Partnerships for the Environment

Ca

Vol. 8 No. 2

ISSN 0117- 9756

 Local and National Governments

oasts

December 2001

- Private Sector
- Civil Society Groups

Local Communities

Approaches to Partnerships in Environmental Management

Michael D. Pido



Partnership has become a byword in environmental management in recent years. There is rarely any project initiative, big or small, that does not advocate for some sort of partnership arrangements. What is often overlooked, however, is that partnership is not simply a matter of pooling together the concerned individual or institutional partners. While it involves certain tried-and-tested procedures, it also requires a complicated aspect of building human and corporate relationships.

This issue of Tropical Coasts looks at seven partnership arrangements in environmental management. The partnership varies in scope in terms of the kinds and number of organizations or sectors involved; the area and population to be affected; and the objectives to be achieved.

Alcala and Russ's paper, "Local partnership for coastal and marine resource management: the case of Selinog Island" describes a tripartite partnership in a small island in the Philippines. The local community formulated development plans on the marine reserve and its resources. The academic organization enhanced the knowledge base. The local government units provided the political structure for the setting up and implementation of the marine reserve; institutionalized people's organizations; and promoted livelihood programs. This partnership promotes greater organizational sustainability, as compared with a purely government-led initiative.

"Kontra Kalat sa Dagat: a catalyst for forging partnerships in integrated coastal management in Bataan" by Erni and Victorino discusses a coastal cleanup undertaken in Bataan, Philippines, which has been largely initiated by the private sector. This partnership has been sustained through cooperation of various sectors - government agencies, nongovernment organizations (NGOs) and religious groups, among others. All partners shared in the logistics and labor of the coastal cleanup. This has become a regular undertaking since 1999 and

complements the long-term efforts of the province's integrated coastal management program.

Public-private partnership is an innovative mechanism that is being tested in developing countries to deliver certain services, such as waste management. For example, the provision of a solid waste management infrastructure is no easy feat. This is especially true for the Batangas Bay region which involves three cities, 31 municipalities and a provincial government. The pooling of the local governments' resources to ensure the feasibility of such an undertaking and identifying an appropriate private sector for a partner has proved tedious. The paper "Integrated waste management in the Batangas Bay region: lessons in building public-private partnerships" examines two views - the public

(Estigoy and Perez) and the private (Shaw). While each sector looks at different perspectives of the partnership - the private sector on economic viability and the public sector on social acceptability and environmental soundness - both learn that mutual trust and common objectives are essential to maintain the partnership.

The "Partnerships for Shihwa environmental management: roles of local governments, civil society and scientific communities" by Je depicts a unique case of partnership in environmental management in the Republic of Korea which was formed without any guidance from an experienced organizer or outside initiator. The local partnership was forged in response to the pollution and waste management problems that cropped up when a long stretch of tidal flat was transformed into an artificial lake. Concerned citizens initiated the formation of a coalition that now works in close partnership with the local and national governments. Hence, the partnership has evolved from a loose coalition into a more formal setup.

continued on page 57

Tropical Coasts

Chua Thia-Eng **Executive Editor**

Volume 8 No.2

Olof Linden Edgardo D. Gomez Editors

Michael D. Pido **Issue Editor**

Jude William Genilo Marie Sol S. Colocado **Managing Editors**

Leo Rex Cayaban Abiaail Mercado-Malto **Editorial Assistants**

Jonel P. Dulay **Emmanuel Isla** Design/Illustration/DTP

Dan Bonga Research

Angel C. Alcala **Garry R. Russ** Marilou G. Erni **Ronald Allan G. Victorino Evelyn L. Estigoy** Ambrocio Kerwin A. Perez **Mark Shaw** Jong Geel Je **Donald O. Hodgins** Minerva R. Alfonso Contributors

on the cover

Partnerships for the environment

Fishers, government and private sector professionals, and students, among others, unite for a good cause — rehabilitating mangrove areas in Bataan, Philippines.

The Global Environment Facility/ United Nations Development Programme/International Maritime **Organization Regional Programme** on Partnerships in Environmental Management for the Seas of East Asia (GEF/UNDP/IMO PEMSEA), Sida Marine Science Programme, and the Coastal Management Center (CMC) publish Tropical Coasts biannually. This publication is geared towards stimulating an exchange of information and sharing of experiences and ideas with respect to environmental protection and the management of coastal and marine areas. Readers are strongly encouraged to send their contributions to:

December 2001

Executive Editor P.O. Box 2502 Quezon City 1165 Metro Manila, Philippines

The contents of this publication do not necessarily reflect the views or policies of the Global Envi-ronment Facility (GEF), the United Nations Devel-opment Programme (UNDP), the International Maritime Organization (IMO), the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), Sida Marine Science Program, Coastal Management Center (CMC), other participating organizations, or the editors, nor are they an official record. The <u>designation</u> employed and the presentation do not imply the expression of opinion whatsoever on the part of GEF, UNDP, IMO, PEMSEA, Sida Marine Science Program or CMC concerning the legal status of any country, territory or city or its authority, or concerning the delimitation of its territory or houndaries

ISSN 0117-9756

















d e p a r t m e nt s

- Editorial
- Capacity Building
- PEMSEA News



special feature

Manila Bay: 32 Making Partnerships Work

Philippine President Gloria Macapagal-Arroyo formally receives the Manila Bay Declaration and the Manila Bay Coastal Strategy from Department of Environment and Natural Resources Secretary Heherson Alvarez (left) and United Nations Development Programme Resident Representative Terence Jones in a ceremony held in Malacañan on 26 October 2001.



10

Kontra Kalat sa Dagat: A Catalyst for Forging Partnerships in **Integrated Coastal Management**

Marilou G. Emi and Ronald Allan G. Victorino

Local Partnership for Coastal

The Case of Selinoa Island Angel C. Alcala and Garry R. Russ

and Marine Resource Management:

16 **Integrated Waste Management** in the Batangas Bay Region: **Lessons in Building Public-Private Partnerships**

Evelyn L. Estigoy and Ambrocio Kerwin A. Perez; Mark Shaw

30 **Partnerships for Shihwa Environmental Management: Roles of Local Governments, Civil** Society and Scientific Communities

Jona Geel Je



Water Quality Modelling in East Asia: A Partnership **Between PEMSEA and Seaconsult**

Towards Safer Navigation

Partnership Perspectives

and Cleaner Seas: Intertanko's

Donald O. Hodgins

Minerva R. Alfonso

2

57

60

50

Angel C. Alcala Research Professor and Director Silliman University Research and Development Center Dumaguete City, Philippines

and

Garry R. Russ Associate Professor Department of Marine Biology James Cook University of North Queensland Townsville, Queensland, Australia

Introduction

Projects on coastal and marine resource protection and management may be implemented at the international, regional and local levels. Each of these modes of implementation has strengths and advantages, depending upon the complexity and the nature of the problems being addressed. Thus, transboundary issues involving a number of nations and stakeholders lend to the application of international and regional approaches. But issues such as management of fishery and biodiversity resources are often simpler, are of local concern, involve fewer stakeholders and are therefore adequately addressed by local partnerships. The present case study is an example of a successful tripartite partnership among people's organizations in a local community (village or barangay), local government units and a nongovernment academic research organization created for the purpose of establishing a community program of coastal and marine protection and management (figure 1).

