The PNLG shall be unique in that it will focus on local coastal governance issues in the region. It shall:

- work with local governments to consolidate existing efforts in ICM programme implementation;
- facilitate the exchange of ideas and lessons learned among local government members, through annual workshops, ICM website linkages and establishment of sister city/ municipality relationships;
- build awareness within communities and among stakeholder groups on the need and benefits of responsible use and management of natural resources; and
- serve as an advocacy group for local governments at regional and international forums, such as the PEMSEA Partnership Council, EAS Congress, and donors' meetings, promoting the socio-economic and ecological benefits of ICM and advancing policy reforms in support of integrated management of coastal and marine resources.

The **PNLG's mission** will be to serve as a sustainable network of local governments in the region, which, along with their stakeholders, shall be committed to promote the application of ICM as an effective management framework to achieve sustainable coastal development.

The PNLG will initially function under the umbrella of the United Nations, as a project activity of PEMSEA. However, the ultimate goal of the PNLG is to evolve into a self-sustaining network, supported by its members. To achieve this goal, the PNLG will develop and establish an action plan.

CODE OF CONDUCT FOR THE PNLG MEMBERS

The goal of the PNLG members shall be to put in place sustainable working models for ICM programme implementation. In recognition of this responsibility, we commit to adopt the following Code of Conduct:

- To work towards the development and implementation of institutional arrangements for ICM implementation, including: an interagency, multi-sectoral mechanism to coordinate the efforts of different agencies, sectors and administrative levels. Where appropriate, develop policy and legislative measures to support ICM planning and management, capacity building programmes to enhance required human resource skills and tools, scientific input to policy and planning processes, and enforcement mechanisms to ensure compliance with adopted rules and regulations;
- To formulate and implement coastal strategies and action plans that provide a long term vision and strategy for sustainable development of the coastal area, and a fixed term programme of actions for addressing priority issues and concerns;

- To implement public awareness programmes to increase the level of understanding of, and appreciation for, the coastal and marine resources of the area, and to promote a shared responsibility among stakeholders in the planning and implementation of the ICM programme;
- To mainstream the ICM programme into the local government's planning and socio-economic development programme and to allocate adequate financial and human resources for its implementation; and
- To conduct integrated environmental monitoring and to measure the status, progress, and impacts of management programmes against sustainable development indicators, as may be established, and to use the information in decision-making, public awareness and participation, and performance evaluation.

MEMBERSHIP ELIGIBILITY

Applications for membership to the PNLG shall be made to the PEMSEA Resource Facility or the PNLG Secretariat through:

- An official expression of interest in writing to become a member of the PNLG and a commitment to the PNLG's mission and objectives;
- A notice of adoption of the Code of Conduct for the PNLG Members; and
- Payment of a membership fee of 500 US$/yr.

The PNLG may modify the above qualifications for membership eligibility and adopt rules for the withdrawal of membership when it deems appropriate.

BENEFITS OF THE PNLG MEMBERSHIP

The PNLG will work towards achieving the following benefits for its members:

- Participation in the annual network meeting/workshop;
- Information exchange concerning specific knowledge, skills and good practices related to ICM program development and implementation;
- PEMSEA publications and other information facilities;
- PEMSEA training opportunities on a cost recovery basis;
- PEMSEA's public-private sector partnership programme for mobilizing private sector financial resources and expertise;
- World Bank/GEF innovative financing programmes for leveraging investment in environmental infrastructure improvements;
- Recognition and representation at the PEMSEA Partnership Council, Ministerial Forum and other concerned regional/international forums and local government networks;
- An invitation to participate in the EAS Congress;
- Policy and technical support services of the PEMSEA Resource Facility, on a cost-recovery basis;
- Website linkage with PEMSEA and member local governments of the network;
- PEMSEA ICM certification, leading to ISO 14001 certification; and
- PEMSEA certification for Port Safety, Health and Environment Management System, leading to ISO certification.

ROLES AND OBLIGATIONS OF NETWORK MEMBERS

The PNLG members shall:

- Attend the network annual meetings at their own cost;
- Develop, implement, consolidate and sustain ICM programs within their jurisdictions;
- Abide by the Code of Conduct for the PNLG members;
- Sponsor and host at least one network annual meeting and study tour;
- Exchange information, publication and experiences with other PNLG members;
- Link websites with PEMSEA and other PNLG members where possible;
- Monitor environmental quality and submit a tri-annual state of the environment report;
- Pay an annual membership fee; and
- Recruit new Network members for participation in annual meetings and to develop and implement ICM programmes.

ESTABLISHMENT OF SECRETARIAT

We encourage a member local government, with recognized experiences and achievements in ICM program implementation, to volunteer to take on the role of the secretariat for the PNLG. The activities of the secretariat include:

- organizing the annual meetings of the PNLG;
- implementing/coordinating the decisions and actions requested by the annual PNLG meeting;
- informing network members of relevant activities, events and opportunities among its membership; and
- representing the PNLG within PEMSEA.

