Tropical Coasts

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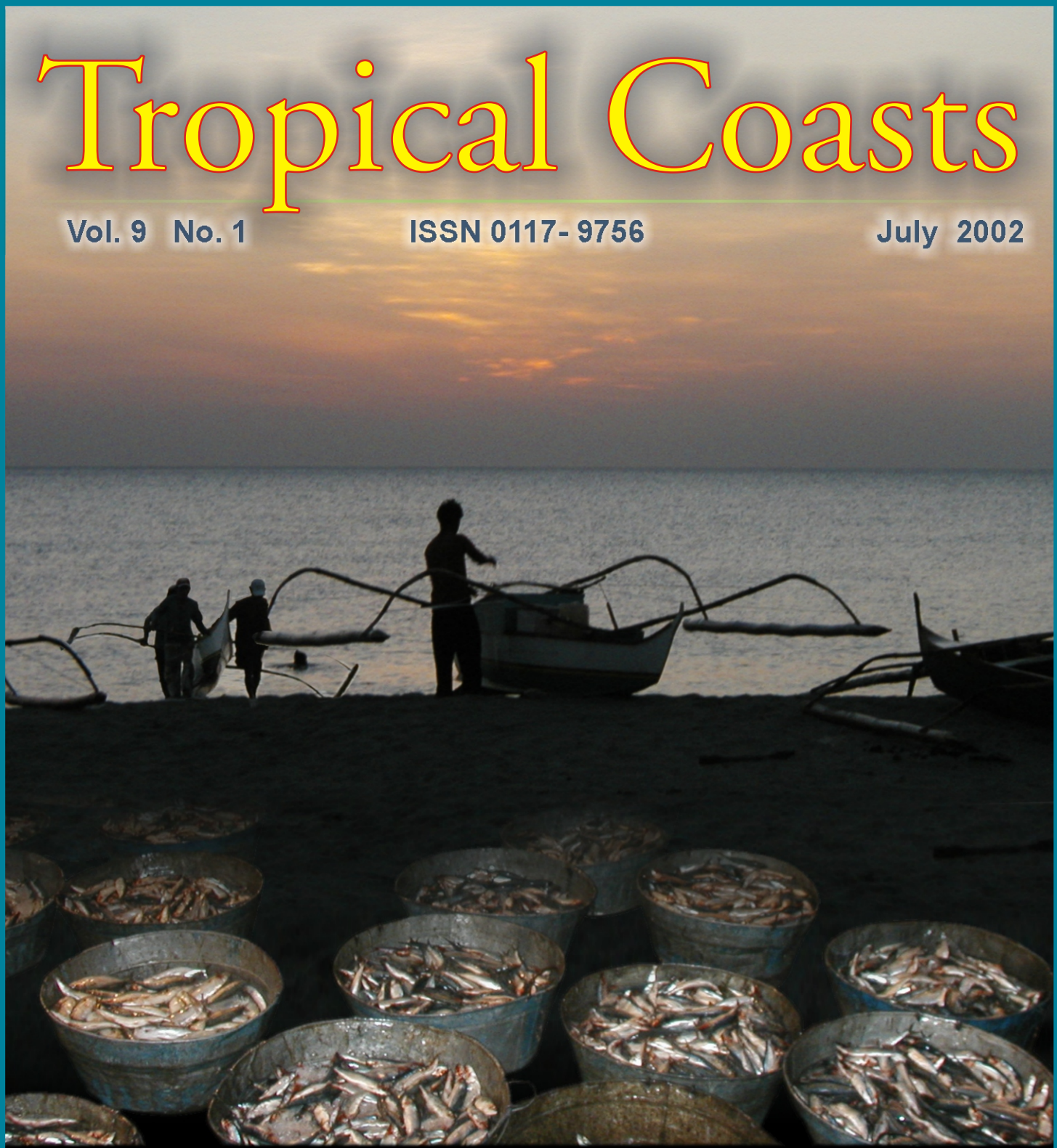

Keeping the Essentials Flowing

- Human health
- Environmental quality
- Productivity
- Employment
- Social welfare
- Reduced conflict

concerns and analyses

Catastrophe or Cornucopia?

Giselle PB. Samonte-Tan
Issue Editor

Increasing demands on coastal and marine resources have been felt and it is recognized that the capacity of coastal ecosystems to provide bounteous goods and services is decreasing. This issue of Tropical Coasts examines the various coastal management approaches such as integrated coastal management (ICM), co-management, fisheries cooperative associations, integration of ICM with population and gender-related issues and establishment of marine parks. Of essence is the evidence of benefits that are derived from the implementation of these approaches to coastal management.

ICM is an accepted management framework to address land-water interactions and the negative impacts of human activities. The experience in Malaysia and Cambodia (Jeppesen and Moneyneath's "ICM interventions: case studies in Malaysia and Cambodia") demonstrates capacity building and mobilization of inter-ministerial and inter-departmental institutional arrangements to achieve sustainable use of coastal resources. The mobilization of coastal communities has led to the management of supplementary livelihood activities, such as chicken/duck raising, integrated vegetable culture and crab fattening, while at the same time raising awareness on natural resources management and environmental legislation.

In Australia, through the Coastal Management Act, the Victorian Coastal Council was established and the Victorian Coastal Strategy was developed (James' "Integrated coastal management: a Victorian perspective"). Social and economic benefits from the participatory coastal zone management program include improvement in recreational and commercial fishing, tourism and the quality of siting and design structures and uses within the coastal environment. These have contributed to the visual and scenic amenity of the Victorian coast.

To address the issues on conflict and overexploitation, which are brought about by the open access nature of the fishery, Pomeroy and Matsuda discuss the benefits of fishery co-management in Thailand ("Conflict resolution through co-management: a case study from Thailand") and fishery cooperative associations (FCAs) in Japan ("The benefits of fishery cooperative associations in Japan"), respectively. Defined as a partnership arrangement in which government, the fisher community, external agents (NGOs, research institutions) and other fisheries and coastal stakeholders share responsibility and authority for making decisions about the management of a fishery, co-management has contributed to the reduction of fisheries conflict in Thailand. Similarly, in Japan, FCAs have contributed to society by: (1) reducing administrative fisheries management costs; (2) creating employment and economic opportunities for rural development; (3) promoting environmental security; (4) educating and guiding local people; (5) enhancing research and resources; and (6) assisting in national security.

The paper "Cross-currents: navigating gender and population linkages for integrated coastal management" by Diamond et al. focuses on the challenge of integrating ICM with population and gender-related issues. The focus of management plans should not only be on household economic and food security concerns but should also explore more systemic gender and population issues in coastal-related policies. By partnering with gender and population organizations, coastal managers benefit in four ways: (1) improved governance and planning; (2) more sustainable resource use and management; (3) greater capacity for ICM innovations; and (4) new opportunities to leverage donor funds for ICM.

In Kenchington's paper, "Managing natural assets for sustained benefits: the Great Barrier Reef experience", illustrates a systematic framework for conservation, sustainability and management to address sustainable environmental, social and economic outcomes. The benefits of the Great Barrier Reef marine park include: (1) reduced likelihood of catastrophic impacts on ecosystems and natural resources; (2) a framework to address issues of the rights of local people and to provide appropriate balance between high-capital, high-volume big business tourism and local capital small-scale activities; (3) economic and employment opportunities of different types of tourism use; and (4) the containment of fishing effort and impacts within sustainable levels and increased port development and transit.

Finally, Hong and Benrong's paper, "Harmonizing economic development and environmental management: the Xiamen experience", illustrates the benefits of ICM in terms of willingness to pay for the protection of endangered species, preservation of scenic spots and improvement in water quality. The preliminary results of the benefit-cost analysis show that the benefits of implementing ICM are greater than the costs. This implies that ICM is an effective mechanism for sustainable development of a coastal city.

Coastal and marine resources are threatened ecosystems. Increasing population pressure and unsustainable economic development have contributed to the degradation of the coastal ecosystem. There is no doubt that coastal and marine resources must be conserved and used sustainably to ensure food supply, economic development (tourism, coastal mariculture, industrial development, ports, fisheries), and ecological productivity. Coastal management holds promise. However, we are not out of the woods yet. The ultimate challenge for achieving sustainable development of coastal areas rests on the integrity and involvement of those who use the resources and on the commitment of the public sector in implementing coastal resource management programs. ■

Tropical Coasts

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on the cover

Keeping the Essentials Flowing

Fishers in Bataan, Philippines, ready for another sortie out to sea. Can the sea, with its limited and diminishing resources, be managed well enough for it to keep providing benefits to stakeholders?

in this issue

departments

special feature

Gorm Jeppesen
Chief Biologist
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ICM Interventions: Case Studies in Malaysia and Cambodia

Introduction

Denmark has provided assistance to several coastal zone management (CZM) projects in Southern Africa and Southeast Asia over the past decade, most notably under the funds made available by the Danish government after the Rio Conference in 1992 to address global environmental problems.

The Danish Cooperation for Environment and Development (DANCED), between 1996 and 2000, provided assistance to Malaysia through the Integrated Coastal Zone Management (ICZM) Project in Malaysia, which used pilot projects in the states of Penang, Sarawak and Sabah, to provide guidance in the development of federal strategies for coastal zone management.

Another country to receive assistance is Cambodia where the Danish Development Assistance (DANIDA) has since 1997 provided assistance to the Cambodian Ministry of Environment through the Environmental Management in the Coastal Zone Project (EMCZ).

Both projects are comprehensive in scope with sustainable management of the coastal zone as the overall development objective. They have in their capacity building efforts addressed the institutional, legal, environmental and socioeconomic dimensions of management while targetting coordination between and integration among the multiple government and nongovernment stakeholders in coastal zone development.

Coastal Zone Management in Sabah, Malaysia

Sabah is the state in Malaysia with the longest coastline of approximately 1,600 km extending from the border of Sarawak in the southwest to Indonesia in the southeast. In terms of its coasts, Sabah borders the South China Sea on the west, the Sulu Sea on the northeast and the Celebes Sea on the southeast (figure 1).

The key issue for unsustainable development in the coastal areas in Sabah was found to be a lack of management capacity among public and private development stakeholders. Various management constraints were likewise identified and an analysis of these problems became the basis for the cooperation between the Malaysian and the Danish governments.

Emphasizing broad capacity building as the overall implementation strategy, the project was to establish task- oriented coordination platforms and facilitate these in addressing the identified key management constraints.

The Sabah Economic Planning Unit with its strong coordinating mandates chaired the Project Steering Committee composed of 11 representatives from State Ministries. The Sabah Department of Irrigation and Drainage chaired a broad Technical Committee composed of 30 representatives from government and nongovernment institutions. The Sabah Town and Regional Planning Department was the implementing agency responsible for directing and coordinating the work of task forces with government and nongovernment participation, while also serving as secretariat to the Steering and Technical Committees. A special ICZM Unit, established in the department,

was in charge of the day-to-day operations.

Outputs and Outcome

Coastal zone stakeholders in Sabah, in a learning-by-doing process, have produced all achievements in the Sabah ICZM Project, with international and local advisors as facilitators.

Comprehensive networks have been established and were active in the different phases of the ICZM process ensuring extensive coordination between public and private stakeholders and enabling substantial integration of resources, expertise and information.

ICZM strategic recommendations for Sabah have also been developed and submitted for state policy level by the coastal zone development stakeholders themselves, including both the public and private sectors.

The outreach of the 3.5-year project in Sabah has been comprehensive and actively involved more than 60 government offices at the federal, state and local levels; more than 30 business, professional, charity or environmental NGOs; and a large number of concerned individuals.

The ICZM Project is particularly recognized for the integration and coordination of all stakeholders- government as well as private- from the early phases of information gathering and planning to the production of coastal profiles and the delivery of strategic recommendations for the future management of the coastal zone. The informal networks generated through the project among and between government and private stakeholders are strongly appreciated and are available for tasks relying on interagency and public-private coordination. By involving both public and private stakeholders and by including federal, state and local levels in the activities, the project has narrowed the gap between the different levels of management and between government and private sectors.

The management system approach in general, and the ICZM information system along with the creation of a Sabah ICZM website, have contributed to greater transparency on the situation in the coastal areas and on its management. It also contributed to the identification of areas of concern related to redundancy in data production and lack of data integrity. This information will benefit agencies with management and information responsibilities.

The public participation and awareness initiatives have demonstrated the capability within coastal communities of addressing environmental problems by themselves and in the process clarifying the requirements for public sector support.

After the project was completed in March 2000, the Town and Regional Planning Department embarked on the preparation of a structure plan for the state of Sabah using the task forces that were set up, thus securing the participation of all relevant public and private interest throughout the planning process.

DANCED is supporting the integration of ICZM recommendations into the local plan preparation process through technical assistance to the Town and Regional Planning Department. The project, which started

Box 1. Phases of ICZM Malaysia.

The implementation of the project was undertaken in three phases:

- An inception phase during which the detailed implementation was discussed and agreed on in a participatory process involving the Technical Committee, in particular, which was also responsible for allocating staff to the various tasks.
- A phase 1 focusing on training, networking and development of tools required for setting up an ICZM system in Sabah and for producing strategic recommendations. Key tools developed included the ICZM data dictionary (meta database on information required for management decisions), the ICZM geographical information system (GIS) platform, and comprehensive coastal profiles for Sabah and Sandakan.
- A phase 2 during which the tools developed and capacity acquired were used in preparing strategic recommendations for CZM in Sabah.

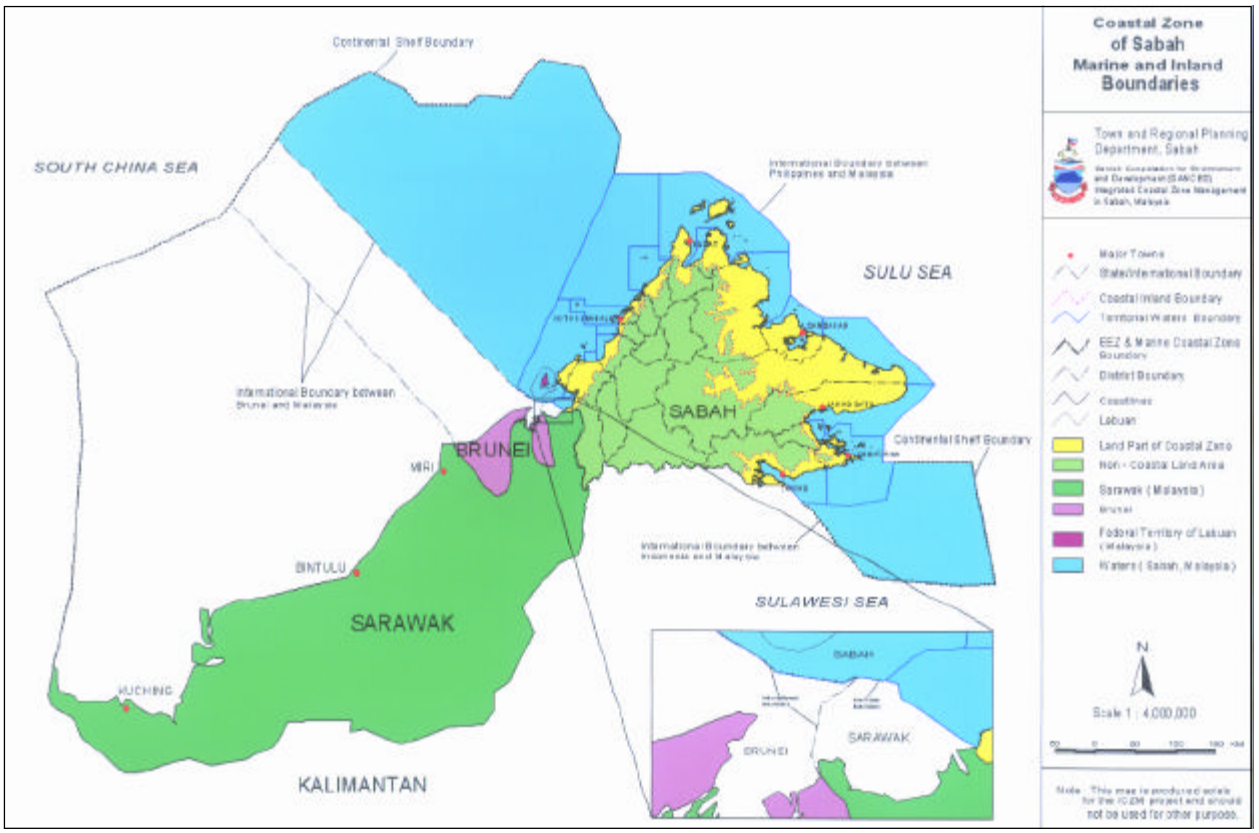

Figure 1. Coastal zone of Sabah marine and inland boundaries.