Local Partnership for Coastal and Marine Resource Management: The Case of Selinog Island¹¹¹



Figure 1. Diagram illustrating the partnership model of community-based coastal resource management used at Selinog Island, Mindanao (Bohol) Sea.

[1] This paper is mainly based on Chapter 6 of the book of the first author, Marine Reserves in the Philippines: Historical Development, Effects and Influence on Marine Conservation Policy, Bookmark, Makati City, 2001. The authors would like to acknowledge the Pew Fellowship in Marine Conservation for supporting their work at Selinog Island.

Geographic and Community Profile of Selinog Island

The island of Selinog (figure 2) is a flat coralline island in the Mindanao (Bohol) Sea with a land area of 78 ha. It is surrounded by 70 ha of coral reefs and sandy areas. The island is about 22 kilometers from Dapitan City, Zamboanga del Norte, and is accessible by motorized outrigger canoes or bancas. Some 832 people live on the island, the majority of them are small-scale fishers who depend on reef and offreef fishes for their livelihood. There is no freshwater source on the island. People depend on rainwater during the wet season and on spring water from the mainland during dry season.

The island community is a village or barangay belonging politically to Dapitan City. It has a barangay hall, health clinic and elementary school. Its political head is the barangay captain aided by eight councilpersons, all popularly elected. At the time work began in September 1999, only two inactive people's organizations (one religious organization and one consumer's cooperative) existed. There are now three sectoral people's organizations, all active in coastal resource management and income-generating activities.

Roles of the Three Partners in the Coastal Management Program

Local Community

The main problems on the island are poverty and diminishing marine resources. Both have to be addressed simultaneously, as they are interlinked and a solution to one problem would influence the other. For example, protecting the coral reef and fishery resources would in The main problems on the island are poverty and diminishing marine resources. Both have to be addressed simultaneously, as they are interlinked and a solution to one problem would influence the other.

time increase fish yield and bring in more food and income to the community. Such improvement in living conditions would, in turn, reduce the pressure on the coastal resources. Protected and well-managed coral reef resources would also attract tourists, thus providing additional income.

Nothear

Unfaiter



The aim of the program was to organize, empower and build the capacity of the local community to protect and manage its marine resources. To attain this goal, community members were motivated to attend meetings initially conducted by the resident community organizers but later conducted by their own leaders. In these meetings, they raised awareness on their problems, analyzed the causes and proposed practical solutions. As a result, they gained a more comprehensive understanding about the degrading status of marine resources and how it affects fishery production. This led to increased commitment on marine conservation. Three sectoral groups — fishers, women and youth — were organized as people's organizations. These organizations formulated their development plans, which included the establishment of a marine reserve, the management of their marine resources and the initiation of livelihood and income-generating activities. All these were achieved after a year of community work with local people's organizations and local government units.

Local Government Units

The councils of both the local governments of Barangay Selinog and Dapitan City approved the resolutions setting up the marine reserve. An ordinance serving as the legal basis for the reserve under the Local Government Code was about to be passed by the Dapitan City Council when the President of the Philippines proclaimed Selinog Island as a protected seascape and landscape under the National Integrated Protected Areas System (NIPAS) in mid-2000. NIPAS is a national law that serves as the national legal framework for management. Selinog Marine Reserve thus came under the NIPAS instead of the local system. Under this law, a Protected Area Management Board, which will have representatives from people's organizations as members, will manage the reserve.

The other contributions of the local governments were the institutionalization of people's organizations, promotion of livelihood programs, and assistance in the implementation of marine sanctuary rules and regulations.

Academic or Nongovernment Organization

This was represented by the Silliman University-Angelo King Center for Research and Environmental Management (SUAKCREM). This center served as the initiator and catalyst for the project. In this role, it provided expert advice on marine science, coastal resource management. capability building, livelihood opportunities, funding sources, community organizing and networking arrangements. After the performance of this role, it will gradually withdraw from the scene. For the Selinog case, marine biologists monitored the marine reserve and provided the scientific evidence for marine reserves as tools for fisheries management and biodiversity conservation. They

worked closely with sociologists and social workers, both of whom concentrated on community organizing, formation of people's organizations, training for community leadership, ensuring community participation in conservation and development activities, effecting change in attitudes and behavior toward marine conservation and networking with national government agencies. Two community organizers took up residence in the community for three weeks each month for the whole duration of community organizing. These activities empowered the community and the local government at Selinog in managing and protecting their marine resources.

Recent Activities of the Selinog Island Community

At present, the marine reserve, which is managed and protected by the community, is improving rapidly in terms of live coral cover and fish abundance. It is attracting divers who give monetary donations to the community for their use of the reef areas. The men are active in salt making (after learning a simple technology), which provides extra income and a means to preserve unsold fish. They plan to expand this activity. After training, the women produce bags, baskets and mats from local materials, which are sold outside the island. The major concern at this time is the sustainability of the conservation and development program of the community.

Usefulness of the Local Tripartite Partnership

The usefulness of the partnership arrangement can be compared with some examples of past coastal resource management projects. In the late 1970s, a government program attempted to protect and manage coral reefs in the Central Visayas. It did not succeed due to the centralized approach, where a national government agency determined and tried to implement the policies and regulations for coastal resource protection, expecting local governments and communities to follow suit.

In the 1980s, another resource management project improved on the earlier one by making use of community organizers to assist the technical staff. This project had some successes, being able to guard a few protected areas.

The third government project on coastal resource protection and management was set up by the Department of Environment and Natural Resources in 1993 during the first author's term as Secretary. This project resulted in a couple of success stories, which had one thing in common—community participation. Nongovernment organizations have been active in marine and coastal resources management since the 1980s. The successful projects have, almost without exception, substantial community involvement.



Livelihood activities among community members: construction of salt bed (A) and handicraft (B).



Communication among partners: **Barangay officials meeting** with a representative from the government's **Department of Environment** and Natural Resources regarding the National **Integrated Protected Areas** System Law (A). Meeting of women with community organizers (B).



Overall, it appears that successful projects on the protection and management of marine and coastal resources (mostly fisheries) involve the full participation of local communities and local governments. In practically all of these successful projects, social and natural scientists had substantial involvement.



Figure 3. Increase of fish biomass with years of protection at Sumilon and Apo marine reserves (Russ and Alcala, 1996).