WHEREFORE, IN VIEW OF THE FOREGOING CONSIDERATIONS, WE THE PARTICIPANTS OF THE 4TH RNLG FORUM, HEREBY RESOLVE TO:

1. transform the existing RNLG into the PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG);
2. adopt the Code of Conduct for the PNLG members;
3. organize a 5-member drafting group comprised of local government members to draft a PNLG Charter, which will identify the details of the network structure and operating modality, membership eligibilities, benefits, roles and obligations of the network members, in consultation with the other member local governments;
4. establish a PNLG secretariat upon the offer of a member local government with recognized experience and achievements in ICM programme implementation to provide the facilities and human resources necessary to perform the secretariat duties and responsibilities;
5. request PEMSEA to provide technical and financial assistance to the establishment of the PNLG secretariat, by co-financing its operation during the initial phase;
6. reconfirm our membership by fulfilling the requirements of membership eligibility; and

7. formally adopt the PNLG Charter on the occasion of the EAS Congress 2006 in December 2006.

Bali, Indonesia. 27 April 2005.

***

ANNEX 4

Summary Report of Field Trip

Field Trip

(28 April 2005, 9:00 – 22:00)

The field trip was designed to demonstrate and promote good practices concerning environmental, resource, historical, cultural, and tourism management in Bali as well as to cultivate camaraderie among the various regional and local RNLG participants. The field trip included visits to the Mangrove Information Center, Bali Monument Museum, the wastewater treatment facility in Nusa Dua, and the temple in Tanah Lot. The trip was concluded by a dinner hosted by the Bali PMO at Jimbaran Beach.

Mangrove Information Center (MIC)

The MIC is a collaborative effort between the Indonesian government and the Japan International Cooperation Agency (JICA), which aims to provide nation-wide extension services on sustainable mangrove forest ecosystem management. It was established on May 2001 as a follow-through to an earlier collaboration in 1993-1999, which aimed to address the extensive mangrove deforestation arising from various development activities through reforestation activities and development of sustainable mangrove management models. The MIC promoted widespread application of the models through various extension and capacity-building services that include conduct of training courses, baseline surveys, environmental education programs, and eco-tour guides; establishment of information management systems; maintenance of nursery; and implementation of plantation activities. The RNLG delegation was welcomed and briefed by the head of the MIC, and guided in the tour of the Center's exhibits and through the 2-km mangrove trail. The trip to the MIC demonstrated the importance of government commitment, partnerships, scientific support, capacity-building, and stakeholder education and mobilization in implementing mangrove rehabilitation and management programs. The future challenge for the MIC is its progression into a sustainable center for mangrove management after the completion of the JICA-assisted project.

Bali Monument Museum

The Monument of the Balinese People's Struggle (Monumen Perjuangan Rakyat Bali) is located in the Renon sub-district of Denpasar, where main government offices are located. The tour of the monument was preceded by a briefing by one of the monument administrators. Popularly known as Bajra Sandhi Monument, the 40,000-square meter structure which functions as a gallery and museum, was built to commemorate the heroism of the Balinese people in casting away the Dutch colonial forces. It houses 33 dioramas that depict aspects of Balinese history since the island was first inhabited by early man, the upright-walking *Pithecanthropus Erectus*, through its struggle for independence from 1945-1950. The grandeur of the monument and impressive exhibits engendered much admiration and respect for Bali's history and culture.

Tour around Nusa Dua

A representative of the Bali Tourism Development Corporation (BTDC) provided the background on the Nusa Dua resort complex and described the wastewater management system for the area. Built on formerly unproductive land, the 325-hectare resort complex is now popularly known as "The Garden of Bali". It boasts of a rare harmonious balance between modern facilities, a rich cultural heritage, and a natural environment abounding with local flora and surrounded by pristine beaches. The resort complex was developed and is being managed by one supervisory body, the BTDC,

which makes it easier to carry out policies protecting the local culture and environment, enforce standards of quality, and ensure a coherent design concept. One demonstration of commitment to ecological sustainability is the operation of a central wastewater management facility that treats wastewater from the hotels for recycling to water gardens/landscape and golf courses in the resort. The success of the “Nusa Dua concept” has made it a template for similar projects around Indonesia. For the RNLG members, it provides a good demonstration of tourism development based on ecologically and culturally-sound principles.

Tanah Lot

Tanah Lot (Land in the Middle of the Sea) is one of the six most holy temples which receive tribute from all Balinese. The temple is built atop a huge black cliff which has been carved out of the landscape by incoming tides. When the tide is low, people can walk to the temple. The cliff is surrounded by water and the temple appears to be floating when the tide is high. Built by one of the last priests to come to Bali from Java in the 16th century, the rituals at Tanah Lot include the paying of homage to the guardian spirits of the sea. The RNLG participants were brought to Tanah Lot in the late afternoon, which is the best time to view the silhouette of the temple against the setting sun. The participants were also able to walk close to the base of the cliff and witness the rituals, which demonstrate the importance of the sea as a holy space for the Balinese faith.

The field trip provided various facets of management in Bali that the RNLG participants found useful for potential application in their own local areas. The field trip also fostered much camaraderie that is expected to strengthen linkages among the network members particularly in the stage of transformation from a project-driven to a local government-driven alliance.