Figure 2. Cambodia's coastal provinces (Kampot and Koh Kong) and municipalities (Kep and Sihanoukville) where five pilot projects on community-based natural resources and alternative livelihood are being implemented.

in September 2002, will prepare local plans for four coastal districts thus providing the link between strategic expressions to the statutory level. Local plans are one of the most powerful tools available to control development and the process of their preparation therefore is a primary target of efforts to ensure sustainable management.

Environmental Management in the Coastal Zone of Cambodia

Cambodia has a land area of 181,035 km^2 and a population of around 11 million. The coastline extends 435 km along the northeastern shore of the shallow Gulf of Thailand between the Vietnamese and Thai borders. Administrative jurisdictions of the coastal zone include the provinces of Koh Kong and Kampot and the municipalities of Sihanoukville and Kep. The claimed exclusive economic zone of Cambodia is considered part of the coastal zone (Figure 2).

The coastal provinces and municipalities cover an area of around 17,200 km^2 or almost 10 percent of the country. Many of the coastal population of around 850,000 (1998 national census) are recent migrants in Cambodia seeking better livelihood opportunities. The extensive poverty among coastal communities, population increase and lack of traditional livelihood experience among migrants exert increasing pressure on the natural resources.

Additional pressure on these resources comes from unsustainable fishing practices such as shallow water trawling and motorized push-netting, destroying seagrass beds, and fish bombing and cyanide fishing, destroying coral reefs. Encroachment into mangrove areas by shrimp farmers and salt producers has significantly reduced these habitats, which have also suffered from charcoal production activities.

Most of the urban sewerage systems along the coast are in a state of disrepair and very little wastewater treatment takes place before being discharged into the waterways. This together with a periodic scarcity of freshwater supply are major causes behind the occurrence of waterborne diseases such as cholera, typhoid and enteritis.

The recent history of Cambodia, marred by war and instability, has left the country impoverished with very little capacity to deal with socioeconomic and natural resources management. The DANIDA support to building capacity within CZM was started in 1997 with the clear understanding that socioeconomic improvements should be targeted through sustainable management of coastal resources thus in line with the policy of the government of Cambodia.

Current Status

A Prime Ministerial Decision was made in October 2001 to formally establish the National Coastal Steering Committee and the provincial working groups as integral parts of the Cambodian institutional framework in ensuring coordination of development efforts in the coastal zone. The Coastal Coordination Unit within the Ministry of Environment functions as secretariat for the committee while also in charge of day-to-day coordination.

Through systematic training in spatial planning, the provincial working groups have developed physical framework plans for each administration in the coastal zone. These plans specify that a number of policies, projects and actions, which the working groups consider, are required to enable the province/ municipality to move towards its preferred strategy for the area.

The working groups have produced state of the provincial/ municipal environment reports based on available data from rapid surveying and local knowledge. While these reports will establish the first comprehensive environmental overview of the coastal zone, the process of their generation also identifies information gaps and prepares for a more structured information system and monitoring framework.

The working groups have prioritized development activities that require particular environmental considerations. Training has been carried out in environmental impact assessment studies, which will strengthen the ability of the departmental management and technical staff to assess terms of

Management structures and capacity at national, provincial and district levels are required to guide and control the development in the coastal areas to ensure socioeconomic improvements, environmental quality and sustainable natural resource usage.

references and to evaluate such studies in the future.

Management structures and capacity at national, provincial and district levels are required to guide and control the development in the coastal areas to ensure socioeconomic improvements, environmental quality and sustainable natural resources usage. Whereas other outputs described above have been targeting the capacity building of structures and human resources at these levels, the pilot projects have specifically been focusing on mobilizing the coastal households in the management system. These households are key target groups and beneficiaries for management arrangements and must be considered in management to ensure that the local ground level knowledge is built-in on one hand and that local participation and ownership are incorporated into rules and regulations for the coastal areas and their resources on the other.

The approaches to community-based natural resources and alternative livelihoods during phase 2 have, among others, been to develop partnership between provincial departments and communities. The provincial departments are responsible for enforcement, which requires close interaction with the coastal villages as well as for technical support. The provincial departments have assumed a facilitating role supporting the communities in formulating and implementing the pilot projects.

The following pilot projects have been implemented during phase 2:

Box 2. Phases of EMCZ Cambodia.

Phase 1 of the project (between 1997 and 2000) served to mobilize appropriate interministerial and interdepartmental institutional arrangements. This aimed to introduce integrated concepts to natural resources and environment management, produce an initial baseline on management issues in the coastal areas and actively involve primarily government staff in generating an initial overview and understanding of management requirements. Early in Phase 1, a National Coastal Steering Committee was established. The committee is chaired by the Minister of Environment and composed is of representatives from key ministries. Provincial working groups were likewise formed in Kep, Kampot, Sihanoukville and Koh Kong, chaired by coastal governors.

Phase 2 of the project was started in March 2000 with the main objectives to:

- enhance government capacity to undertake ICZM;
- have provincial working groups become active and significant forums for coordination, negotiation and planning of legal, administrative and technical actions to enforce EMCZ and to promote sustainable livelihood; and
- have one or two communities in each province plan and launch a pilot project to invest in environmentally sustainable and socioeconomically viable activities or improved technologies that can increase the livelihood of the most vulnerable groups.

Beng Kachharng, Koh Kong

Beng Kachharng is a small island located within Peam Krasaop Wildlife Sanctuary, seven km from Koh Kong. The island has a population of a little less than 500 people or around 120 families most of which are engaged in fisheries. There is little land available for agriculture and around 60 percent of the population is very poor. The pilot project has demonstrated chicken and

duck raising and integrated vegetable culture (permaculture) as an alternative or supplementary livelihood. It also raised awareness about mangrove and fisheries management and environmental legislation.

The Canadian International Development Research Centre has collaborated with the Ministry of Environment since 1997 in the Participatory Management of Mangrove Resources Project in Peam Krasaop Wildlife Sanctuary, Koh Kong. Considerable knowledge about traditional use of mangrove and fisheries resources has been generated through this project which has also increased awareness among villages inside the protected area. Early in phase 2, collaboration was established between the EMCZ and the project in exploring crab fattening as an alternative or enhanced livelihood for fishing households. Later, and benefiting from the experiences from Ream National Park, the project shifted its focus towards organizing communities in sustainable management of mangrove and fisheries resources. Currently, several communities have been organized in managing fisheries activities within delineated areas as well as outside the protected areas, as both depend on the same local natural resources.

Ream, Sihanoukville

Since 1997, support to community-based fisheries and mangrove resources management has been provided within Ream National Park. Eleven fishing villages have been organized in managing the natural resources, and local regulations have been formulated which the local government endorses. Patrolling to enforce regulations is systematically carried out with participation from both communities and provincial departments. Also, the pilot project has been engaged in exploring crab fattening as an alternative or enhanced livelihood.

Prek Tnout, Kampot

The village is located 30 km west of Kampot and has a population of 1,200 people or 220 families mainly engaged in fisheries and farming. The pilot project has, over the past one and a half years, demonstrated chicken and duck raising and integrated culture of vegetables (permaculture) as alternative or supplementary livelihoods while raising awareness about natural resources management and environmental legislation. Some 15 ha of new mangroves have been planted in front of existing ones along the coastline.

Thmei Village, Kep

The village has a total population of around 2,200 or 400 families, out of which 100 are Khmer-Islamic. Khmer-Islamic families are predominantly fishers or boat builders, whereas Khmer families are farmers or work in salt pans or at the markets. The pilot project aims at improving the productivity of a 24-ha mangrove area through improved control of water management. Dike structures and sluice gates have been established, and existing creeks in the mangrove have been deepened. Villagers enforce regulations for the management of the area.

Future Perspective

At the end of phase 2, a very comprehensive network of coastal stakeholders has been mobilized in development management, and a national and provincial institutional framework has been put in place in Cambodia. Both the government and DANIDA however, acknowledge that additional assistance is required for ICZM to continue on its own. A government-to-government agreement has been reached for phase 3 to start in August 2002, with a duration of five years.

In phase 3, the project office will move from Phnom Penh to Sihanoukville and small coastal resources centers will be established in each of the provinces and municipalities. These centers will offer work space and technical facilities for the provincial working groups while handling information dissemination, awareness raising and education.

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Integrated Coastal Management: A Victorian Perspective

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Introduction

Australians are passionate coastal dwellers. From early indigenous occupation through to post-European settlement, Australians have preferred to be in close proximity to the coast.

Eighty percent of all Australians live or work on the coast - compared with a 60% global average. In the southern state of Victoria, of which Melbourne is the capital, coastal populations still reflect the national average despite cooler temperatures.

Why is the coast valued so highly? Market research conducted in 2000 by the Victorian Coastal Council (www.vcc.vic.gov.au), a peak government advisory body, showed that over 70 million recreational visits are made to the coast by Victorians alone each year. It also showed that the coast is becoming increasingly important as people seek to "escape the pressures of everyday life," the main motivating factor for coastal visits.

The Twelve Apostles, Port Campbell National Park, Victoria, Australia.

Nine out of ten Victorians surveyed rate the coast as "important" in their lives. Most go there to enjoy its natural beauty. In fact, what was surprising was that more people go to the coast for passive recreation than for the more expected physical pursuits of surfing, swimming or boating.

In reflecting on the value of the coast, not only is it important for people's general well being, but what is now refered to as "the coastal experience" is significant to business, industry and local communities. The quality of design and siting of development has a direct impact on the quality of "the coastal experience" and the overall attractiveness of the coast as a marketing asset. Every day, there are new images of the coast featured in advertising and other forms of promotion.

The Victorian coast also continues to play a significant role within the state's economy for commerce, trade and a broad range of natural resource based industries. In Port Phillip Bay alone, a 1997 study showed that the bay contributed AUS $7.7 billion per annum to the state's gross domestic product.

It is a vision that recognizes that the coast is still one of the last largely free experiences, an experience that is accessible to almost anyone.

Given the economic, environmental and social values of the coast, protecting and enhancing the coastal landscape is of critical importance. It relies on an understanding of the resource and its sensitivity to change. The benefits derived from the coastal environment and its resources depend on the maintenance of the biodiversity in healthy ecosystems. Irresponsible exploitation of resources now will only give crippled industry and unemployment in the future.

This, together with an increasing desire by Victorians to leave the major urban centers and reside on the coast, led the State Government to pass the Coastal Management Act in 1995. The Act saw the establishment of the Victorian Coastal Council which main task was to prepare a strategic framework for decisionmaking and management of Victoria's 2000-km coastline.

A New Framework for Action

The first Victorian Coastal Strategy (VCS) was passed through Parliament in November 1997. Previous plans had covered parts of the coast or were issue-based, but this was the first time Victoria (and indeed any state in Australia) had a framework for planning and management, backed by legislation, which covered the whole coast, including public and private land and the marine environment. This strategy provided a good framework for integrating multisectoral activities on the coast and played a significant role in stimulating high levels of interest planning and management issues affecting the coast.

The strategy survived a change of government in 1999, with a revised version produced and released in January 2002.

The VCS describes a vision for the coast - a popular vision that pictures a healthy, vital coastal environment, where biodiversity is protected and prosperous. It is a vision that recognizes that the coast is still one of the last largely free experiences, an experience that is accessible to almost anyone.

Box 1. The Victorian Strategy hierarchy of principles.

The VCS 2002 applies an ecologically sustainable development model more explicitly to its actions, and identifies a hierarchy of principles to guide decision-making.

The principles were readily accepted by the Victorian community, during an extensive consultation period, realizing that the VCS needed to be sufficiently broad and flexible to recognize the diversity of the coast and to be applied through a range of decisionmaking processes. In order of priority, the principles are:

1. Provide for the protection of significant environmental features: These principles are about conserving the biological diversity, physical diversity and ecological integrity.

2. Ensure the sustainable use of Victoria's natural coastal resources: These principles are about providing intergenerational equity, meeting the needs of people today, without compromising the needs of future generations.

3. Provide direction for the future through integrated planning: Taking a long rather than short term view, considering the consequences of decisions that might be made by one sector affecting the interests of another sector; providing a framework for coordination of activity along the coast, where public and private land, the shoreline and the marine environment are planned and managed together -- this is known as integrated coastal management (ICM).

4. Finally, when these three principles have been met, decisions can be made about what constitutes appropriate use on the coast - whether it be small-scale, such as a walking track or public amenity, or a larger development such as a resort development.

The first Victorian Coastal Strategy (VCS) was passed through Parliament in November 1997. This was the first time Victoria (and indeed any state in Australia) had a framework for planning and management, backed by legislation, which covered the whole coast, including public and private land, and the marine environment.

A Peak Body

The Victorial Coastal Council is the peak body for advising the Victorian State Government - Australia, on coastal management issues and for developing the VCS 2002. The council was established under the Coastal Management Act of 1995.

The appointment of the Victorian Coastal Council in 1995 provided a "champion" for the coast, raising awareness of its value to all Victorians - communities, industry and governments - and stimulating new interest in coastal issues. With several community positions available on the council, it also provided members of the broader community an opportunity to be engaged in high-level government role. These positions introduced skills useful in tourism, planning, business, science and conservation into the decisionmaking process.

The Coastal Management Act required the appointment of three regional coastal boards to apply the VCS on a regional level. These boards further increased the level of community involvement and contributed to the development and implementation of the VCS; and have a most significant role as a broker or facilitator to ensure that all of the various interests are working towards a common goal. One example can be seen with a current project of the Gippsland Regional Coastal Board (RCB).

Gippsland Lakes: Integrated Coastal Planning

The Gippsland Lakes are a series of shallow, interconnected coastal lagoons about 200 km east of Melbourne. The lakes, which run almost parallel with the Ninety Mile Beach of Bass Strait, are almost 70 km long and 10 km wide at the widest point. They are the largest estuarine lakes system in the southern hemisphere with internationally significant values for habitat, biodiversity and migratory species. They are also vitally important for tourism, boating, and recreational and commercial fishing.

Poor catchment management practices since the mid-1880s, together with the creation of a permanently open entrance to Bass Strait in 1889, have resulted in an environment substantially altered from its presettlement condition. One of the most visible symptoms of the health of the lakes is the frequency and intensity of blue-green algal blooms, which have a severe impact on recreational and commercial fishing and on general enjoyment and use of the waters. The blooms have had a significant economic impact on this popular tourist destination.

The Gippsland RCB expressed a deep concern for the overall health of the lakes and the significant and permanent environmental damage they faced, unless catchment practices changed. The board was well aware that the Gippsland Lakes were under stress as a result of past land use practices. Hence, a holistic approach, which saw a plan of action that brought together all parties and government agencies involved in management of the lakes and surrounding catchment, was developed.

The Gippsland RCB commissioned a major Australian research organization, the Commonwealth Scientific and Industrial Research Organisation, to undertake the Gippsland Lakes Environmental Study in a partnership arrangement. The project was overseen by a Steering Committee composed of representatives from the Board and major stakeholder groups. It aimed to help managers to understand how the Gippsland Lakes actually worked, including factors controlling water quality and algal blooms, and to equip them with the capacity to assess likely ecological outcomes associated with various options.

The Gippsland RCB championed this new rigorous approach which broke down sectoral boundaries, fostered partnerships, set broad targets and mechanisms to achieve outcomes and particularly raised the awareness of integration between catchment and coastal management between stakeholders and the community. This strategic approach and coastal leadership will serve as a model for others.