Overall, it appears that successful projects on the protection and management of marine and coastal resources (mostly fisheries) involve the full participation of local communities and local governments. In practically all of these successful projects, social and natural scientists had substantial involvement. An estimated 500 small protected areas exist in the Philippines today, and one thing that can be predicted is that those with active community and local government participation will be the most successful. Two marine reserves, which have been monitored for many years, show continuous increase in fish biomass (Russ and Alcala, 1996) (figure 3), which appears to have exported adult fishes to fished areas adjacent to the reserves.

Networking with Other Reserves for Management

A necessary element of partnership at the local level is networking for management purposes. Each protected area is not sufficient by itself. It must link with other similar protected areas to ensure more efficient coordination of activities. A uniform set of rules and regulations may be enforced in all marine reserves in an area for maximum effectiveness. For example, all managers of marine reserves should agree that all forms of destructive fishing methods must not be allowed in fished areas near reserves and that these fished areas are off-limits to nonresidents. Community residents maintaining marine reserves have, in effect, exercised exclusive sea rights to the fishery resources in their waters. At Selinog, the fishing area is not open to fishers from other communities. This arrangement is expected to promote the setting up of more marine reserves by local communities without reserves in the general area of the Mindanao (Bohol) Sea (figure 4).

Management for Sustainability

An advantage of community level management is its intergenerational feature. It makes sense in the light of findings that it takes a few decades of protection to realize the full benefits from marine reserves. The organized community, with three or four human generations living at any one time, provides an ideal social structure to help ensure continuity of management and protection; hence, a high probability of sustainable management effort. This is in contrast to purely local government management, which is characterized by frequent changes in personnel. Therefore, there is lack of continuity due to elections that happen every three years. Probably, the best mode of community management is that where local communities and local government units are active partners in the protection and management of their marine resources.

Reference

Russ, G. R. and A.C. Alcala, 1996. Marine reserves: Rates and patterns of recovery and decline of large predatory fish. Ecol. Appl. 6(3): 947-961.



Figure 4. Map showing actual and potential marine reserve sites in the Mindanao (Bohol) Sea, Central Philippines.

Marilou G. Erni President Bataan Coastal Care Foundation, Inc. Bataan, Philippines

> Ronald Allan G. Victorino Project Officer Petron Foundation Makati City, Philippines

Introduction

On 23 February 2001, representatives of the Bataan provincial government and Petron Foundation jointly walked onstage to receive the Anvil Award of Merit for the community-based public relations campaign "Kontra Kalat sa Dagat" or "Movement against Sea Littering." The Public Relations Society of the Philippines annually presents the awards to give recognition to the best public relations programs, projects and activities in the Philippines. Community-based programs are given special recognition for their unique and significant contribution to countryside development, particularly on the lives of marginalized Filipinos.

For a province in the early stages of implementing an Integrated Coastal Management (ICM) Project, the award clearly indicated that the coastal cleanup initiative successfully catalyzed partnerships in environmental management in Bataan. This article describes the origins, difficulties, achievements and challenges of the campaign.

Kontra Kalat sa Dagat: A Catalyst for Forging Partnerships in Integrated Coastal Management in Bataan



The Beginnings: Taking Off from International Coastal Cleanup Day

Kontra Kalat sa Dagat was initiated with the purpose of keeping Bataan's coastline free of rubbish and other pollutants. It started on 18 September 1999 when Filipinos from all ages and walks of life trooped to the coasts for the 13th International Coastal Cleanup (ICC). Since 1986, the Washington-based Center for Marine Conservation (CMC) coordinates the ICC. The objectives of ICC are to:

- remove debris from the shorelines, waterways and beaches of the world's lakes, rivers and the ocean;
- collect valuable information on the amount and types of debris;
- educate people on the issue of marine debris; and
- use the information collected from the cleanup to effect positive change on all levels-

from individual to international- to reduce marine debris and enhance marine conservation.

The ICC was launched to address the implementation of the International Convention for the Prevention of Pollution from Ships (MARPOL). One part, called Annex V, relates to prevention of pollution by garbage. Countries that ratified this part of MARPOL agreed to institute restrictions on disposal of garbage from ships in their waters. Aside from garbage collection, the CMC asks volunteers to collect data on types, numbers and location of debris. With this information, sources and distribution of the pollution may be assessed. This local action has wide-ranging impacts. Information gained from the activity shall be used in educational programs and encourage actions including legislation to address marine pollution.

Based on the CMC statistics, volunteers from 55 US states/ territories and more than 100 countries participate in the cleanup each year. Together, millions of tons of debris are collected, consisting of cigarette butts, plastics, paper, lids, glass, metal and others. The ICC is conducted every third Saturday of September.

In the Philippines, around 300,000 people participated in the 1999 ICC, covering some 1,600 km of coastline. More than 664 t of assorted trash was collected in that year alone. Besides picking garbage, volunteers contributed to an environmental study aimed at developing solutions to Several kilometers of seashore have been cleared of debris and garbage under the Kontra Kalat sa Dagat. The activity, participated in by some 8,000 volunteers, was the first major step in developing and implementing a sustainable coastal area management program for the province.



The province of Bataan is endowed with beautiful beaches, making it an ideal site for tourism.

problems brought about by marine debris including coral reef degradation, high wildlife casualties and threats to navigation. Using a standard data card, volunteers record the type of trash they collect. The information is then sent to CMC, where the data are analyzed and the results are distributed worldwide.

Bataan is one of the provinces that supports and participates in the annual ICC. Several kilometers of seashore have been cleared of debris and garbage under the Kontra Kalat sa Dagat. The activity, participated in by some 8,000 volunteers, was the first major step in developing and implementing a sustainable coastal area management program for the province.

Bataan's Robust Economy and Environmental Problems

Bataan is a strategic peninsular province jutting out of the mouth of Manila Bay – the gateway to the Philippines' political, social and economic center. It is composed of 12 municipalities, covering a land area of



Ferry services are available between Manila and the town of Orion in Bataan.

137,296 ha. Nine of its municipalities lie along the northwestern portion of Manila Bay while two are situated in the South China Sea. The province has a total coastline of 177 km.

Bataan lies in the industrial heartland of Central Luzon and has all the right elements to be in the frontier of socioeconomic growth in the 21st century. It is located in the middle of one of the country's growth triads – Metro Manila, Subic Bay and Clark Special Economic Zone. It is host to big corporations, such as the Petron Bataan Refinery, Philippine National Oil Company, Petrochemical Development Corporation, Bataan Polyethylene Corporation and various companies in the Philippine Economic Zone Authority Complex. It also boasts of robust commercial, industrial, fishery and agriculture sectors. Beach resorts along with a natural park provide an ideal setting for investment in tourism. The province is also gearing to be a prime business hub in Central Luzon, niching itself as a transshipment point. It has two major ports - Mariveles and Limay. Ferry services are available between Metro Manila and the towns of Orion and Mariveles.