The Challenge of Change

Market research showed that people not only go to the coast for relaxation and "to get away from it all," but that an increasing number of them relocate to live, either as retirees or commuters to metropolitan or regional centers.

The Victorian Coastal Strategy describes a vision for the coast a popular vision that pictures a healthy, vital coastal environment, where biodiversity is protected and prosperous.

Bathing boxes at Brighton Beach with the Melbourne skyline in the background, Victoria, Australia.

This increasing permanent population affects not only the population density of coastal townships but also the infrastructure requirements, social dynamics and the environment in and around the townships. During the summer season, visiting holiday makers can increase a township's population by up to 5 times. There is also a fairly rapid change in the style of urban development with significant increases in demands for fresh water. In some areas, this can have significant sustainability implications. Regionally, this is being addressed through initiatives, such as the development of a Great Ocean Road Strategy that will seek to apply the principles and direction of the VCS.

A key ongoing opportunity is the continuous improvement in the quality of siting and design of structures and uses within the coastal environment. The visual and scenic amenity of the coastline is highly regarded not only by Victorians but internationally as well.

Establishing a comprehensive and representative system of marine national parks is fundamentally important to provide greater protection for these values and also to provide a benchmark against which the effectiveness of coastal and marine management can be generally measured.

The Great Ocean Road and Wilsons Promontory are internationally renowned. The Victorian Coastal Council has developed Siting and Design Guidelines for practitioners along the coast, which aim to improve design outcomes for buildings, facilities and structures in foreshore and coastal areas. These are by nature broad guidelines, and further work is required to refine these guidelines at a local level and ensure that they are well integrated into day to day development approvals.

Given the coast's dynamic nature and the increased awareness of risk issues, risk management is becoming increasingly important for managing the Victorian coast. The VCS encourages a long-term approach to risk management with focus on threats to natural features, coastal visitation and infrastructure. Incursions of introduced species are potentially threatening not only to the economic posterity of coastal and marine industries, but also to the unique marine ecosystems. Regulations and practices are now in place to monitor incoming vessels, and a response plan has been developed to manage future incursions. Guidelines have also been developed on best practices to minimize risks from translocation of marine pests by small vessels. Public education is a key requirement in these initiatives.

Climate change is real and will have ramifications for how coastal areas are managed. The VCS encourages a risk management approach to this issue both in terms of adaptive planning and support for moves for alternate energy sources as part of a broader greenhouse strategy. Significant new research and modelling have been carried out relating the latest international climate modelling to potential impacts for Victorian coastal systems. Actions in the coming years will focus on necessary strategies and best practices to ensure that coastal area use relates to sea level change and to prepare for likely increase in the frequency and severity of storm events.

Beyond the Beach

Victorians' interest in the coast has largely been shoreline-based. People and governments are preoccupied with what happens “on the beach”. The community reacts very vocally to questionable development proposals, or rights of access. Sadly, there has not been the same focus with what happens “beyond the beach”, in the marine environment.

However, that is changing. The Victorian State Government, in recognition of growing concerns about the general decline of the marine environment, accepted a proposal which would see a representative system of marine protected areas along the entire coastline. The proposal is the culmination of ten years worth of research, lobbying, planning and consulting. Marine park enthusiasts are excited that the long-awaited parks may finally become a reality.

Victoria has many unique marine plants and animals. Some 90 to 95% of these species occur nowhere else in the world. This is partly due to Australia's geographic isolation and the fact that it has one of the only large southern facing coastlines in the world.

Establishing a comprehensive and representative system of marine national parks is fundamentally important to provide greater protection for these values and also to provide a benchmark against which the effectiveness of coastal and marine management can be generally measured. Communities are only just starting to acknowledge the value of the marine environment and to understand that it offers excellent opportunities for development if it is planned and managed sustainably. Marine national parks offer new opportunities for local communities in tourism

and recreational activities such as boating and diving.

On a national level, the 1998 Commonwealth Oceans Policy is being implemented for commonwealth waters (3 nautical miles to the extent of economic exclusion zone). A key component of the Oceans Policy is to develop regional marine plans based on large marine ecosystems. These plans will provide a decisionmaking and planning framework for management across sectors and will guide ongoing development of conservation and social and economic opportunities in the region. The first of these plans is underway for the South-East region, which includes the commonwealth waters off the coast of Victoria. Further coordination between relevant states and the regional marine plan needs to be developed to ensure that there is effective integration of effort across sectors and across state and commonwealth jurisdictional boundaries.

Conclusion

The coast is of fundamental significance to communities. It is also a limited resource and therefore warrants particular focus to ensure long-term sustainable outcomes. Good progress has been made in developing strategic frameworks that outline broad priorities and actions. Opportunities exist to improve processes and forums that will enhance decisionmaking across sectoral issues and as part of a general attempt to increase planning and management capacity.

Communities can derive enormous, long-term, environmental, economic and social benefits from a participatory coastal zone management program. ■

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Conflict Resolution through Co-management: A Case Study from Thailand

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Increasing Conflict in Small-scale Fishery

Ban Laem Makhaam is a fishing village on the western coast of Southern Thailand in the Sikao district of Trang Province. The residents are predominantly Thai-speaking Muslims. The majority of households earn their livelihood from fishing.

Fish were largely caught for subsistence in Ban Laem Makhaam until the late 1960s. The entry of an outside fish dealer marked the shift to a market-oriented fishery. The expansion of this fishery brought about a tremendous change in fishing technology and marketing. Many fishing methods, of which some were destructive (for example, blast fishing, push nets, trawl nets and set bag net), were introduced. The "open access" nature of the fishery allowed commercial fishing boats from outside the community to enter the fishing grounds and compete with local fishers, contributing to conflict and overexploitation of the fishery.

In Ban Laem Makhaam: fish cages (*above*) and fish landing site (*below*).

In addition, local mangrove forests, used for charcoal production since the early 1940s, were becoming seriously degraded. Although the mangrove trees were harvested under concessions from the government, the concessionaires did not really adhere to the rule of replanting on a rotating basis (Masae, 1998).

As the problem of coastal resource overexploitation and degradation worsened in the 1980s, some fishers started to be concerned about their livelihood. They began to reflect on the causes of the problem. Informal discussions among them about possible solutions began in 1982.

Changes in Resource Management

Fisheries co-management in Ban Laem Makhaam village emerged from a search for solutions to resource overexploitation and degradation. The starting point for the active involvement of village residents in fisheries management was the entry in 1985 of the Yadfon Association (YFA), a local nongovernmental organization (NGO). YFA sought to address poverty in coastal villages and to improve the standard of living. Its field workers moved into the village to live in order to obtain an in-depth understanding of village problems.

The close interaction between the field workers and the village leaders and residents led to an agreement that fisheries and coastal resources needed more attention. There was a close link between coastal resource conditions and other aspects of village life, including power relations and poverty. In 1986, YFA introduced sea bass and grouper cage aquaculture. YFA also encouraged the fishers to organize themselves. After several informal discussions and community dialogues, an agreement was reached in the community to ban all destructive fishing methods. Village residents would only be allowed to use non-destructive fishing gear such as gill net, fish trap, squid trap and hook-and-line. The influential village members took it on themselves to encourage compliance with the agreement.

Fisheries co-management in Ban Laem Makhaam village emerged from a search for solutions to resource overexploitation and degradation.

In 1987 and 1988, conflicts over resource use occurred at two levels: among village residents and between residents and outsiders. A conflict management mechanism was established by YFA to address the conflict among village residents over the banning of certain destructive fishing gear. Village leaders and senior fishers, working with YFA, served as negotiators and mediators on these conflicts. The leaders became more active in protecting community rights and in motivating residents to comply with the rules. Exchanges of ideas among different stakeholder groups in the community became part of conflict management and helped to air differing viewpoints.

In 1989, the village leaders decided to pursue mangrove rehabilitation and to further ban all destructive fishing within 3,000 m of the shoreline. Conflict increased with outsiders who fished in local waters, as village leaders began to impose community rights over coastal resources and to ban destructive fishing practices. Realizing that they could not address these issues themselves, the leaders sought support from the Department of Fisheries (DOF). The support came in the form of protection of the fishing rights of small-scale fishers, the enforcement of laws and regulations, and development projects. The DOF approved the ban on all destructive fishing methods within 3,000 m from

Mangroves in the Ban Laem Makhaam area.

Co-management provided a conflict management mechanism for the stakeholders in the Ban Laem Makhaam fishery to participate, address conflicts and hold dialogues.

the shoreline, providing protection for the small-scale fishers. The government also pursued more widespread law enforcement activities that helped to reduce illegal fishing practices, not only within the village but also in neighboring villages. This was in response to a request from village leaders and YFA to ban destructive fishing methods in all nearby villages.

Incentive to Co-manage

The decision of the village residents to cooperate is largely an awakening process on their part to the consequences of resource overexploitation and degradation on their income and livelihood. The residents felt that they had to act cooperatively to ban destructive fishing methods and to exclude fishers from other areas who were using destructive methods. Conflict was inherent in this process, but an internal conflict management mechanism was established to deal with the issues. Co-management provided a conflict management mechanism for the stakeholders in the Ban Laem Makhaam fishery to participate, address conflicts and hold dialogues. Support from external organizations, YFA and DOF, which provided technical, legal and financial assistance, reinforced the incentives for people to cooperate and to not feel alone in their struggle for sustainable coastal resource management.

Community-based Co-management

Fisheries management is never static. Conditions evolve, and it is always possible that conflicts will arise. A mechanism is needed to address the many aspects of fisheries management, including conflict management.

Co-management, while not purporting to remove all conflicts in fisheries, does have potential as an approach to deal with certain aspects of conflict. Co-management can be defined as partnership arrangement in which government, the community of fishers, external change agents (NGOs, academic or research institutions), and other fisheries and coastal resource stakeholders

Box 1. Conflicts in fisheries.

There are a wide variety of conflicts in fisheries. These range from differences over fisheries policy to gear issues between small-scale and commercial fleets. Charles (2001) has identified four categories of fisheries conflicts:

1. Fishery jurisdiction - includes conflicts over property rights, such as who "owns" the fishery; access and control in it; what should be the role of government; what should be the optimal form of fishery management; and intergovernmental relations.

2. Management mechanisms - include conflicts over development and implementation of fishery management plans; fisher-government relations; consultative processes; and fishery enforcement.

3. Internal allocation - involves conflicts between and among direct participants in the fishery, such as small-scale-commercial fisheries and fisher-processor. Conflicts relate to differing relations over access and use rights between various user groups and gear types.

4. External allocation - includes conflicts between "local" fishers and those outside the "local" fishery, such as foreign fleets, aquaculturists, nonfish industries (i.e., tourism, oil and shipping) and the general public.

Co-management is not a regulatory technique. It is a participatory and flexible management process that provides and maintains a forum or structure for action on rule making, conflict management, power sharing, leadership, dialogue, decision-making, negotiation, knowledge generation, learning and sharing among fishers, government and other stakeholders.

share responsibility and authority for making decisions about the management of a fishery. Co-management is a process of resource management, adapting and maturing to changing conditions over time, and involving aspects of democratization, social empowerment, power sharing and decentralization. Co-management is not a regulatory technique. It is a participatory and flexible management process that provides and maintains a forum or structure for action on rule making, conflict management, power sharing, leadership, dialogue, decision-making, negotiation, knowledge generation, learning and sharing among fishers, government and other stakeholders.

As illustrated in the Ban Laem Makhaam case study, co-management can serve as one process to address conflict in fisheries and coastal resources. Co-management is not the only mechanism available for resolving fisheries conflicts, but it is being used on a more regular basis around the world. ■

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Box 2. Conflict management.

A conflict can sometimes be managed by the parties simply by explaining to each other how they feel about a situation and why. One or both sides may agree to change their actions and the conflict is solved.

In other situations, a structured process will have to be used.

Conflicts can be managed through three broad approaches.

1. Negotiation: where the parties, with or without the assistance of a facilitator, discuss their differences and attempt to reach a joint decision.

2. Mediation: where the parties agree to allow an independent, neutral third party to control and direct the process of clarifying positions, identifying interests and developing solutions agreeable to all.

3. Arbitration: where each side is required to present its case to an independent person who has legal authority to impose a solution.

Conflict management can best be approached as a process on negotiation and mediation within a particular cultural, political and social context.

Any conflict management must be appropriate to the context in which it occurs. There are several general principles that are applicable to the majority of conflicts:

1. A focus on the "interests", the fundamental needs and concerns, of those involved in the conflict;

2. Addressing both the need of a group to have its interests be heard and respected, and that the interests relate to needs of the group, such as livelihood;

3. Including all significantly affected stakeholders in arriving at a solution; and

4. Understanding the power that various stakeholders have and taking into account this power relationship in the conflict management process.

The Benefits of Fishery Cooperative Associations in Japan

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Introduction

"One for all and all for one." This is the basic philosophy of cooperatives as they take advantage of economies of scale. This Western philosophy was introduced to Japan during the Meiji era (1868-1912). However, the Meiji government could not find any appropriate model for fisheries. As a result, Japan developed a unique community-based co-management system centering on fisheries cooperative associations (FCAs) as nonprofit organizations (Lim *et al*., 1995). After a long period of trial and error, FCAs became an integral part of community development policy in rural fishing villages after World War II. With both administrative and economic functions, FCAs have contributed to the society in various ways by: reduction of administrative fisheries management cost; creation of employment and economic opportunities for rural development; promotion of environmental security; education and guidance to local people; research and resource enhancement; and national security.

Capture fishers in an FCA Study meeting.

Brief History of Community-based FCAs in Japan

Assuming that the ownership by local lords of waters is the same as land, they have admitted the exclusive use right to coastal waters by local fishing villages, according either to customary use or by special permission. This right was a common right belonging to all fishers in a village, where all shared the fishing grounds. On rights to fisheries not suitable for shared usage, such as net fishing, special permissions were granted by each local lord, for exclusive use by one or several people. The feudal order collapsed with the Meiji Restoration in 1868. Although the fisheries management functions of local lords

were transferred to prefectural governors, fisheries disputes pertaining to fishing ground use increased among new municipalities under the new Meiji government (Matsuda, 1984).

The current FCAs can be traced back to the fishery society in the Meiji era. This society was first established in 1886 to prevent fisheries conflicts. Its efforts to mediate in fisheries conflicts were in vain because it was not a juridical body and hence could not sue and check illegal fishing under mutual surveillance and enforcement.

In 1874, the government intended to reorganize the fisheries system and declared that all sea areas belonged to the Meiji government. This led to further disputes within the fisheries sector and in 1875, caused the government to withdraw the declaration and to continue following earlier customary management rules.

Based on the study of traditional fisheries customs for more than 15 years, the Meiji Fisheries Law was enacted in 1901. It was characterized by the modernization of customary rules and regulations and by the establishment of legal fishery rights separate from land ownership rights. The Fishery Society was first made a juridical body simply as an expedient to prescribe communal ownership belonging to all of the

With both administrative and economic functions, FCAs have contributed to the society in various ways by: reduction of administrative fisheries management cost; creation of employment and economic opportunities for rural development; promotion of environmental security; education and guidance to local people; research and resource enhancement; and national security.

Box 1. Principles of the Fisheries Law.

The Fisheries Law of 1949 and the Fisheries Cooperative Association Law of 1948 were designed within the framework of the post-World War II democratization policy of Japanese institutions. Modifications to the 1901 Fisheries Law were based on three principles intended to eradicate the remaining elements of feudalism (Ruddle, 1985; Matsuda, 1991; Yamamoto, 2001). These were:

1. Fishery rights and licenses were to be granted only to fishers or fishing enterprises actually engaged in fishing; leasing arrangements were prohibited.

2. The local administration of fishery rights was to be invested only in FCAs or similar organizations.
3. The Fisheries Adjustment Committees, established for each sea area, were charged with preparing comprehensive plans for the full and rational use of coastal fishing grounds. Based on these plans, fishery rights and licenses were to be granted to these committees, other bodies and individuals.

Box 2. Decisionmaking processes at FCAs and Fisheries Adjustment Committees.