However, alongside Bataan's progress is the deterioration of the coastal environment. Destruction in upland ecosystems resulted in sedimentation and siltation. Coastal habitat degradation has also become a pressing concern. For example, only 120 ha of mangroves remain in the province from 328 ha in 1990. There are only patches left of the previously extensive areas of coral reefs and seagrass beds. Destructive fishing methods and unlicensed fishponds proliferate. The occurrence of red tide has caused a number of human deaths and reduced incomes to fishers.

Aside from escalating multiple resource use conflicts in coastal communities, other major environmental concerns

include unregulated human settlement, perennial flooding, coastal erosion and siltation of navigational channels.

Environmental Care in Action

Since the first Kontra Kalat sa Dagat on 18 September 1999, the coastal cleanup has become a continuing activity for the people of Bataan, most of whom are volunteers from various sectors. To date, the campaign has been conducted in all of Bataan's eleven coastal towns (see table 1).

In the town of Mariveles, coastal cleanup is now being implemented every last Saturday of the month. Other towns plan to follow this example.

In any cleanup, the Bataan ICM Project Management Office (PMO) coordinates with the different town mayors through their respective municipal development officers. These officers brief barangay or village leaders who, in turn, mobilize volunteers from different stakeholder groups. Local government units or the private sector donate tools and other cleanup implements such as rakes and pitchforks.

Days before the event, streamers are put up in town halls announcing the activity. During one particular cleanup, the film "Muro Ami," a locally produced movie on illegal fishing, was shown in four towns as a buildup activity. The movie made people aware of the dangers of illegal fishing and the value of marine resources. It also attracted more volunteers to join the cleanup.

On cleanup day, volunteers assemble at town halls. The municipal development officers give a briefing regarding the activity while local government officials deliver inspirational messages. On occasion, the provincial governor joins the cleanup in different towns. At the site, volunteers are divided into teams and are designated with cleanup areas. Each team assigns a recorder, who documents the amount and types of garbage collected. Garbage trucks later haul the sacks of trash compiled at each site.

Partnerships for Progress

Although Kontra Kalat sa Dagat adapted the ICC methodology, the campaign was actually conceptualized as a catalyst towards a sustainable coastal management program for Bataan. It was envisioned to be a part of a larger and long-term environmental conservation effort for the province.

On 11 October 1999, during an Executive Session on Coastal Area Management, Governor Leonardo B. Roman together with other local government officials, company executives, nongovernment organization representatives and Petron Corporation officers discussed the dangers facing coastal/marine environment and their harmful effects on coastal communities and Manila Bay. The session culminated with the signing of a Memorandum of Agreement (MOA) among attendees with the objective of developing a long-term coastal management program for Bataan. The MOA identified steps towards stakeholder education and action and underscored the need to secure international partners. The coastal cleanup, therefore, served as a prelude to establishing integrated, interdisciplinary and multisectoral efforts to promote sustainable development in Bataan.

In view of this, Kontra Kalat sa Dagat has fostered partnerships among various government agencies, corporations, nongovernment organizations and other stakeholders. The campaign led to the creation of the Bataan Integrated Coastal Management Program (BICMP), which was formalized on 10 February 2000 in a MOA among the Bataan provincial government, the private sector through Bataan Coastal Care Foundation (BCCF) represented by Petron Foundation, and the Global Environment Facility (GEF)/United Nations Development Programme (UNDP)/International Maritime Organization (IMO) Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). The BICMP was recently renamed "Bigay Galing sa Kalikasan ng Bataan" or BIGKIS-Bataan Program.

Kontra Kalat sa Dagat has fostered partnerships among various government agencies, corporations, nongovernment organizations and other stakeholders.

Table 1. Success indicators for coastal cleanup activities.

Success	1999	2000			2001	
indicator	18 Sep	15 Apr	24 Jun	16 Sep	Jan-Jun	22 Sep
No. of towns involved	3	2	4	11	11	11
No. of participants	8,000	5,000	12,000	16,000	18,325	14,600
Amount of debris collected (t)	4.5	2.5	6	10	13.5	31.8
Length (km) of coastline cleaned	5	3	6.5	15	18.6	12



The cleanup campaign offered Bataan residents a unique opportunity to experience the benefits of the BIGKIS-Bataan program.

Under that program's setup, the Project Coordinating Committee (PCC) consists of representatives from provincial and regional government agencies, nongovernment organizations, church-based groups and the private sector. This mix of stakeholder groups equips the PCC with the ability to provide a multisectoral representation to the ICM program and its attendant projects.

Eighteen Bataan-based corporations formed the BCCF, with the objective of supporting the initiatives of the BIGKIS-Bataan Program. The foundation provides financial and material resources to the program while PEMSEA lends technical assistance. The BCCF is currently headed by Petron Foundation, with Bataan Governor Leonardo B. Roman as honorary chair.

Pursuing short-term and long-term goals

After the initial success of Kontra Kalat sa Dagat in September 1999, organizers discussed the possibility of making the project a sustained effort. Petron Foundation helped catalyze the process by setting goals and timetable. The PMO, together with the PCC, prepared the following ICM action programs for Kontra Kalat sa Dagat and Bataan Coastal Care Foundation:

- I. Entry phase (September-October 1999)
 - Intensify awareness of and participation from all concerned stakeholders.
 - Secure Bataan government partnership.
 - Expand nongovernment and private sector stakeholder partnership.
 - Establish international partnership.
- II. Interim phase (October 1999-2001)
 - Activate high-impact community programs including Kontra Kalat sa Dagat for public awareness,



Representatives from the Bataan Provincial Government, Bataan Coastal Care Foundation, Inc. and PEMSEA sign a MOA formalizing the BIGKIS-Bataan Program.

generation of stakeholder initiatives and sustained coastal care.

- Provide a network to secure training for coastal care action teams and design of a sustainable coastal management program for Bataan.
- Catalyze the creation of an official body to sustain coastal care for Bataan.
- III. Full implementation of Bataan coastal management phase (2002-2004)
 - Continue the Bataan provincial government's and private sector's support for the ICM program.

Kontra Kalat sa Dagat likewise complements the long-term efforts of the BIGKIS-Bataan Program. Through the PMO, the program is currently undertaking the following major activities:

- Completion of the Bataan
 Coastal Strategy in line with the
 drafting of the Manila Bay
 Coastal Strategy as part of the
 Manila Bay Environmental
 Management Project;
- 2. Developing an environmental profile of the province;
- Identifying environmental investment opportunities; and
- 4. Conducting an environmental risk assessment.