In Japan, various forms of fisheries coexist, operating simultaneously at both sea and inland waters. Therefore, without rules and regulations, maintaining resources and coordinating fishers would be difficult. To this end, most fisheries are licensed or permitted by either the Minister of Agriculture, Forestry and Fishery or the prefectural governors. Each license has limitations on vessel size, operating period and area, fishing gear and methods, and upper limit of the total number of licenses issued. The only exceptions to these are for free fisheries (e.g., small-scale angling). There are also rules and regulations developed by gear groups and the FCA.

The FCA holds a general meeting once a year, where regular members (i.e., residents in the specific area who fish at sea more than 90 or 120 days a year) review the previous year's performance, elect board members who select the president of the FCA and decide the fisheries management plan based on FCA rules and regulations.

The FCAs are involved in various functions:

- The governor's licensed fisheries (valid for three years for each gear): The FCA collects all applications for licenses and submits them to the Prefectural Government for review. The FCA also sends a representative to assist an applicant should the prefectural office require an interview prior to granting a license, as well as to minimize potential conflicts on resource use and types of gear used.

- Right-based fisheries (valid for 10 years for common fishery rights and 5 years for demarcated fishery right for aquaculture): A fishery right is granted by the prefectural governor. It consists of common, demarcated and set net fishery rights to capture or culture marine resources within the designated areas. In addition, the FCA makes rules and regulations on fishery rights implementation with the approval of the prefectural governor. Should conflicts arise, the prefectural government closely works with the FCA concerned to solve the problems.

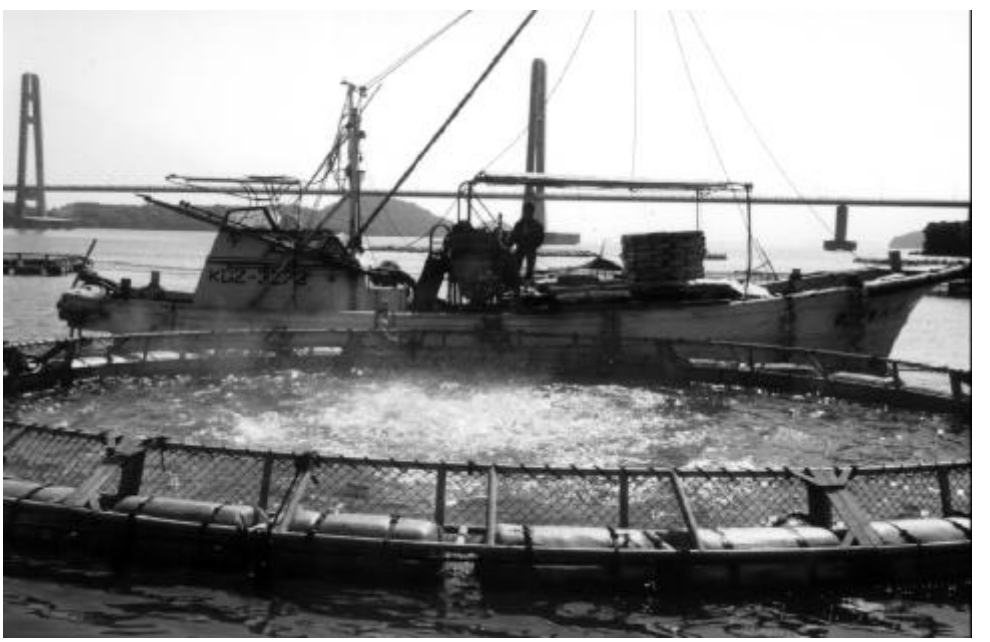
fishing village residents. Besides, the society was granted rights to manage fishery rights, mediate fisheries conflicts among members and rescue people at sea. Economic activities were not allowed until the 1910 revision was enacted (Matsuda, 1991).

Due to the government's fisheries promotion policy and the growing technological developments at the time, offshore fisheries developed early in the 20th century. Faced with the economic depressions in 1918 and 1927 as well as increasing fisheries conflicts due to mortarization of fishing vessels, the economic bases of the Fisheries Society were weakened. In 1933, the Meiji Fisheries Law was revised again to create an FCA with shared capital, (while the Fisheries Society, without shared capital, remained as such). In 1943, the Fisheries Society and the FCA were integrated into a fisheries organization devoted to the national emergency policy. The organization lost most of its vessels and human resources during World War II.

The framework of the 1949 Fisheries Law basically followed the 1901 Fisheries Law. The former was basically a public law prescribing the "method of granting fishery rights and licenses." Items not prescribed in it were to be administered according to custom as indicated in the Civil Law (Kumamoto, 1986).

These rights and licenses are the Minister's and Governor's

Japan has 4,470,000 km^2 of exclusive economic zone, a large part of which are fishing grounds. Without the FCA system, administrative fisheries management cost could be enormous.



Yellowtail culture in Azumacho, Kagoshima, Japan.

licensed fisheries, and the Governor's licensed right fisheries. The Minister's licensed fisheries deals with offshore and distant-water capture fisheries. The Governor's licensed fisheries are offshore ones under prefectural jurisdiction and right fisheries are coastal fisheries. All licensed fishers are also regular members of local FCAs. Thus, the FCA is the core organization in fisheries in Japan.

Socioeconomic Benefits from FCAs

Reduction of administrative fisheries management cost

Japan has 4,470,000 km^2 of exclusive economic zone, a large part of which are fishing grounds. Without the FCA system, administrative fisheries management cost could be enormous. For example, there are only two small patrol boats to enforce fisheries rules and regulations in Kagoshima Prefecture at the southwestern tip of Japan, stretching 600 km from north to south, having 2,633 km of coastline and is surrounded by the Pacific Ocean and the East China Sea. The

With responsible resource enhancement, the scallop fisheries brought fortunes to their communites. On the average, each FCA with 200-250 members has savings of about US$75 million.

Harvesting cultured kelp at sea. Such culture prevents eutrophication in coastal waters; enhances multispecies fisheries resources and develops rural economy.

FCA system in this prefecture consists of the following: local FCA, 68; inland water FCA, 6; distinct gear group, 4; and federation, 2. The system helps governments managing fisheries with economic autonomy coming from their economic activities which include fish marketing; supply of fuel, ice, feeds, equipment and resource materials; warehousing; processing; savings and loans and insurance. This indicates that administrative fisheries management costs can be reduced significantly if an FCA type, community-based fisheries co-management functions. In addition, statistical data collection is also a job of an FCA.

Creation of employment and economic opportunities

Employment and economic opportunities are scarce in rural villages. For example, scallop fisheries in Hokkaido have changed rural communities completely from subsistence to vital fishing villages. Hokkaido used to be rich in fisheries resources in Japan. However, local fishers were at a mercy of middlepersons. The subsistence fishers struggled for their future with the guidance of Mr. Takatoshi Ando, a leader of the FCA movement in Hokkaido (Tokoro, Saroma, Sarufutsu and Notsuke FCAs, among others). With four to five years rotating crop systems, responsible resource enhancement, pooled activities and research with their own research vessel, the scallop fisheries brought fortunes to their communities. On the average, each FCA with 200-250 members has savings of about US$75 million. Each fishing household has savings of US$740,000, and the member's disposable income ranges from US$222,000 to 370,000. This indicates that any coastal fishing village has similar potential if its resources are wisely managed.

Promotion of environmental security

During the time of high economic growth in the 1960s, scant attention was given to environmental issues in Japan except for the FCAs and few victims of diseases such as that of the Minamata disease. Fishers live with the environment. Since the 1960s, the FCAs have been systematically involved in many environmental

activities, such as movements against the use of synthetic soap and promotion of the use of natural soap; beach cleanup; anti-industrial water pollution and promotion of clean rivers, lakes and seas; and rejection of reclamation and sand extraction from the sea. In many cases, there were conflicts with governments who prioritized economic growth as the most important national interest. This created a situation that the so-called current environmentalists tended to undervalue the role of the FCAs in environmental security. The job of fishers is to supply safe food for the people, monitor environmental conditions and warn the people of the future. Fisheries can be sustained as far as the environment is clean. This indicates that the world will end when fisheries end.

Education and guidance

The FCAs are the core institutions in rural fishing communities. The FCAs help youth and women groups involved in such activities as research and training on fishing gear and technology, fisheries management, aquaculture and resource enhancement, fisheries business management, fish processing and marketing, environmental conservation, rural development and festivities (Zengyoren, 1997).

Research and resource enhancement

Government initiatives in research and resource enhancement are faced with physical and financial

continued on page 28

Capture Fishers cleaning up scallops.

Xiamen: Integrated Coasta

The application of integrated coastal management (ICM) can bring about socioeconomic and environmental benefits. Xiamen municipality, located at the southern portion of the Fujian Province in the People's Republic of China provides a unique showcase of ICM in action.

Xiamen, with its six districts and single county, has a coastline of 234 km and a total sea area of 334 km^2. Xiamen, including Gulangyu Island, was designated as Special Economic Zone in 1984 and since then have experienced rapid socioeconomic growth.

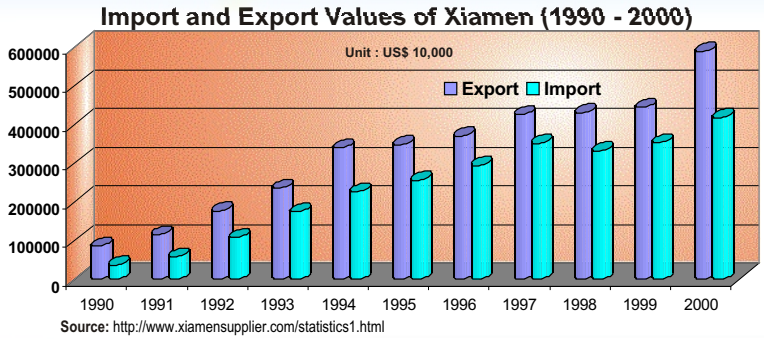
Xiamen became a busy place. Its main coastal activities included capture fisheries, mariculture, coastal tourism, manufacturing, port development, beach reclamation and coastal construction. The rapid economic development was accompanied by the threat of major coastal problems, such as marine pollution, habitat destruction, overfishing and multiple-use conflicts.

That Xiamen managed to minimize these negative effects while maintaining its rapid economic growth provides a valuable source of experience and insight into the working benefits of ICM.

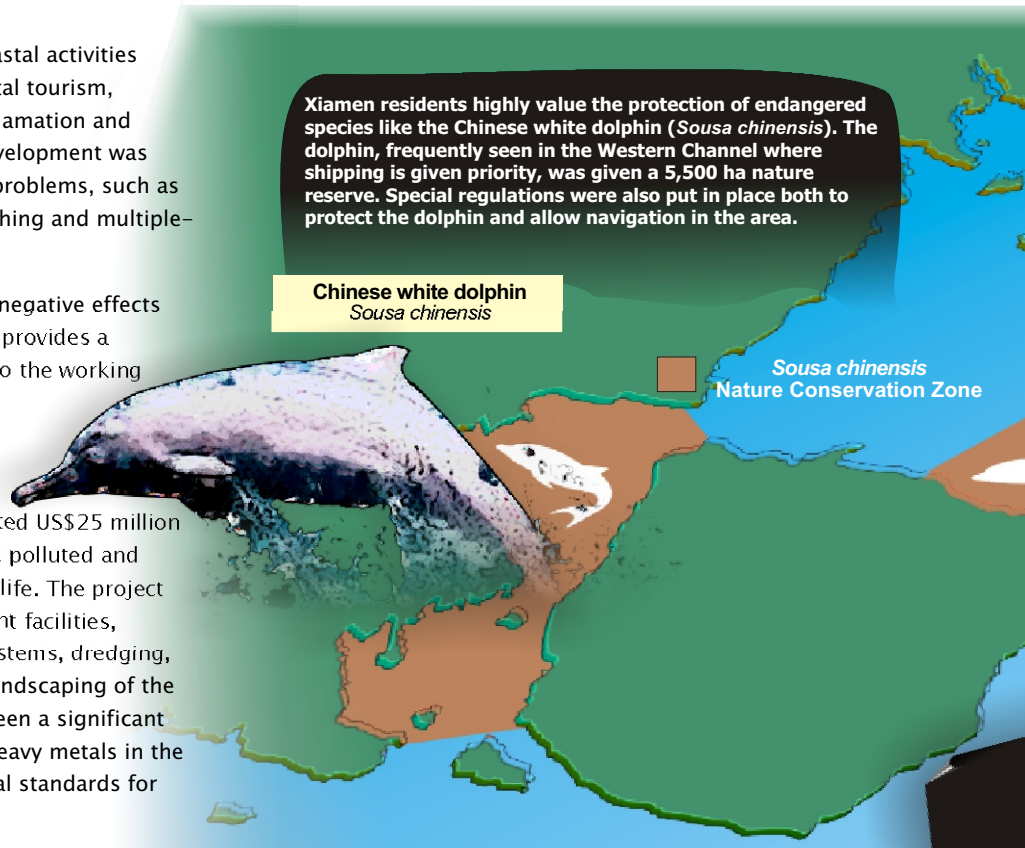
Cleanup of Yuan Dang Lagoon

The local government launched an estimated US$25 million integrated cleanup project in 1989 to bring a polluted and biologically dead Yuan Dang Lagoon back to life. The project included the construction of sewage treatment facilities, restructuring of the surrounding drainage systems, dredging, increasing water exchange and developing landscaping of the embankment. Since the cleanup, there has been a significant reduction of chemical oxygen demand and heavy metals in the lagoon. Now its water quality reaches national standards for fisheries.

The lagoon area then became a new city center for international and domestic investment, tourism and residential development. A survey under the Xiamen ICM Demonstration Project found that over 53 percent of 173 investors located in the area listed "beautiful environment" as a major reason for their choice of investment. In addition to social, recreational and aesthetic benefits, the cleanup project has resulted in a net economic gain since 1994. An analysis of long-term benefits versus costs of cleanup of the Yuan Dang Lagoon shows that investment in the environment has paid off. For example, from 1989 to 1993, annual local government expenditures for the cleanup project ranged from over 60 million RMB to 85 RMB, while revenues generated by the project (sewage treatment fees, increased values of the land surrounding the lake) ranged from 10 to 50 million RMB. However, the stream of the revenues generated by the project has outstripped the level of expenditures.



Source: http://www.xiamensupplier.com/statistics1.html



FAST FACTS

Xiamen	
Land area (km^2):	1,516
Sea area (km^2):	334
Coastline (km):	184.54
Population (2000):	1,310,000

Major Economic Indexes (2001)*	
GDP (100 million RMB):	556.39
Total industrial output (100 million RMB):	800.50
Seaport cargo handling volume (10,000 tons):	2098.91
Container handling volume (10,000 TEU):	129.32
Financial revenue (100 million RMB):	110.79

***Source:** http://www.fdi-xiamen-cn.com/democn/html/en/profile/profile-2.html

l Management Paying Off

The biologically dead Yuan Dang Lagoon became a focus of a major clean-up operation that transformed it from a waste catchment to a local investment magnet with its now beautiful environment.

The egret is the symbol of Xiamen City. During a contingent valuation survey conducted in July 1998, residents indicated a high support for the preservation of endangered species of which the egret received highest ranking.

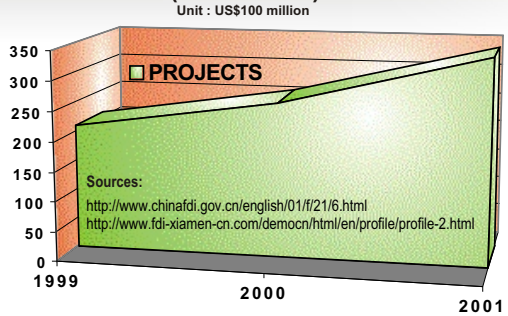
Chinese egret
Egretta eulophotes

XIAMEN

Gimei Ao Park
China National Publ. Import and Export Corp.

Foreign Direct Investment Projects of Xiamen (1999 - 2001)

Unit : US$100 million



Mechanisms Established

In 1994, the Xiamen Demonstration Project was established to show the feasibility and effectiveness of the ICM system at the local level. The Xiamen Marine Management and Coordination Committee was set up to coordinate marine uses and integrated environmental management.