Immediate projects as part of the Bataan Coastal Strategy include:

- a province-wide information, education and communication campaign;
- 2. mangrove rehabilitation/ reforestation program; and
- 3. establishment of fish and marine turtle sanctuaries.

Kontra Kalat sa Dagat was designed to benefit primarily the residents of coastal communities, especially those in areas fronting the Manila Bay. Ocular inspection prior to the first cleanup campaign showed that most coastal communities have been virtually made into dumpsites by residents. Moreover, trash from Metro Manila have found their way to Bataan shorelines, significantly adding to the local garbage problem.

Through efforts in Kontra Kalat sa Dagat, the people of Bataan are expected to:

- Minimize the amount of waste that litter the shorelines of Bataan through concerted efforts, particularly in cleaning longer stretches of coastline and more volunteers being involved;
- Convince local government units and residents to "own" the project and initiate programs on coastal care on their own; and
- Involve more stakeholders in taking part in similar environmental activities under the BIGKIS-Bataan Program.

These short and long-term goals were directed to ensure that the cleanup campaign and the ICM program would follow an appropriate framework of implementation and thus, guarantee sustainability.

Conclusion

In the end, the Kontra Kalat sa Dagat campaign offered Bataan residents a unique opportunity to immediately experience the benefits of the BIGKIS–Bataan Program. It provided the various stakeholders a venue to avoid and resolve conflicts resulting from multiple–resources use and work together for a common cause.

So far, the campaign has been successful in spurring the development of similar programs on environmental care. In August 2001, some 350 volunteers trooped to Abucay, Bataan, to plant about 8,000 propagules in a 1.5 ha area. The project is expected to evolve into a regular campaign called "Bakawanan sa Bataan" or "Saving the Mangroves of Bataan," which aims to restore the province's mangrove forest cover. Likewise, the PCC and the BCCF are finalizing details for the implementation of a Search for the Cleanest Barangay in line with Kontra Kalat sa Dagat. Furthermore, the PCC is studying proposals to establish a marine turtle sanctuary in the town of Morong, a known nesting area of the "pawikan" or Olive Ridley turtle, as well as the development of a fish sanctuary in the town of Limay.

In all these, some challenges are still prevalent. How can the stakeholders' interest be sustained?

How can the continued collaboration of the different sectors of Bataan be ensured? These concerns have already been expressed in various fora. However, program proponents remain confident that there are definite and positive answers to these questions. The Bataan Declaration on Environmental Protection, signed by Bataan Governor Roman, Bataan Mayor's League President Jose Alejandre Payumo III and BCCF President Marilou Erni on 20 August 2001, is one such answer. The declaration recognizes the need to conserve and protect the province's coastal environment, underscoring its importance to the whole Manila Bay region. 💶

Bibliography

- Bataan coastal strategy: a vision for Manila Bay. 2001 February 2001. Bataan Integrated Coastal Management Program. Makati City: Bataan Coastal Care Foundation Inc. 39 p.
- The international coastal cleanup. Center for Marine Conservation. 2001. Avail from: http://cmc-ocean.org/cleanupbro/ index.php3
- PEMSEA partner wins award. PEMSEA E-Updates. March 2001. Avail from: http:/ /www.pemsea.org/news events/index.html
- Petron has programs, products to keep air clean. Inq7. 8 June 2001. Avail from: http://www.inq7.net/lif/jun/09/lif_3-2.htm
- Philippines leads world in coastal cleanup. Coastal Alert. Avail from: http:// www.oneocean.org/overseas/sep99/ coastal alert.html
- Wingrove, P. Origins of coastal cleanup. Ocean Watch. 1999. Avail from: http:// www.oceanwatch.org

Editor's Note

Providing a solid waste management infrastructure that is economically viable, socially acceptable and environmentally sound is no easy feat. This is especially true for the Batangas Bay region, where several local government units (LGUs) are involved: three cities, 31 municipalities and a provincial government. Pooling of state resources to ensure the feasibility of such an undertaking has proved difficult. This even becomes more complex since these LGUs decided to commission a private enterprise through a public-private partnership (PPP) arrangement.

Five years have passed since an action plan for integrated waste management was developed for the region. The following articles discuss the perspectives of and lessons learned by both public and private sectors vis-à-vis the Integrated Waste Management Project in the Batangas Bay region using the PPP mechanism. If the PPP proves successful, it can be replicated not only in the Philippines but also in other parts of the East Asian region.

Integrated Waste Management in the Batangas Bay Region: Lessons in Building Public-Private Partnership



View from the Public Sector

Evelyn L. Estigoy Director

and

Ambrocio Kerwin A. Perez Project Officer

> Environment and Natural Resources Office Provincial Government of Batangas Batangas City, Philippines

In the Philippines, the Local Government Code (Republic Act 7160 of 1991) devolved responsibility for solid waste collection to villages (barangays) and solid waste management system development to the municipal and city governments. In the Batangas Bay region, however, LGUs had to pool resources to comply with the said provision. Based on a prefeasibility study, LGUs could not individually provide a solid waste management infrastructure that meets socially and environmentally sustainable standards.

For this reason, the region explored the application of the PPP scheme in carrying out its waste management program. As defined, PPP is a "cooperative venture between the public and private sectors built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of risks, rewards and responsibilities" (Carr, 1998). In addition to maximizing efficiencies and creativity of private enterprise, PPP aims to provide much needed capital to finance local government programs and projects of a commercial nature, thereby freeing public funds for core economic and social programs.

The PPP is expected to address the problem of solid waste management on a sustainable basis. It shall provide for institutional arrangements, law and control mechanisms, public awareness/ education and financial/economic instruments. Before detailing the PPP process in the Batangas Bay region, the solid waste management situation shall be first explained. PPP is a "cooperative venture between the public and private sectors built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of risks, rewards and responsibilities".

Table 1. Profile of the Batangas Bay region.

Capital ^a	Batangas City
Land area (km²) ^b	3,165.8
Coastline (km) ^b	470
Population (year 2000) ^c	1,905,348
No. of municipalities ^a	31
Cities ^a	Batangas, Lipa and Tanauan

Sources:

Environment and Natural Resources Office of the Provincial Government of Batangas (2000).
 Multidisciplinary Team of Experts (2000).

^cNational Census and Statistics Office, Philippines (2000).

Table 2. Types of wastes from households/ commercial establishments and markets.

Waste consumption	Household/ commercial (%)	Market (%)
Vegetables	24	56
Yard waste	30	9
Paper	6	6
Cardboard	4	6
Plastics	13	12
Metal	3	1
Glass	2	Neg
Textile	3	2
Screenings/fines	10	7
Others	5	1

Source: Philippine Urban Environment and Solid Waste Management Study (1993).