The Marine Management and Coordination Office was also established to act as the operational arm of the interagency committee. This office was given a law enforcement function and has successfully shut down factories which did not comply with discharge standards.

Legislation Adopted

To give legal teeth to environmental management initiatives, marine legislation was strengthened with the drafting and implementation of new laws, such as the Xiamen Marine Environmental Protection Regulations, Xiamen Sea Area Use Regulations and Xiamen Intertidal Aquaculture Management Regulations. These and other similar laws support both management mechanisms as well as implementation of a coastal land and water use zonation scheme.

Zonation Schemes Developed

The Xiamen Municipal Government developed and applied a Marine Functional Zonation Scheme. Functional zones are areas allocated for specific and/or prioritized economic development, management, nature conservation and protection. Four major development zones were established for shipping and port, tourism, aquaculture and resource conservation. The zonation scheme served as a means to maximize the use of sea space and natural resources without affecting the functional integrity of ecosystems. The scheme also became a measure of reducing multiple resource use conflicts.

Investment Payoffs

The Yuan Dang Lagoon cleanup demonstrated the long term gains of maintaining a sustainable environment to attract investment. The establishment of multisectoral coastal project management mechanisms, the coastal land and water use zonation scheme, and the adoption of supporting local legislation have likewise prevented and reduced the incidences of multiple resource use conflicts which would have otherwise inflicted tremendous legal, administrative and environmental cost to the people of Xiamen.

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Cross-Currents: Navigating Gender and Population Linkages for Integrated Coastal Management[1]

Women in Tanzania have embraced seaweed farming as a way to earn cash income.

Introduction: Strengthening ICM-Gender-Population Linkages

Although integrated coastal management (ICM), gender and population organizations share a common interest in sustainable and equitable development of coastal areas, each group views the coast through a different lens.

ICM practitioners view the coasts as threatened ecosystems where participatory planning, policies and institutions will lead to sustainable economic development and the protection of unique biological resources. For example, coastal managers note that human activities are a serious threat to 60 percent of the world's coral reefs.

For gender specialists, the coasts are settings of inequality in which men and women and their children have different levels of access to productive resources, resource decisionmaking and leadership opportunities. For example, 200 million people in the world are dependent upon fishing for food or livelihood.

Population specialists in turn see coasts as sites with high birth rates, expanding numbers of economic and ecological migrants, rapid urbanization, growing globalization and tenuous food security. For example, by 2025, 75 percent of the world's population will live within 150 km of the coast.

Background: International Commitments Related to ICM-Gender-Population Linkages

International conventions and action plans influence donor priorities and national governments. For example, following the 1992 United Nations Conference on Environment

[1] Funding for this paper has been provided by the David and Lucile Packard Foundation, Grant No. 99-9163; the United States Agency for International Development, Cooperative Agreement No. PCE-A-00-95-00030-00, and the Intergovernmental Oceanographic Commission. The views herein are those of the authors and do not necessarily reflect the views of the Coastal Resources Center or the funding agencies. The authors would like to also acknowledge the contributions of the participants of an international workshop, "Mainstreaming Gender, Population and Leadership into Coastal Management Programs," The University of Rhode Island (URI)/ Coastal Resources Center (CRC), July 2001. This activity was part of CRC's Women in Integrated Coastal Management and Leadership Development Initiative.

and Development (UNCED 1992) in Rio de Janeiro, several donors used Agenda 21 to change their funding priorities. ICM funding significantly increased because of recommendations in Agenda 21's Chapter 17 on Oceans, Seas and Coasts.

Many coastal managers still do not clearly understand how gender issues affect coastal management, how to design programs and policies that address gender differences, and who can help them with this work.

However, Agenda 21 and other United Nations action plans have tended to compartmentalize ICM, gender and population issues. Unfortunately, many gender experts believe that Agenda 21 was largely unsuccessful at mainstreaming gender and social equity issues into the natural resources chapters. More typically, the approach is "add women and stir." Women's issues tend to be stereotyped. Apart from minimal attention within the technical chapters, most of the discussion about women's issues is relegated to a segregated chapter near the end of the document (Chapter 24 - Global Action for Women Towards Sustainable and Equitable Development). In a similar way, Chapter 4 (Changing Consumption Patterns) and Chapter 5 (Demographic Dynamics and Sustainability) address consumption and demographic issues rather than mainstreaming these issues into other chapters.

The Cairo Programme of Action (UN 1998) from the International Conference on Population and Development (1994) and the Fourth World Conference on Women's Platform for Action (1995) in Beijing shifted the focus to gender issues but did not address ICM or other ecosystems. The Beijing Platform for Action addressed environment and population issues and briefly mentions fisheries but there is no specific discussion of coastal issues per se.

To move ahead on ICM-gender-population linkages in the next decade, specific recommendations from Rio, Beijing and Cairo documents provide guidance. Chapter 5 of Agenda 21 highlights the need to increase awareness of the fundamental linkages between demographic dynamics and improving the status of women. In particular, it promotes women's improved access to education and primary and reproductive health care programs. It also advocates improved economic independence for women and more effective and equitable participation in all levels of decisionmaking.

These links are also reinforced in the environment chapter of the Cairo Programme of Action. This document recommended the following for governmental and NGO environmental programs:

- better integration of demographic data into environmental planning, decision- and policymaking processes and promotion of more sustainable resource management;
- modifying unsustainable consumption and production patterns through economic, legislative and administrative measures;
- directing activities toward poverty eradication, particularly income generation and employment strategies aimed at the rural poor and those dependent upon fragile ecosystems; and
- taking measures to enhance the full participation of relevant groups, especially women, at all levels of population and environmental decisionmaking.

In Chapter K of the Beijing Platform for Action, these ideas are reinforced with three strategic objectives related to women and the environment and attention to gender:

- involve women actively in environmental decisionmaking at all levels;
- integrate gender concerns and perspectives in policies and programs for sustainable development; and
- strengthen or establish mechanisms at the national,

Gender and population issues bring new civil society partners to the table for coastal governance at local, national and international levels. However, capacity building may be necessary to make effective use of this access.

regional and international levels to assess the impact of development andenvironmental policies on women.

In addition, the Beijing Platform for Action also underscores the importance of women's access to health care, including reproductive health care, education and training, and economic opportunities.

However, 10 years after the Earth Summit in Rio de Janeiro (1992), it is apparent that:

- Many coastal managers still do not clearly understand how gender issues affect coastal management, how to design programs and policies that address gender differences, and who can help them with this work.
- Many coastal plans acknowledge growing coastal populations and household food insecurity but they do not include plans for programming and partnerships related to gender-sensitive family planning.
- Many coastal institutions continue to make important coastal management decisions without the perspectives and leadership of female stakeholders and professionals.

The upcoming World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa, in September 2002 will not re-open Agenda 21 for revision, but delegates will assess current conditions, identify persistent and new challenges, and prioritize further action. Focusing on the persistent challenge of integrating ICM with population, gender and leadership-related issues, the following questions and recommendations are submitted for consideration by national governments, civil society, donors and researchers.

Charting a New Course for ICM

What More can be Done?

While there is very little documentation of ICM programs and projects that have successfully made population, gender and leadership linkages, there is some anecdotal evidence of how these issues have been addressed. At a recent international meeting at the URI's CRC in mid-2001, experts in ICM, gender and population issues suggested several priority areas for ICM activities.

Improving governance and planning: who decides?

The success of coastal planning typically depends upon good information, broad-based partnerships, transparency, expanded citizen access to information, and coastal decisionmaking bodies. To understand the social landscape as clearly as the ecological landscape, coastal managers need accurate information. They need new data collection methods to determine how men and women access and use resources and make local decisions, in addition to understanding the gender impacts of large-scale coastal trends, such as shrimp mariculture, coral mining and bomb fishing. In collecting relevant gender information, planners can borrow tools from gender analysis to work with women and men to collect information on gender differences in resource use, access to decision-making and community priorities. It is important not to stereotype men's and women's interests. Information must be collected and also must be incorporated into coastal plans and projects. For example, a project funded by the United States Agency for International Development (USAID) made a point of including women in participatory data collection in Xcalak, Mexico. However,

community women stopped participating in project activities when their community priorities were not selected (Rubinoff, pers. comm., July 2001).

In building coastal constituencies and ICM advocacy capacity, coastal managers need to be more inclusive and partner with other groups that are working for better lives and sustainable development for all coastal residents. Food security has been a key "hook" for expanding coastal constituencies. In the Philippines, a USAID-funded coastal management project found that food security concerns helped local government units to take action on ICM issues and better integrated these activities into their local planning processes (CRMP-Philippines 1999). In some places, issues like food security, livelihood and health are stronger initial motivations for coastal constituents than ICM. Alternative incentives may be even more important in newly formed coastal communities with mostly recent residents and very heterogeneous communities.

Coastal managers also need to create opportunities and build civil society capacity for expanded participation in coastal governance. Gender and population issues bring new civil society partners to the table for coastal governance at local, national and international levels. However, capacity building may be necessary to make effective use of this access. For example, the Tambuyog Development Center (TDC) in Palawan in the Philippines provided leadership, public speaking, advocacy and environmental awareness training for rural women engaged in coastal management activities (TDC 1999).

Participatory planning does not automatically recognize inequalities and differences between men and women. This recognition can be called a "gender lens." Optics for this lens include: power imbalances within communities, intra-household and intra-family relations, different constraints to participation, different abilities to participate and perceptions about the benefits of participation (adapted from Woroniuk and Schalkwyk 1998a).

Changing resource use and management: who uses what resources?

Pressure on coastal resources results from unsustainable levels of consumption by commercial and subsistence users. For coastal households, gender-based strategies can help reduce poverty and influence family planning. Few policies have gender-neutral impacts. To avoid negative impacts on women and particularly female-headed households, more gender related information and policy analysis is needed. Information needs include resource use and access, gender knowledge, household demographics, migration, markets, employment and decisionmaking. For example, in Bangladesh, a female coastal parliamentarian succeeded in getting a proposal passed, under the government land distribution program for landless peasants, that gives land jointly to husband and wife and to female-headed households. As a result, women's status increased, land grabbing declined, and coastal women planted trees and crops (Ahmed 1993).

Gendered knowledge about using coastal resources can help coastal managers find solutions to unsustainable coastal use. When coastal managers fully understand

Box 1. Issues for a proactive coastal policy.

A proactive coastal policy, tuned to gender and population concerns, is likely to include some attention to the following issues:

- making access to coastal land and water resources more equitable and increasing women's tenure security;
- adopting nondiscrimination guidance and procedures for expanding access to coastal planning by different social groups, including women;
- promoting technology and collateral arrangements that do not exclude women;
- requiring collection and reporting on changes in gendered access to extension, training, enterprise opportunities and decisionmaking, particularly for the poorest coastal households; and
- coordinating coastal planning activities with family/reproductive health planning, particularly at the local level.

gendered resource use patterns, they are in a better position to predict the impacts of coastal management and development policies and plans. For example, women collect subsistence and commercial products from mangrove areas. When these areas are used for shrimp mariculture or tourism development, household food security is likely to be affected.

Projects and policies based on gender stereotypes rather than accurate gender information are less likely to succeed. In using gender-based knowledge for management, female resource users often possess different knowledge about marine, coastal and estuarine biodiversity than men. Work in the fishing industry is generally thought to be gender-segregated. Woroniuk and Schalwyk (1998a) refer to studies that suggest that women tend to be more engaged in post-harvest activities, particularly for smaller-scale fisheries. As a general pattern, men are believed to be the community members who fish offshore or in major inland water bodies, whereas women tend to fish or collect mollusks closer to shore. However, most fisheries researchers are men, most of their informants are males, and they often observe fishing activities only during the hours when men are working. In addition, in mixed ethnic communities, women from one ethnic group or a particular age group may fish offshore and swim, whereas other women in the village do not do these activities. (Woroniuk and Schalwyk 1998b). In many countries, it is mostly women who are engaged in inland fishing. In Africa, women fish in rivers and ponds. In parts of India, women net prawns from backwaters. In Laos, they fish in canals. In the Philippines, they fish from canoes in coastal lagoons (FAO 2001).

A woman in Lampung, Sumatra, Indonesia, collects shellfish from shallow waters, primarily for household use.

Typically, there is very little overlap between coastal managers and population organizations. Most of the efforts to date have been initiated by organizations working on population/reproductive issues. More documentation is needed of examples where ICM programs have coordinated efforts with local, national or international organizations, e.g., Tanzania (Amaral, pers. comm., 1997) and Indonesia (Dutton, pers. comm., 1998).

Promoting innovation through diversity of leadership: whose ideas?

Coastal managers typically seek out different science perspectives and consult with local stakeholders to find innovative solutions. However, the profession of coastal management could benefit from greater gender, social and disciplinary diversity within its ranks.

In identifying women's professional organizations as potential partners, it is important to understand who has power, who makes decisions, who leads and what institutional, educational and cultural barriers get in the way of community and professional women being involved in coastal decisionmaking. In many countries, professional women network for their own professional development and to expand their capacity for leadership, advocate gender-sensitive policies, carry out programs with community women, or mentor younger women and girls. Organizations, such as the Kenya Professional Association of Women in Agriculture and Environment, can help expand female professional perspectives and leadership in ICM (Oyieke, pers. comm., 2001).

In addition, ICM would benefit from expanded partnerships with those non-environmental government agencies and civil society organizations with overlapping interests. At the local level, leadership capacity building for women and non-elites may also help to bring

Box 2. ICM, gender and population links.

An integrated project that links ICM, gender and population might include the following:

- **partnerships, at the local and national levels, with gender and population civil society groups and government agencies;**
- **joint advisory committees with ICM, gender and population specialists;**
- **cooperation with population and gender partners on collection of baseline data, selection and monitoring of gender equity indicators, use of research methods and sharing secondary data sources;**
- **joint activities focused on how to incorporate baseline/monitoring data into local and national ICM planning;**
- **social marketing conducted to identify motivations for existing and potential coastal constituents and to provide support for civil society networking and advocacy for sustainable ICM;**
- **development of short-term incentives and pilot activities for both women and men to encourage them to adopt sustainable ICM practices;**
- **more accessible coastal decisionmaking processes or institutions at local and national levels and related capacity building for the previously disenfranchised, including women;**
- **joint communication and education activities using an "options approach" – alternative economic development, family planning, etc.; and**
- **adequate budget allocations for integrated activities.**

new ideas to ICM. These new partners have been occasional consultants or regular advisors to ICM projects. In most instances, both sides would benefit from an exchange of training. In Indonesia, a USAID-funded ICM project tapped gender specialists from the national and local universities, and a similar project in Tanzania worked with a network of national gender experts on policy-related issues.

Leveraging new sources of funding for ICM: who pays?

To date, funding levels for ICM programs are inadequate, and the situation is unlikely to improve in the next decade. Bilateral and multilateral environmental projects have often received cofunding from both environmental and gender divisions. Agency environmental strategies increasingly address both population and gender issues (e.g., the World Bank's [2001] environmental strategy). In addition, there is growing private foundation interest in both environment-gender and environment-population linkages.

As a result, coastal managers need to leverage other funds wherever possible and find synergies with other organizations that are supporting related work. It is up to coastal managers to educate gender and population donors about why funds should be directed to coastal areas and related ICM activities. To convince nontraditional ICM funders from gender and population sectors, ICM professionals may need to adjust their language and reshape their rationales. Proposals should not just focus on community-based household economic and food security concerns but should also explore the more systemic gender and population issues involved in coastal-related policies.

What are the Costs of Inaction?

A number of problems typically arise when certain groups of people are not consulted or included in decisionmaking. Unresolved conflicts can effectively stop projects and planning processes, resulting in lost time, money and opportunities. Excluded groups and individuals withdraw from project activities and their ideas and productive resources are no longer accessible to projects. These groups and individuals can and often do indirectly and directly sabotage management plans and projects by continuing unsustainable practices.

Similarly, when planners and policymakers make decisions based upon information and perspectives from only half of the population, additional problems are usually generated. Resource threats and the scope of poverty will be inadequately understood. Unsustainable practices will continue and unique biological resources will be lost for future generations. ICM solutions will not include all possible ideas and innovations. ICM plans and policies

are likely to have negative economic and social consequences for the women who were not consulted. Projects may have to pay more to have studies re-done at a later time and expensive project revisions may need to be undertaken. In addition, professional women will "vote with their feet" and contribute their ideas and talents to more receptive environmental sectors.

Action Agenda for Linking Gender and Population in ICM

Recommendations for National Governments

National governments can take several steps for ICM-related policies and programs:

- Identify opportunities to mainstream population and gender stakeholders into existing policy advisory panels. Environment ministries can tap these groups for a new gender mainstreaming advisory panel with an oversight function for all policies.
- Identify systematically all legislation that needs to be drafted or reformed to encourage broader partnerships with population and gender stakeholders for coastal decisionmaking and programs.
- Expand legal literacy for both women and men to ensure broad-based participation in policymaking.
- Build gender research capacity and routinely collect and monitor gender-related data for ICM programs at the local and national levels.
- Consider earmarking special funding sources to promote links among ICM, gender and population issues.
- Use quotas, capacity-building activities and educational reforms to ensure female leadership for coastal decisionmaking at national and local levels.
- Look for additional opportunities to support the greater involvement of professional women in national, regional and international scientific forums.

Recommendations for Civil Society

Civil society organizations working on ICM, gender and population issues may consider the following steps:

- Seek out new opportunities to collaborate on advocacy for compatible coastal concerns (e.g., food security, sustainable livelihoods, etc.) and lobby for greater budget allocations for these concerns.
- Encourage further efforts by universities and other research institutions to better document project experiences with ICM, gender and population linkages in order to improve both advocacy and field activities.
- Develop and disseminate methodologies that capture coastal gender and population dynamics at the field and international levels.
- Find new ways to move gender-specific insights up from the local to the policy levels.

Recommendations for Donors

Within donor organizations, several actions can be taken to promote ICM-gender-population linkages:

- Adapt funding mechanisms to better support cross-sectoral programming.
- Use grant conditionalities to require grantees to justify why ICM activities will only involve or benefit one sex and not the other.
- Use conditionalities on loans for economic development (e.g., tourism) to avoid or mitigate negative environmental, gender and population impacts.
- Use support for ICM capacity-building assistance to build constituencies and advocacy capacity for ICM among civil society partners,

including gender and population groups.

- Support dissemination of information and tools related to the implementation of the Beijing and Cairo agreements to coastal managers.
- Support the participation of the ICM community in preparations for follow-on meetings to Beijing and Cairo agreements.

Donor funds can be further leveraged and synergies built when ICM project activities are implemented with population and gender-focused programs, or joint activities are organized around common sustainable development themes, such as food security, poverty reduction, etc.

Conclusion

By having better understanding of ICM-gender-population linkages and partnering with gender and population organizations, coastal managers benefit in four ways:

- improved governance and planning;
- more sustainable resource use and management;
- greater capacity for ICM innovations; and
- new opportunities to leverage donor funds for ICM.

The costs of not making ICM, gender and population linkages are steep and action is needed now. Although the global community has recognized the importance of environment, gender and population linkages in the action agendas for Rio, Cairo and Beijing, there has not been enough collaborative or synergistic work among ICM, gender and population organizations. The time has come to explicitly spell out ICM, gender and population linkages, recognize promising experience to date and articulate a linkage action agenda for the next 10 years. The action agenda must address how new partnerships, shared analytical tools and training, and targeted cross-sectoral funding will be achieved. If ICM is to make its full contribution to equitable sustainable development, then coastal managers must team with others to find ways to better integrate gender equity and population concerns into their plans, programs and policies. ■

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Managing Natural Assets for Sustained Benefits: The Great Barrier Reef Experience

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Introduction

As a World Heritage Area, the Great Barrier Reef is recognized as a globally iconic ecosystem. The World Heritage nomination identified its outstanding natural values, cultural and historic importance and the fact that it is managed at the scale of a marine ecosystem to address objectives of conservation and sustainable use (GBRMPA, 1981). The Great Barrier Reef Marine Park Act (1975) was a pioneering example of umbrella legislation providing for the conservation and reasonable use of a marine ecosystem.

At the start of the planning process, the planning and managing agency - the Great Barrier Reef Marine Park Authority - was in a unique situation. It had responsibility for the management of an area largely in good condition, subject to relatively low levels of exploitation, compared with tropical marine areas overseas, and had strong national public support.

Aerial series of reef crests in the Great Barrier Reef.

During the past 25 years, the establishment and evolution of the marine park proceeded in parallel with the establishment of a major reef tourism industry and significant expansion in fishing capacity. There have also been increases in the range of fishery target species in overall economic development and agricultural and urban use of the adjacent coast.

Although the situation of the Great Barrier Reef and the nature of management issues differ in scale, intensity and jurisdictional basis to those faced by most marine environment and resource managers, they may offer some useful insights into the management of large marine ecosystems in other circumstances.

Establishing the Great Barrier Reef Marine Park

The Great Barrier Reef Marine Park Act (1975) provided for "the establishment, control, care and development of the Marine Park" through a process of progressive declaration and zoning of the Great Barrier Reef region as sections of the marine park.

The jurisdictional situation is complex. The regions defined in the act addresses all marine areas

from the low watermark outwards and a small number of islands that are under the jurisdiction of the commonwealth or federal government. Most islands, internal waters and intertidal areas around islands and along the mainland coast are under the jurisdiction of the state of Queensland. The World Heritage status of the Great Barrier Reef creates international obligations for the federal government of Australia to maintain the values for which the area was entered on the World Heritage List. These international obligations provide a constitutional power for the commonwealth to override aspects of state legislation that threaten those values.

Because of the complex jurisdictional situation, comprehensive management necessarily involves dialogue and cooperation between the federal and state governments. This is addressed legislatively and through practical measures that enable communication and coordination within the sometimes tense dynamics of a federal system of government. The Great Barrier Reef Marine Park Act provides for substantial involvement of the Queensland government through the appointment of a member to the Great Barrier Reef Marine Park Authority and of at least one-third of the members of the Great Barrier Reef Consultative Committee. Despite this, there was little progress in implementing the objectives of the act until a practical agreement had been reached between the Commonwealth Prime Minister and the Queensland Premier in 1979 that established the mechanics of coordination. Under this agreement, planning and policy are developed by the Authority under the Great Barrier Reef Marine Park Act and day-to-day management of the Great Barrier Reef marine park is conducted by Queensland state government agencies subject to the Authority.

By 1988, the marine park covered about 350,000 km^2 and stretched along more than 2,000 km of the coast of Queensland in northeastern Australia. More than 98 percent of the region was incorporated into zoned sections of the marine park. The remaining 2 percent was composed of inshore areas that were not proclaimed initially because they raised complex issues in relation to existing or potential ports and waters adjacent to major urban centers. These issues have now been addressed and the excluded areas were recently proclaimed as sections of the marine park.

All of the Great Barrier Reef marine park and the islands and intertidal areas within it are contained within the Great Barrier Reef World Heritage Area.

The authority has distilled the Great Barrier Reef Marine Park Act into a widely accepted goal for management: "to provide for the protection, wise use, understanding and enjoyment of the Great Barrier Reef in perpetuity through the development and care of the Great Barrier Reef Marine Park."

The Great Barrier Reef is managed as a large, zoned multiple-use area. The objectives and

Box 1. Framework for conservation and sustainable use of the Great Barrier Reef.

The objectives of zoning, set out in Section 32 (7) of the Great Barrier Reef Marine Park Act provide a clear framework for conservation and sustainable use:

1. the conservation of the Great Barrier Reef;
2. the regulation of the use of the marine park so as to protect the Great Barrier Reef while allowing the reasonable use of the Great Barrier Reef region;
3. the regulation of activities that exploit the resources of the Great Barrier Reef region so as to minimize the effect of those activities on the Great Barrier Reef;
4. the reservation of some areas of the Great Barrier Reef for its appreciation and enjoyment by the public; and
5. the preservation of some areas of the Great Barrier Reef in its natural state undisturbed by humans except for the purposes of scientific research.

The Great Barrier Reef is managed as a large, zoned multiple-use area. The objectives and purposes of use and entry for each zone are defined in a zoning plan...

purposes of use and entry for each zone are defined in a zoning plan and there is provision for permitting additional activities provided they are not inconsistent with the objectives of the zone in question and subject to any conditions that the authority may impose (Kenchington, 1990; Kelleher and Kenchington, 1992).

The zones of the marine park may be understood in the context of the protected area categories of the World Conservation Union (IUCN) (IUCN, 1994). The entire zoning system corresponds to IUCN category VI - managed resource protection area and the zones within the marine park correspond to other, more restrictive categories (see table 1).

Benefits of the Management System

Insurance for the Future: Managing for Sustainability

In marine environments managed under systems that were derived from Roman legal concepts, the underlying assumption is that the seas and their resources are limitless, undamageable and available to whoever has the courage and ingenuity to exploit them. The historic right and practice of users is to increase effort and impact despite reducing returns. The burden of proof for the introduction of constraints or a precautionary approach is on the government or managing agency to prove that an activity is unreasonable or unsustainable. Globally, declining fisheries and environmental condition are a consequence of this approach, with severe and growing social and economic consequences especially for many of the poorest coastal nations and communities of the world. Without strong support for implementation of a legislative approach, such as the Great Barrier Reef Marine Park Act, the establishment of an ecosystem scale approach to conservation and ecologically sustainable use is a forlorn pursuit.

The Great Barrier Reef management regime is based on the concept of demonstrable sustainability of uses and impacts individually, collectively and cumulatively. The national responsibilities to maintain the values of the Great Barrier Reef World Heritage Area further underpin the commitment to demonstrable sustainability. This effectively reverses the burden of proof for controlling or excluding

Table 1. Relationship between Great Barrier Reef marine park zones and the World Conservation Union (IUCN) protected area categories.

GBRMPA zone	IUCN category and title	Main protected area management objective
Preservation or scientific research zone	I - strict nature reserve	Science or wilderness protection
National park zone	II - national park	Ecosystem protection and recreation
No equivalent	III - natural monument	Conservation of specific natural features
Habitat protection and recreation park zone	IV - habitat/species management area	Conservation through managed intervention
General use zone	V - protected landscape/ seascape	Landscape/seascape conservation and recreation
Total zoned area	VI - managed resource protection area	Sustainable use of natural ecosystems

an activity. The responsibility to demonstrate sustainability now lies with those who conduct or manage activities that use or have impacts upon the area. Until users have adopted and implemented clear criteria of demonstrable sustainability, the Authority and other managers must adopt a substantial precautionary margin, and give very careful consideration to the demonstrable sustainability of proposals to increase the levels of uses and impacts. A management system which reduces the likelihood of catastrophic impacts on ecosystems and natural resources provides insurance for the longer term potential for sustainable benefits from healthy and productive ecosystems.

This may be compared with the more normal situation of uncoordinated, poorly coordinated, competitive or even malignantly competitive sectoral management. This does not control impacts on ecological systems or limits to sustainability of uses and impacts until the severe, adverse social economic and environmental consequences are undeniable. The management system is a practical form of insurance.

This fundamental change in approach has generated basic needs for scientific and management research to develop appropriate cost-effective performance criteria for sustainability and acceptable levels of impacts. It has broadened the scope of management and research from concentrating on single or target species to including the ecosystem effects of human use and impact.

There is much to be done through scientific research and the design of legislative governance, sustainable funding and performance management mechanisms to develop and refine sustainable management. But there is growing evidence that the social, economic and ecological risks of failing to do this. The benefits of a more secure and predictable system will be substantial.

Tourism

Since the establishment of the Great Barrier Reef marine park, tourism has become the largest economic activity in the reef region. One of the national obligations of having a World Heritage status is that the values of the area should be displayed to visitors. Few visitors can get to the Great Barrier Reef except as tourists so a quality tourism product provides the means to meet the obligation. The benefits should be mutual as marine park and World Heritage Area confer global recognition and quality insurance that a well managed tourism industry enables visitors to experience the Great Barrier Reef.

There are about 20 island resorts but most tourist visits to the area involve day-trips from the mainland to permanently moored reef site pontoons. Modern, high-speed vessels underpin the industry. Since 1980, increases of comfortable operational speed from 8 to more than 40 knots have multiplied the number of reefs potentially accessible for day-trip visits from less than 20 to more than 400. Further technological

Swimmers at a reef site pontoon.

Since the establishment of the Great Barrier Reef marine park, tourism has become the largest economic activity in the reef region.

improvements are likely to lead to, or provide pressure for, greater areas of access in the Great Barrier Reef.

Almost all of the development of the Great Barrier Reef tourism industry has occurred since the marine park was established and activities within it are subject to environmental impact assessment, permitting and monitoring. Research and compulsory monitoring have demonstrated that, with appropriate siting and mooring equipment, environmental impacts of permanently moored structures and the operations conducted from them are slight and are limited to areas a few meters from the point of mooring or anchorage.

Despite the obvious similarity and complementarity of management for conservation with most of the objectives of tourism, there are complex dynamics within the tourism industry and with other users and managing agencies. There are issues on the sustainable extent of activities, including those on resource allocation. These relate more to social and economic equity of access and the desired setting in terms of style and number of visits to reef sites than to scientific issues of ecological function. The closer the reefs are to coastal settlements the more challenging is the socio-economic dimension. This raises the issues of the rights of local people to continue to fish at accessible reefs; the desire of local people and some visitors to be able to visit reefs without substantial tourism infrastructure; the appropriate balance between high-capital, high-volume big business tourism and small-vessel, local capital, small-scale activities; and the economic and employment benefits of the different types of tourism use. These are common issues in design and management of environmental tourism. The advantage of the Great Barrier Reef system is that there is a broadly accepted framework based upon conservation and ecological sustainability within which these issues can be addressed. The Great Barrier Reef model was developed on the basis of substantial use of permits to design and define sustainable conditions. This can be effective but demanding of resources and time. A lesson learned has been of the benefits of defining conditions in regulations to the greatest extent practicable and to focus the need for permits on activities that justify the resource demands of a permit management system.

Overtaken by tourism, fisheries is still a substantial and politically influential element in the reef.

Fisheries

At the start of the Great Barrier Reef marine park planning process, fisheries were the largest economic activity and most direct form of impact upon the Great Barrier Reef ecosystem. The effect of the Great Barrier Reef Marine Park Act was that the unquestioned primacy of

the right of fishing access was removed and the need to manage sustainably was established.

The economic and employment significance of fisheries has been greatly overtaken by tourism but it is still a substantial and politically influential element. Like tourism, the technological developments of the past two decades have changed the geographic range of impacts. They have provided affordable navigational and fish-finding equipment that have removed the sanctuary values of remote and rough terrain enabling unskilled fishers to find and repeatedly exploit populations that were previously rarely, if ever, targetted.

The creation of areas protected from the impacts of human activity other than research approved by the Authority and of other areas for the appreciation and enjoyment of the public involved creating areas off limits to all fishing. The creation of areas in which trawling is specifically excluded introduced the concept of regulation of fisheries for purposes beyond the immediate objectives of the fishing industry.

Commercial fisheries include bottom-trawling over wide areas of the soft-bottom Great Barrier Reef lagoon, reef line fishing (multispecies fisheries, undergoing changes from an increased emphasis on the live fish trade), coastal netting and recreational charter vessel activities. The challenge for the marine park, as for virtually all marine areas of the world, is to develop and maintain a system of management that contains the fishing effort and impacts within levels which can be demonstrated to be sustainable. This must be considered in terms of both the stocks that are targetted and of the ecological systems that sustain or coexist with the target species. Active management with constraints to remove or reduce unintended or accidental impact on endangered species, such as dugong and turtles, is another source of conflict with commercial fisheries but increasing restrictions on coastal fisheries are being agreed upon.

The experience of more than 20 years of the Great Barrier Reef marine park is that the ecosystem scale approach to management can address the requirements of conservation and sustainable use.