Solid Wastes in the Region

The major sources of solid wastes in the region include households, industries and commercial establishments (particularly municipal/city markets and agricultural producers). The household sector generated more than 103,300 t of solid wastes in 1994 and reached 119.800 t in 2000. In terms of wastes composition, a large percentage of those coming from households/commercial establishments (about 60 percent) and markets (some 75 percent) were reportedly biodegradable. These included vegetables, yard wastes, paper and cardboard.

In the region, resource recovery was largely undertaken through the following means:

- Households separate recyclables for sale to ambulant buyers or junk shops.
- Street scavengers scour for waste at the curbside prior to collection by the sanitation unit.
- Sanitation unit crews scour for waste during garbage collection.
- Scavenging activities are done at the dumpsites.

Open dumping was the method used for final disposal of wastes in the region. Each city/municipality (except for those not rendering solid waste services) had its own disposal site. The sizes of dumpsites ranged from about 400 m² (Taysan) to 2.1 ha (Ibaan). The Batangas City and Bauan dumpsites were nearly filled up, each estimated to have a remaining life span of one year. The dumpsite in Lobo used to be a river while that of Mabini was located in the highlands.

In some municipalities, wastes at the dumpsites were intentionally burned to reduce the volume and to extend the life of the dumpsite. In Cuenca, for example, old rubber tires were used to fuel burning activities. Of the municipalities and cities in the Batangas Bay region, only three have a well-defined collection and disposal system. The system in others needs improvement. A few do not have a collection system at all.

Given this situation, stakeholders identified solid waste management as one of the main activities under the 1996 Strategic Environmental Management Plan (SEMP) during the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas (MPP– EAS).

PPP Process

The PPP was a process included in the Batangas Bay Integrated Waste Management Project. It consisted of three evolutionary stages, namely (Ross *et al.*, 1999):

- Awareness, consensus-building and partnership among local stakeholders;
- Packaging and promoting opportunities to potential private

sector partners and investors; and

 Selecting a private partner and establishing a mixed ownership (*i.e.*, public sector-private sector) operating company.

These stages were documented in a feasibility study, which was used in raising the necessary operating capital for the establishment of an integrated waste management facility.

Stage 1: Awareness, Consensusbuilding and Partnership

The participation of public– private sector stakeholders within Batangas province, along with concerned national government agencies, began in 1994 with the Integrated Coastal Management (ICM) Project under the MPP–EAS. Major outputs accomplished within the first two years, through cooperative efforts of industry, local government and scientific/technical institutions, included the coastal environmental profile of the Batangas Bay region, the SEMP and a five–year integrated waste management action plan.

These outputs fulfilled two objectives. First, they served as building blocks for the ICM Project. Major environmental problems and management issues were identified. Institutional, technical and economic interventions to tackle the issues were formulated. Second, interaction among the sectors provided a better understanding of their respective concerns, capacities and limitations.

The region's Environmental Protection Council (EPC) was created to institutionalize and sustain efforts. It is composed of representatives from the provincial/municipal governments, national agencies, nongovernment organizations and media. The provincial governor chairs the council. The Provincial **Environment and Natural Resources** Office, meanwhile, was tasked to provide technical and institutional backstopping to the EPC. One of the first actions of the council was to formally adopt the 20-year SEMP for the region and the action plan. The plan's general framework espoused a progressive and integrated approach to waste management in the province covering preparation, mobilization, improvement and development phases.

Over a period of 18 months, prefeasibility studies were completed on four priority wastes in Batangas – hazardous, agricultural, municipal solid and ship/port wastes. Shortly The region's Environmental Protection Council (EPC) was created to institutionalize and sustain efforts. It is composed of representatives from the provincial/ municipal governments, national agencies, nongovernment organizations and media.

thereafter, the necessary actions began taking place. Through various interactions with the stakeholders, a consensus was reached that the handling and disposal of wastes were crucial problems affecting all economic sectors. The government did not have the financial means or technical capability to solve the problem. For example, the League of Municipalities (the umbrella organization of all local government chief executives) recognized that insofar as solid wastes were concerned, individual municipalities could not afford the required waste management services under the Local Government Code.



The inauguration of the Batangas Bay demonstration project site of the GEF/UNDP/IMO MPP-EAS in February 1995.

Studies showed that the quantity and types of wastes in Batangas collectively represented a commercial scale package. However, there was no experience within the Philippines to assess or compare the commercial viability. Through discussions, it was apparent that privatization as an option was not attractive to LGUs. A joint undertaking, which would keep the public sector involved as facilitator. regulator and part owner of the service facility, was preferred. As a result, in October 1998, local stakeholders decided to proceed with the next stage of the PPP process and invited investors/ potential partners for a joint meeting (Ross et al., 1999).

Stage 2: Packaging and Promoting Opportunities

Two key actions were required in this phase. The first involved the development of an information package on Batangas to attract investment groups, private companies, commercial banks and venture capital groups. The second required identifying groups interested in environmental projects in the Philippines and PPP as an alternative to traditional tendering/contractual relationship. The MPP-EAS also prepared four investment opportunity briefs, one for each priority waste area. The briefs discussed the quantities and nature of wastes being generated, 20-year projections on economic/population growth, predicted wastes volumes, cost estimates of alternative technologies and servicing options, and current market prices for recycled materials within the Philippines.

In addition, a contingent valuation survey was conducted in 1997 involving 1,902 residents of select cities and municipalities in the region. The survey sought to measure public support and general willingness to pay for environmental management projects.

The respondents generally agreed to a more effective garbage collection in their village, the maintenance of septic tanks and an active public information campaign on the environment. Some 84 percent indicated support for the strict implementation of environmental regulations. About 92 percent believed that the issue of solid wastes was important as an indicator of environmental awareness and concern. Around 62 percent practiced recycling materials other than newspapers, bottles and metals.

The respondents were also shown an alternative method of disposing of garbage through a landfill, which was described as a more efficient and sanitary way. They were asked if they would be willing to support a sanitary landfill project, assuming that this requires a fee higher than the P120 per year they already pay for garbage collection in Batangas. Eighty percent said they would support an increase in fees. The maximum amount that they committed averaged P207.90 only per year (P17.32 per month). Respondents were willing to pay higher fees for integrated programs than for piecemeal projects, when they fully understand the expected outputs of the proposed programs.

At any rate, through a global network of investors, operating companies and venture capital groups, the MPP-EAS secured interest from parties in Asia, Europe, Australia, New Zealand and North America. Parties committed to participate in an investor's roundtable discussion with local partners to learn about the terms and conditions of the PPP process. Thirty-two representatives from private investment groups and companies attended the meeting in November 1998 in Manila.