Recreational fishing is a major pastime and often enters into conflict with commercial fishing where the same stocks are targetted by fishers. Turtle and dugong hunting is a restricted traditional fishing activity for indigenous Australians in some areas.

Water Quality, Coastal Land Use and Development

Port development and transit of predominantly commercial cargo and ore carriers operating between mines and processing sites have increased over the last two decades. There is an inevitable element of risk and the management problem is to devise and implement measures to reduce that risk to the lowest possible level. Following the International Maritime Organization's designation of the northern Great Barrier Reef as a particularly sensitive area, pilotage is compulsory in the northern inner reef route. An oil spill response plan incorporates wildlife rescue measures which are rehearsed regularly. Further potential for risk reduction lies in global measures to achieve better training of ships' crews and better maintenance of vessels.

Water quality and the effects of changes in adjacent land use (e.g., urbanization, agricultural development and activities, dams, wetland alienation and sediments) and consequent land-based sources of marine pollution are key issues of concern to reef managers. In general, the Great Barrier Reef World Heritage Area remains relatively pristine, with nutrient and associated pollutants and sediments localized near towns and cities and

mainly associated with ephemeral seasonally flowing rivers, their estuaries, coastal deltas and discharge plume paths (Wachenfeld, 1998). Here, potential pollution and eutrophication issues are coupled with the need for appraisal of socioeconomic dimensions. Point-source terrestrial discharges and sewage outputs, both terrestrial and associated with transit vessels, are under active management.

The relatively small population and localized population centers along with active regulation and management regimes (from integrated catchment management on land to controlled/permitted activities in Great Barrier Reef waters) combined with directed public awareness programs, have served to minimize the actual and potential impacts of people's activities.

Conservation

The experience of more than 20 years of the Great Barrier Reef marine park is that the ecosystem scale approach to management can address the requirements of conservation and sustainable use. The initial creation of such a regime requires a significant cultural shift in sectoral thinking and management. It also involves continuing and substantial social and political energy and ingenuity to resource a perpetual commitment. This can be difficult to maintain once the political novelty and kudos have worn off. The system created must be able to respond to the experience of management, to new information from research generally and particularly to information acquired through research targetted at management issues.

In the meantime, the adjustments to live within the ecological limitations can have substantial economic and social implications and need to be addressed systematically and carefully if they are not to become political minefields.

Conclusion

The Great Barrier Reef marine park has established a systematic framework for conservation and sustainability or for management to address the triple bottom lines of sustainable environmental, social and economic outcomes. This framework and the responsibilities for the Great Barrier Reef World Heritage Area impose a duty of conservation and maintenance of ecosystem processes. They also impose requirements to manage within the objectives of conservation and sustainability. Scientific research generally, and particularly information acquired through research targetted at management issues is vital in the management of the Great Barrier Reef. While the "precautionary principle" underpins the management approach, scientific research, innovation and information, tools and models, assessments and advice on marine systems processes, and uncertainties remain the major issues for managers. The challenge is to develop management systems and apply performance criteria to demonstrate and report that activities are sustainable environmentally, socially and economically. ■

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continued from page 9

Phase 3 will continue capacity building at national, provincial and community levels and establish an environmental and natural resources information system which includes associated monitoring and support to coastal communities.

A CZM website will be launched in July 2002. It will contain comprehensive information about the CZM system in Cambodia and include downloadable documentation produced by the project.

Inspection of cage for crab fattening at the pilot project in Pream Krasaop Wildlife Sanctuary, Koh Kong.

Members of the National Coastal Steering Committee visiting the pilot project in Thmei Village in Kep.

Harmonizing Economic Development and Environmental Management: the Xiamen Experience

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Background

Located in the southeastern part of the Fujian Province to the west of Taiwan Strait, Xiamen covers a land area of 1,565 km^2 and a sea area of 340 km^2 with a coastline of 234 km. It consists of the Xiamen Island proper, Gulangyu Islet and the north bank of inland Jiulongjiang River. The population of Xiamen is roughly 1.31 million in 2001, from 0.93 million in 1980.

Before the 1980s, large-scale reclamation of nearshore areas in Xiamen significantly altered its coastal environment. The industrialization level was relatively low and the economy heavily depended on primary resources, such as agriculture and fishing. The pollution input associated with land-based activities was relatively small and as a whole, the water quality was considered clean.

In the 1980s, the State Council of the People's Republic of China declared Xiamen as a special economic zone . Since then, industrialization and urbanization accelerated and population sharply increased. The uses of coastal and marine resources became more diversified and intense.

This resulted in severe space competition, resource-use conflicts and pollution. These consequences caused reduction and deterioration of natural habitats and living resources, siltation and erosion, shoreline retreat and the blocking of navigation channels.

The sea is the resource base for Xiamen's economy to survive, develop and expand. Socioeconomic development and the people's well-being are closely linked to the marine environment. Efforts to manage the coastal environment and its resources were implemented, but China's traditional coastal management system could not keep up with Xiamen's rapid economic development. Innovative approaches were then called upon to resolve the problems on resource-use conflicts and pollution. Hence, the introduction of integrated coastal management (ICM) in Xiamen.

The ICM Model of Xiamen

In 1995, a high-level coordinating and steering group for ICM was set up, with the Executive Deputy Mayor of Xiamen municipality as chair, and several other deputy mayors as vice-chairs. The members include the heads of the Economic Development Bureau, Environmental Protection Bureau and other concerned sectors. The function of the group is to plan, develop, construct and manage the coastal zone of Xiamen municipality, as well as to organize and coordinate various relevant sectors that administer and manage the sea as mandated by law.

The Marine Administrative Office under Xiamen municipality was set up in 1996. In 2002, the office was merged with the Fishing Bureau to establish the Marine and Fishing Bureau. The bureau is responsible for the routine activities of the Leading Group. It is the executive institution of the municipal government, which manages the overall coastal affairs.

The Marine Experts Group was set up under Xiamen municipality to ensure that ICM worked scientifically. This group is the Consultative Committee for ICM and it is mainly composed of experts on marine, law, economics and environment, who work together during regular sessions to provide advice, as well as scientific and technological services for decisionmaking.

ICM Law System

The ICM law system was developed based on actual coastal issues to complement national laws. Xiamen developed a set of appropriate measures for integrated management of resource use and environmental protection. These laws, designed to address coastal issues in Xiamen, include regulations for: environmental protection of sea area, use of sea area, mariculture in shallow sea and shoal, Yuandang Lake administration, and management rules for ports and nature reserves.

Scientific Marine Functional Zonation

Xiamen has diverse marine resources. The marine environment is very complicated. In order to develop marine resources soundly and resolve coastal use conflicts, the Xiamen marine functional zonation was constituted in 1997 and became the basis for undertaking ICM. It is integrated into the general urban plan as the basis for various management sectors in their planning and subsystem zonation.

Integrated Enforcement

After the establishment of the Xiamen Marine Administrative Office, the Marine Supervision Brigade was set up to strengthen enforcement. There are 12 sectors from central, provincial and local governments engaged in coastal management. However, they performed independently without integrated planning and coordination. This resulted in fragmented policymaking and sometimes, coastal use conflicts. Thus, the Marine Administrative Office established the Marine Integrated Enforcement Coordinating Group with nine members concerned with marine management.

This mechanism strengthened the relationship, cooperation and exchange among related agencies for environmental protection and marine development and management. Headed by the Leading Group for ICM, regular and ad hoc interagency meetings were held, and enforcement activities were coordinated.

Sustainable Financing

Sustainable and reliable financing mechanisms are the economic underpinning for Xiamen's integrated coastal and marine management. The financial mechanism for Xiamen ICM includes: (1) fiscal investment (the fund for environmental protection has increased in recent years, accounting for 0.8 percent of the GDP in 1994, 2.18 percent in 1997, and from 1997 to 2001, above 2.1 percent every year) and (2) multiple ways adopted to fund environmental protection, such as international loans, donations, foreign investment and domestic private capital, among others.

Public Participation

Public participation in environmental protection of Xiamen has greatly improved through the conduct of a widespread awareness drive among the general public, students and government officials. A network of professional monitoring, public surveillance systems and reporting on the marine environment was established and has effectively prevented marine pollution from damaging the marine resources, particularly the endangered species.

Box 1. Application of ICM in Xiamen.

ICM has been applied in Xiamen to address several environmental management issues, as follows:

1. marine pollution prevention and mitigation, including implementation of marine use licensing and user fee system, total discharge quantity control, management of ship-sourced pollution, management of solid waste dumping into the sea and integrated treatment of Yuandang Lake;
2. protection of marine habitats and endangered species, including the establishment of nature reserves for the lancelet (*Branchiostoma belcheri*), egret (*Egretta* spp.), Chinese white dolphin (*Sousa chinensis*) and mangrove;
3. preservation of scenic spots, including eastern coastal areas, sandy beaches and cultural sites, and the Maluan Bay (which integrated treatment will start in 2002), etc.

Socioeconomic Benefits of ICM Interventions

Environmental protection and ICM greatly contribute to the economic development of Xiamen. Xiamen received several recognitions as "National model city for environmental protection", "National sanitary city", "National garden city" and "Excellent national tourist city" for its efforts and achievements in environmental protection.

Xiamen's sound environment attracts large amounts of investment and promotes economic development. Following are assessments of the socioeconomic benefits of some ICM projects. (All the data on population, investment and the GDP of Xiamen used in the analysis were taken from Xiamen Statistics Bureau 2001).

Preservation of Endangered Species and Scenic Spots

There are 1,300 kinds of marine species in Xiamen. The lancelet, egret, Chinese white dolphin and mangroves are rare species. The egret is the symbol of Xiamen. The lancelet used to be an important fishing resource but has since then been listed in the category II of plants and animals needing government protection. The Chinese white dolphin, included in the list of the protected species (category I) was often found in the waters of the Outer Harbor and the estuary of Xiamen. Local people consider it as the "treasure of the port" because it can protect swimmers from shark attacks. These rare animals are very important for ecological balance and scientific research, but pollution, reclamation and unregulated use of marine resources have damaged their environment, causing their dramatic decline. The Xiamen municipal government established several nature reserves for lancelet (1992), egret (1995) and the Chinese white dolphin (1998) to protect these endangered animals.

Sandy beaches and marine parks are important tourism resources of Xiamen. However, their environmental quality is deteriorating due to pollution, reclamation and unregulated quarrying. Thus, the Xiamen municipal government initiated activities to protect the coastal scenic spots and sandy beaches.

Peng and Qian (1998) provide some results from their study of Xiamen resident's willingness to pay for projects that protect endangered species, preserve scenic spots and improve water quality every year. Taking the estimate of average willingness to pay and multiplying it by the population of Xiamen gives the total willingness to pay which is the benefit of the projects (table 1). The benefit of preserving endangered species was computed at RMB 1,391.875 million, and of preserving scenic spots, RMB 1,260.875 million.

Integrated Treatment of Yuandang Lake

Located at the center of Xiamen Island, Yuandang Lake used to be a 10.12 km^2 natural fishing harbor connected to the West Sea of Xiamen. During the early 1970s, a causeway was built up to the west of Yuandang Harbor to reclaim land from the sea. From then on, Yuandang Harbor was called Yuandang Lake because the harbor was changed into a lake separated from the sea. With the expansion of the city proper, more and more untreated wastewater entered Yuandang Lake. The pollution of the lake endangered the living environment around it.

In 1988, the project of integrated treatment of Yuandang Lake started

Table 1. Benefit analysis of the preservation of endangered species and scenic spots.

	Endangered species	Scenic spots
Willingness to pay average respondents / year (RMB)	85	77
Population (in 2000, million)	1.31	
Benefit/year (RMB, million)	111.35	100.87
Discount rate	8% average return rate	
Present value (2002) of benefit (RMB, million)	1,391.88	1,260.88

and lasted for about 10 years. The ecological environment of the lake area greatly improved. Egrets, seagulls and aquatic creatures returned to the lake. The living condition of residents improved. The Yuandang Lake area then became the financial, administrative, commercial and trade center of Xiamen municipal city. At the same time, the area around the lake was constructed as an open recreational and leisure place for the public.

The improved environmental quality of Yuandang Lake was one of the factors that attracted investments and promoted economic development. There were two groups of project benefits: (1) the incremental goods and services provided by the project, with the gross national product being used as indicator and (2) the benefits to the environment.

One of the main goals of the treatment project is to improve the surface water quality. The value of improved lake water quality was used to indicate the benefits to the environment. Based on a survey of enterprises around the lake, environmental quality played a decisive role in their investment decisions, which amounted to an estimated RMB 9,850 million in present value. The main environmental effectiveness of the treatment project was the improvement of the lake's water quality (see table 2). At present, the water quality of Yuandang Lake is fishable.

The benefits of the project were derived by multiplying the resident's willingness to pay with that of the total residents in Xiamen Island proper, the main beneficiaries from the water quality improvement (table 2).

The cost of the treatment project include that for engineering, operation and reclamation. According to the survey by Hao and Peng (1998) the cost was estimated at RMB 1,084 million (table 3).

Table 2. Benefits to the environmental quality.

Willingness to pay average (RMB)	49
Residents of Xiamen Island proper (million)	50
Benefits to environmental quality/year (RMB, million)	24.5
Discount rate	8%
Present value (2002) of benefits (RMB, million)	309.2

Table 3. Benefit-cost (2002, million) analysis of the Integrated Treatment Project.

Benefits to the project	9,850
Benefits to the environment	309.2
Costs	1,084
Net present value	9,075
Benefit-cost ratio	9.4

Conclusion

Establishing an effective ICM mechanism is the important foundation for the sustainable development of the coastal city of Xiamen. The ICM mechanism should at least include: (1) marine laws frame; (2) marine integrated management and coordinated system; (3) ICM scientific technical services system; and (4) integrated enforcement mechanism.

The benefits of ICM activities are prominent. For example, as shown in the above analysis, the benefits of the protection of endangered species, scenic spots and improvement of water quality reached RMB 236.72 million (111.35+100.87+24.50) per year.The policymaker must consider the direct economic benefits as well as the value of the environmental quality. This value is very significant in the benefit-cost analysis of ICM projects. ■

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NEWS

Milestones Made in Intergovernmental Meeting in Busan

BUSAN, REPUBLIC OF KOREA — Representatives from the governments of Cambodia, Indonesia, Japan, Malaysia, the People's Republic of China, the Philippines, the Republic of Korea, Singapore, Thailand and Vietnam attended the 8th PEMSEA Programme Steering Committee Meeting on 19-22 March to discuss the development of a regional environmental strategy, national marine policies and strategies, and a long-term, self-sustaining mechanism for regional collaboration in environmental management.

The meeting achieved three milestones in regional cooperation:

1. Establishment of an intergovernmental partnership of countries around the Seas of East Asia, with Japan joining as the twelfth participating country of PEMSEA;

2. Adoption in principle of the Sustainable Development Strategy for the Seas of East Asia, as a platform to galvanize cooperation and collaboration among countries of the region and other stakeholders at the local, national and regional levels, as well as a framework for countries to use in the development of counterpart national strategies and policies on ocean and coastal governance; and

3. Agreement to identify and develop sustainable financing options in support of the implementation of the Regional Strategy, stimulating private sector investment in environmental infrastructure and services through the public-private partnership process.

The Government of the Republic of Korea hosted the meeting, which was also attended by international observers from the private sector, nongovernmental organizations, the academe and donor/financial institutions.

Dr. Chua Thia-Eng, PEMSEA Regional Programme Director, observed that the diversity of participants attending the 8th PSC Meeting was a clear signal of the growing partnerships being achieved and strengthened through a shared vision and common goal for the Seas of East Asia. ■

East Asian International Waters Projects to Pursue Collaboration

BUSAN, REPUBLIC OF KOREA — Representatives from East Asian International Waters (IW) Projects met on 18 March to discuss prospects for interproject collaboration to better serve the East Asian region. Representatives from GEF-IW Projects (Globallast, South China Sea and PEMSEA), UNDP Manila, UNEP - East Asian Seas Coordinating Unit, the International Maritime Organization and the World Bank also attended the meeting.

The participants agreed that strengthening collaboration among IW Projects is an important first step to arrest the degradation of the environment, efficiently use limited available resources and provide greater collective impact than the sum total of projects operating in isolation. The meeting recommended the following approaches to strengthen interproject collaboration in the region:

- encouraging the development and implementation of a common regional strategic framework to facilitate the growth of complementary and collaborative approaches;
- sending the message to national policymakers for improved cross-sectoral and interagency coordination at national level; and
- sharing information and strengthening operational linkages in the concerned countries and project sites through some identified modes.

The GEF Conference of IW Projects, which will be held in September 2002 in Dalian, China, provides a good opportunity to work together. To this end, participants agreed to organize a plenary session on IW Projects in the East Asian region. The session, with the theme of "partnerships" and the approach of "collaboration", will concentrate on practical issues and lessons learned. All the IW Projects not present at the Busan meeting are also encouraged to participate in Dalian. ■

World Bank Collaborates on Environmental Strategy

MANILA, Philippines – Mr. Hans Olav Ibrekk, World Bank Senior Environmental Specialist, held consultations with PEMSEA and government stakeholders of the Philippines and Vietnam on the formulation of the Environmental Strategy for the Seas of East Asia (ESSEA). The World Bank indicated its interest to collaborate in the development of the ESSEA, seeing it as a possible strategic framework not only for the environment, but for sustainable development as a whole and the identification of opportunities in the East Asian Seas region.

In the Philippines, Mr. Ibrekk met with representatives of the departments of Environment, Agriculture (Fisheries), Tourism, Foreign Affairs and the National Economic and Development Authority.

In Vietnam, Mr. Ibrekk was accompanied by Dr. Huming Yu, a PEMSEA consultant. They attended a multisectoral consultation meeting in Hanoi regarding the ESSEA and had discussions with local government officials and other stakeholders in Danang concerning the integrated coastal management (ICM) project.

In both countries, Mr. Ibrekk discussed the utility of the ESSEA in facilitating the development of their respective national coastal and marine policies. The government stakeholders stressed the benefits of a functional regional framework to promote collaboration and cooperation among countries in responding to threats to their common seas.

The meetings also provided a clearer picture on the national cross-sector consultation process needed in developing counterpart national strategies. According to the representatives, consultations on the environmental strategy would facilitate similar processes in national coastal and marine policy development. Moreover, the representatives carried a message that the improved policy and regulatory environment, as cultivated by the ICM process, would facilitate the creation of sustainable financing options and investment opportunities. ■

Draft Sustainable Development Strategy for the Seas of East Asia to Undergo National Consultations

QUEZON CITY, PHILIPPINES – Participating countries of PEMSEA have renamed the "Environmental Strategy for the Seas of East Asia" to "Sustainable Development Strategy for the Seas of East Asia" at the 8th Project Steering Committee (PSC) Meeting of PEMSEA held in Busan, Republic of Korea, 19-22 March 2002. While endorsing the strategy in principle, the delegates confirmed that the new title was a better reflection of the objectives and scope of the document.

The PEMSEA participating governments also committed to further strengthen multisectoral stakeholder consultation on the strategy at the national level, and to provide the results to the Regional Programme Office by the end of the year. The PSC Meeting recommended that the strategy be finalized and presented for adoption at a Regional Policy Conference scheduled for July 2003.
The strategy is seen as an instrument that cuts across all sectors, not just the environment sector. It has evolved to provide a platform for:

- harmonizing relationships between the economy and the environment as related to the Seas of East Asia;
- forging operational linkages across national and regional programs addressing issues such as poverty alleviation, sustainable livelihood, reduction of vulnerability to natural hazards, economic growth and maintaining the health of human beings, ecosystems and the natural resource base; and
- promoting intersectoral, interagency, intergovernmental and interproject partnerships for overcoming constraints to sustainable development of the region.

The PEMSEA participating countries and partners recognized the potential role of the strategy in high-level policymaking and as an instrument in moving country agendas forward. The strategy was also viewed as a very timely contribution in the context of the upcoming World Summit on Sustainable Development to be held in South Africa.

A copy of the SDSSEA will be made available at the PEMSEA website in the near future for easy access and where comments and suggestions will be welcome. ■

PEMSEA

NEWS

PEMSEA Partners Gather in Busan

The Eighth Programme Steering Committee (PSC) meeting of PEMSEA will be held on 19-22 March 2002 in Busan, the largest port city located in the south coast of the Republic of Korea. Government delegates from 12 participating countries as well as regional and international partners will discuss the regional environmental strategy, development of national marine policy and strategies, and a long-term, self-sustaining mechanism for regional collaboration in environmental management.

The meeting will be highlighted by the first official participation of the Japanese Government, which will strengthen the circle of regional partnership. In addition, the spirit of collaboration will grow with the largest number of PEMSEA partners to attend a PSC meeting, including the World Bank, Nippon Foundation, East Asia Response Ltd., Intertanko, the Australian Network on Maritime Education and Training, United Nations organizations, regional agencies and GEF IW project managers.

The PSC meeting serves as a vehicle to review in-country progress on ICM national demonstration/parallel sites as well as subregional sea areas and pollution hot spot sites. The representatives from the countries will also discuss lessons learned and impacts from PEMSEA activities, including collaborative regional training programs and on-site training activities.

PEMSEA

BULLETIN BOARD

"Improving the State of the Coastal Areas" Asia-Pacific Conference

The "Improving the State of the Coastal Areas" Asia-Pacific Conference will be held in Bangkok, Thailand, on 12-16 May 2002. The conference aims to bring researchers, practitioners, educators, communities, industries, government, non-government organizations and funding agencies to develop national and regional strategies, research and education programs and information sharing networks for ICM.

For more information, visit the conference website at www.vims.edu/czap or contact Dr. Ratana Chuenpagdee at ratana@vims.edu

Coastal Ecosystems Conference

The Managing Shared Waters: Towards Sustainable Transboundary Coastal Ecosystems Conference (CZC 2002) will be held in Hamilton, Ontario, Canada, on 24-28 June 2002. Organized by the Pollution Probe and the Coastal Zone Canada Association, the conference brings together policymakers, scientists, business leaders, nongovernment organizations, youth and other stakeholders to review the international management of transboundary waters and provide a forum for the sharing of expertise in the fields of marine and freshwater management.

For more information, visit the CZC 2002 website at: http://www.pollutionprobe.org/managing.shared.waters/index.htm

PACON 2002 Congress

The Tenth Biennial Pacific Congress on Marine Science and Technology: PACON 2002 The Ocean Century will be held in Chiba, Japan, on 21-26 July 2002. The biennial congress brings together scholars and resource persons to address key issues concerning marine technology related to the ocean's economic potential from a multidisciplinary perspective.

2002 Events Calendar

18 March
Global Environment Facility: International Waters Project Managers Meeting (Busan)

19-22 March
8th PEMSEA Programme Steering Committee Meeting (Busan)

21-23 September
2nd PEMSEA Regional Network of Local Governments Forum (Xiamen)

22-25 September
ICM Study Tour 2002 (Xiamen)

25-28 September
Global Environment Facility: International Waters Conference (Dalian)

The congress invites papers for presentation. Individuals interested in submitting an abstract may contact the PACON Secretariat for the abstract format. For more information, visit http://www.hawaii.edu/pacon

Coasts to Coast 2002 Conference

The Coast to Coast 2002 Conference will be held in Tweed Heads, Australia, on 4-8 November 2002. The conference focuses on the "source to sea" thinking and actions required to achieve long-term sustainability of coastal zones. The event aims to produce of a range of integrated, credible and effective actions for coastal areas, synthesize participants knowledge, and seek convergence on actions required for coastal sustainability.

For more information, visit the conference website at www.coastal.crc.org.au/coast2coast2002/.

Sharing Lessons Learned in Sustainable Coastal Development

20-25 September 2002, Xiamen, P.R. China

Second Forum of the Regional Network of Local Governments Implementing Integrated Coastal Management

20-21 September

The Regional Network of Local Governments (RNLG) implementing integrated coastal management (ICM) was formally established by participating local government units (LGUs) in PEMSEA ICM demonstration/ parallel sites to facilitate the sharing of information, experiences and lessons learned among the participating governments in the implementation of ICM programs. The network also promotes inter-site cooperation and mutual assistance.

The network will also be open to other LGUs implementing ICM programs within or outside PEMSEA's regional boundary.

Seminar on Leadership in Ocean and Coastal Governance

22 September

This seminar is being organized to brainstorm on how sustainable use of the coast and oceans could be best achieved.

Renowned leaders and scholars in ocean and coastal governance are invited to share their experiences and expertise. Other speakers include high-level political leaders from countries in the region, chief executive officers from the private sector as well as leading regional experts.

A one-day field visit in Xiamen will be organized for participants to experience the impacts of policy and management interventions Xiamen City has been able to demonstrate.

ICM Study Tour

23 September

The purpose of the study tour is to provide the participants the opportunity to witness the impacts of the ICM program being implemented in Xiamen.

Participants will visit several places that represent the efforts of the Xiamen Municipal Government with regard to marine pollution prevention, sustainable coastal tourism development, coastal landscaping and prevention of coastal erosion.

They will also have opportunities to interact with local stakeholders and experts to discuss the city's experiences in interagency coordination, institutional reform, sea space zonation, integrated enforcement, scientific inputs and ICM capacity building.

Environmental Investment Round Table

24-25 September

The Investors Round Table is a gathering of industry, business people, policymakers, consultants, financial institutions and donor agencies. Representatives from local governments will introduce high quality environmental investment opportunities and government commitments to risk reduction measures with the objective of establishing long-term partnership arrangements with the private sector.

The Round Table involves an intensive two-day program consisting of themed sessions and workshop forums focusing on the Public-Private Partnership process and the emerging market opportunities. Project proposals will focus on environmental technology, facilities and services required in seven PEMSEA-supported project sites.

This event promises to be an interactive platform for building more effective environmental management systems and sustainable delivery of public goods and services in the East Asian Seas Region.

ICM/Pollution Hot Spot Sites Exhibit

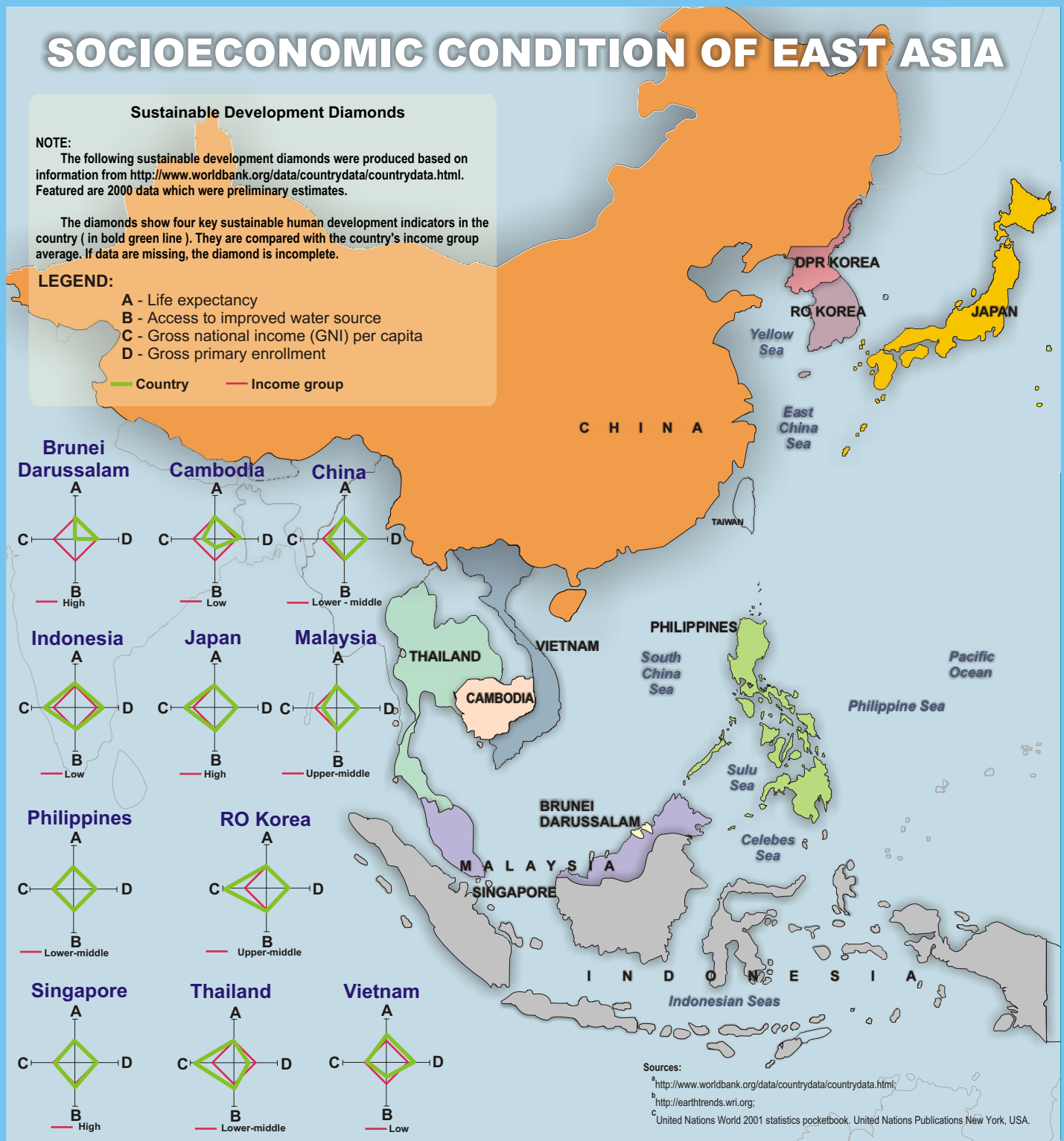
20-25 September

An exhibit will be launched showcasing PEMSEA experiences in environmental management through its ICM and pollution hot spot demonstration sites in the East Asian region.

All these events are being organized by
GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)
and hosted by
Xiamen Municipal Government, P.R. China

For more information, e-mail PEMSEA at info@pemsea.org and visit www.pemsea.org

SOCIOECONOMIC CONDITION OF EAST ASIA



CATEGORIES[a, b, c]	BRUNEI	CAMBODIA	CHINA	DPR KOREA	INDONESIA	JAPAN	MALAYSIA	PHILIPPINES	RO KOREA	SINGAPORE	THAILAND	VIETNAM
Coastal length (km)	269.4	1,127	30,017	4,009	95,181	29,020	9,323	33,900	12,478	268	7,066	11,409
Claimed exclusive economic zone (000 km^2)	5.6	x	x	72.8	2,915	3,648.4	198.2	293.8	202.6	x	176.5	237.8
Coastal population (%, within 100 km)	99.9	23.8	24	92.9	95.9	96.3	98.0	100	100	100	38.7	82.8
Population, mid-year 2000 (millions)	0.33	12.0	1,262.5	24	210.4	126.8	23.3	75.6	47.3	4.0	60.7	78.5
Average annual population growth, 1994-2000 (%)	2.2	2.5	1.0	0.9	1.5	0.2	2.4	2.1	1.0	2.7	0.7	1.5
GNI per capita (Atlas method, US$)	x	260	840	x	570	34,210	3,370	1,040	8,910	24,740	2,010	390
GNI (Atlas method, US$ billions)	x	3.1	1,061.2	x	119.9	4,336.8	78.5	78.8	421.1	99.4	121.8	30.4
Gross domestic product (US$ billions)	4.3	3.2	1,076.9	10.2	153.3	4,677.1	89.7	74.7	457.2	92.3	121.9	31.3
Most recent estimate (latest year available, 1994-2000)												
Poverty (% of population below national poverty line)	x	36	5	x	24	x	8	37	x	x	16	37
Life expectancy at birth (years)	76	54	70	75	66	81	72	69	73	78	69	69
Child malnutrition (% of children under 5)	x	47	9	x	70	x	20	x	x	x	x	37
Access to an improved water source (% of population)	x	30	75	x	76	96	89	87	92	100	89	56
Illiteracy (% of population aged 15+)	9	60	16	x	10	x	13	5	2	8	5	7