The meeting provided the private sector a clear definition of available opportunities. Two other issues were affirmed, namely: (1) the political will and commitment of local stakeholders; and (2) the transparency of the PPP process. The public sector's requirements for prospective private partners and the process of selecting them were also outlined. The MPP-EAS served as focal point throughout the selection process. The Sustainable Project Management, an international nongovernment organization (NGO) specializing in PPP and the MPP-EAS, meanwhile, committed to oversee the process to its completion (Ross *et al.*, 1999).

Stage 3:

Selecting a Private Partner and Establishing a Mixed Ownership Operating Company

In March 1999, several companies submitted expressions of interest on individual projects. The New Zealand group called Waste Systems New Zealand Limited satisfied the selection committee's prerequisites for a private partner. In addition, the proposal of the group impressed the selection committee since it acknowledged the political and social sensitivities that arise with the introduction of a new scheme/system affecting the general public. Local stakeholders placed high regard for issues such as the location of facilities, displacement of people, integration of existing waste management enterprises, traffic congestion, employment of local firms and provision of affordable services. The proposal indicated awareness of these issues and an openness to include these points as part of the feasibility study.

Initial negotiations between the public and private sectors focused on several points for clarification and confirmation. From the private sector's viewpoint, its role and responsibility required definition. The public sector, meanwhile, wanted assurance regarding proposed technologies, consortium's member companies and the coverage to be provided under the new waste management service. The Memorandum of Understanding (MOU) was signed by the parties on 14 July 1999. Under the MOU, the public sector's commitments included the following:

- Ensure that all activities comply with Philippine laws;
- Clarify government's permit and approval processes and facilitate timely and cost effective submissions to the process;
- Assist the private sector to access sites for investigative field studies;
- Provide available reports and support information concerning waste generation and management in Batangas;
- Valuate public properties, facilities and services as equity in the operating company; and
- Develop, adopt and implement regulations/controls affecting waste generation and illegal waste disposal operations.

The private sector's responsibilities, on the other hand, included the following:

 Finance and conduct the feasibility study;

- Develop a bankable project document for submission to investors and lending institutions; and
- Prepare plan and schedule for constructing and commissioning the facilities.

The MOU was extended until December 2001 to allow the completion of the feasibility study as well as related development activities. In the commercial model for PPP, a project operating company will be eventually put up to operate and manage integrated waste management facility, which shall be a joint venture between the public sector corporation and private sector consortium. For the purpose of incorporation, some LGUs had passed individual ordinances to be part of the corporation. At present, the best estimates on capital investment are between US\$13 and 16 million.

On 10 May 2001, Batangas Environmental Services, Inc. (BESI), the public sector corporation, was registered with the Securities and Exchange Commission. This provided greater momentum, consolidating the efforts of the public sector in delivering commitments to the PPP. The NGOs and other sectors have been constantly involved to understand and address potential issues associated with the project now undergoing an environmental impact assessment. As part of the continuous public awareness campaign, discussions with the

academe, civil society and local governments have become regular undertakings to ensure broad public support for the integrated solid waste management system.

Lessons Learned and Challenges

Among the lessons learned in the PPP experience are:

Strong political will and leadership are essential to achieve success.

The political will and leadership displayed by local chief executives and legislative bodies to pursue the PPP scheme on waste management allowed the passage of enabling ordinances. These, in turn, became the basis for the formation of BESI and provided for the establishment of a joint operating company. However, actualizing public sector commitments to the PPP remains very challenging. There is also a need to build public confidence on associated policies to sustain political will and leadership. Leaders in government and other sectors should clearly communicate the goals of the partnership and build broad base support for it. The showing of and actualizing support from the private partner may likewise contribute to continued political commitment.

• Public accountability is a requisite of government.

The mandate for every local government to provide waste management facility entails money and public accountability. Partners should understand that allocating monetary contributions to BESI during the feasibility study stage cannot be done quickly. Such process needs to undergo necessary bureaucratic procedures from legislation and public review to accounting and auditing. All legal requirements must be satisfied.

 Transparency, trust and confidence are basic characteristics of a successful PPP.

Although PPP is an innovative approach to project development in the field of solid waste management, the build– operate–transfer and build– transfer schemes are more popular in the Philippines. In this sense, there is a greater need among partners for transparency, trust and confidence. Flexibility to adapt to changing conditions is likewise needed.

 The success or failure of the project depends on both partners.

When one partner is experiencing setbacks or constraints in attaining project objectives due to basic differences (*e.g.*, culture, awareness, management schemes, actual knowledge and appreciation of the technology, *etc.*), the other partner should fill up what is lacking. The not-inmy-backyard syndrome is not in line with the spirit of partnership, but it is a reality to address and/or overcome.

In the end, it is hoped that the PPP scheme in the Batangas Bay region for waste management shall bear fruit. Nearly five years have passed since the integrated waste management action plan was developed. Once successful, it can be replicated not only in the Philippines but also in other parts of the region.

Contribute to Tropical Coasts

You are invited to contribute articles to **Tropical Coasts**. The magazine comes out in July and December. The Executive Editor reserves the right to accept or reject papers and to shorten them to meet space requirements. Articles undergo a review process. The deadline for submission of articles is: 1 July (for December issue) and 1 February (for July issue).

Here are the themes for forthcoming issues:

2002 I	December	Impacts of trade on endangered species
2003	July	Regional mechanism in environmental management
1	December	Environmental investments
2004	July	Environmental hot spots

For guidelines to authorship and contributions, e-mail the Executive Editor at info@pemsea.org Visit www.pemsea.org to view pages of the latest issue of Tropical Coasts.

Bibliography

- Carr, G. 1998. Public-private partnerships: the Canadian experience. Presentation to the Oxford School of Project Finance, 9-11 July 1998. Oxford, England.
- Environmental and Natural Resources Office of the Provincial Government of Batangas. 1996. Strategic environmental management plan for the Batangas Bay Region. MPP-EAS Technical Report No. 3, 96 p. GEF/ UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, Quezon City, Philippines.
- GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas. 1996. Integrated waste management action plan for the Batangas Bay region. MPP-EAS Technical Report No. 9, 76 p. Quezon City, Philippines.
- Multidisciplinary Team of Experts. 1996. The coastal environmental profile of the Batangas Bay region. MPP-EAS Technical Report No. 5, 148 p. GEF/ UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, Quezon City, Philippines.
- Provincial Planning and Development Office (PPDO). Provincial physical framework plan 1997-2003. PPDO, Batangas City, Philippines.
- Ross, S.A., C. Abansi and A.M. Saniano. 1999. Public private partnerships. Alternative delivery mechanism for environmental service in the East Asian Seas region. Trop. Coasts 5 (2) and 6 (1): 3-10.
- Tejam, C. S. and S. A. Ross. 1997. Integrated coastal management (ICM) contingent valuation survey in Batangas Bay, Philippines. MPP-EAS Technical Report No. 13, 46 p. GEF/ UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, Quezon City, Philippines.

View from the Private Sector

Mark Shaw Vice President for Project Development Waste Systems New Zealand Limited Auckland, New Zealand

Public private partnership (PPP) may be defined as a "partnership between the public and private sector for the purpose of delivering a project or service traditionally provided by the public sector. [It] recognizes that both the public sector and the private sector have certain advantages relative to the other in the performance of specific tasks. By allowing each sector to do what it does best, public services and infrastructure can be provided in the most economically efficient manner." (National Development Plan, 2001)

A key objective of a PPP is to allocate risk to the sector best placed to manage and deal with the particular risk – be it in designing, planning, financing, constructing and/or operating the project. Certain risks may be more effectively managed by the private sector rather than the public sector.

the public partner understands the methodology of PPP and has prepared for participation in the partnership. Generally, there are four areas that local government should address before becoming involved in the PPP:

In this sense, risk is a key consideration affecting the contractual relationship and operating structure of any partnership. It is the allocation of risk that determines the respective rewards, investments and responsibilities of the partners.

Attracting a private partner to a partnership opportunity implies that

- Identifying who in the public sector organization is responsible for the PPP and who has the authority for ultimate decision- making;
- Developing or accessing the expertise necessary to evaluate, negotiate and implement the PPP;
- Establishing policies to guide decisions on PPP; and
- Establish procedures that enable effective evaluation and delivery of services through PPP.

- Establishing policies to guide decisions on PPP; and
- Establishing procedures that enable effective evaluation and delivery of services through PPP.

The heart of the approach is partnership. Thus, the public sector must always examine its continuing role. In most cases, the public sector is a local government organization operating within legislative boundaries of a municipal act, local government code or some other similar mechanism designed to maintain government's accountability to the public. The private partner needs to recognize this particular characteristic of PPP and adopt a complementary project development and management structure.

Internationally, PPPs have emerged in different combinations ranging from financially freestanding projects and joint ventures to design/build contracts that focus on the application of new technology. The United Nations Development Programme (UNDP) Urban Environmental Services Program has listed the common types of partnership as follows:

- · Passive private investment;
- · Traditional public contracting;
- Operation, maintenance and service contracts;
- Joint ventures (mixed capital partnerships); and
- Build, operate and transfer (BOT) contracts.

In view of the PPP's many forms, there is often some degree of confusion as to what constitutes it. However, there are two considerations common to all that both partners need to understand:

- PPP is not just about accessing private financing but also about the use of private sector skills and management expertise to deliver and operate public projects more efficiently.
- In all cases, government remains responsible and accountable for delivering services and projects in a manner that protects public interest.

Project Development: Integrated Solid Waste Management

In October 1998, the local government units (LGUs), including the provincial government in Batangas, decided to jointly develop the solid waste management element of their environmental infrastructure services using the PPP delivery mechanism (see table 1).

The GEF/UNDP/IMO Partnerships in Environmental Management for the Seas of East Asia and Sustainable Project Management (SPM), acting as advisers to the public sector, packaged and promoted the opportunity to international investors. In March 1999, the Waste Systems New Zealand Ltd. (WSNZL) was identified as the successful private sector partner. Negotiations between the public and private partners revealed several issues that needed clarification or action before any meaningful investment could be made. The private sector required the definition of the role, responsibility and *modus operandi* of the public sector during project development. The public sector, on the other hand, wanted to validate the credentials of the private sector, review proposed technologies and define the extent of services to be provided by the mixed ownership operating company.

Table 1. PPP delivery mechanism for the Batangas integrated solid waste management system.



In July 1999, the public and private sectors entered into a Memorandum of Understanding (MOU) and embarked upon establishing the partnership. In addition, the partners acknowledged that for the PPP to succeed, the integrated solid waste management system needed to be:

- · financially viable;
- · environmentally sustainable;
- · socially acceptable; and
- · affordable.

In practical terms, the establishment and operation of the integrated solid waste management required:

- collection of solid waste at the local level;
- coordination of recycling initiatives throughout the province;
- construction, management and operation of a provincial sanitary landfill;
- closure of existing dumpsites and construction of transfer and recycling stations; and
- provision of transport/haulage facilities between transfer stations and provincial sanitary landfill.

Any financially viable development needs to have secured all four milestones before project implementation can start (see table 2). With three of the four secured, the fourth is normally achievable with perseverance. With only two of the four secured, the project hangs in A key objective of a PPP is to allocate risk to the sector best placed to manage and deal with the particular risk - be it in designing, planning, financing, constructing and/or operating the project. Certain risks may be more effectively managed by the private sector rather than the public sector.

Table 2. Project development milestone matrix.

Location: land	Finance: capital mix
 Security over land use Right to use for the intended purposes Consent to use for intended purposes 	DebtEquityAssets
User: revenue stream	Management: skills and structure
 Essential public service Internal revenue allocation: from LGUs. User pays: environmental management for (EME) 	 LGUs: mandated to provide service Existing autonomous operations WSNZL: commercial operations, management and development



A typical method of solid waste disposal in Batangas: an open dumpsite.

Once three of the four milestones had been completed, the development could be considered as "bankable". Once bankable, the remaining financing milestone would be agreed upon and secured by the partners before implementing the operational phase of the PPP.

the balance and is in no way bankable. With only one of the four, there is no development potential.

To achieve three of the fourpoint development milestones, the public and private sector partners were required to demonstrate the following:

- An income revenue stream was available to pay for improved solid waste services.
- Security over land tenure and land use was available for the establishment of an Environmental Management Center (including a sanitary landfill to service all local government units) and transfer stations.
- The public and private partners have the required skills, management structure, policies and political commitment to implement a commercially viable operation through PPP.

Once three of the four milestones have been completed, the development could be considered as "bankable". Once bankable, the remaining financing milestone would be agreed upon and secured by the partners before implementing the operational phase of the PPP.

After 18 months, the following have been accomplished vis-à-vis the integrated solid waste management system in Batangas province:

- The technical studies and waste surveys have been completed.
 Their results indicated the following:
 - Between 300,000 and 350,000 t of municipal waste are generated in the province each year.
 - Approximately 137,000 t of this garbage are currently collected and dumped into several open dumpsites in the province each year.
 - Between 163,000 and 213,000 t of garbage are not collected each year and are burnt, disposed of in uncontrolled dumpsites or

thrown into drainage systems, rivers and coastal waters.

- Less than 40 percent of the people of Batangas have a "serviced" garbage collection.
- Site investigations have identified a technically feasible final disposal site.
- Transportation and recycling concept studies have been undertaken.
- The mechanism to ensure income stream has been identified.

A number of major hurdles have yet to be overcome. One of these is the issue of having to secure the right to use more than 100 ha of land for the Provincial Environmental Management and Research Center (see figure 1). However, a more fundamental concern to the public partner and central to the partnership's success is the issue of responsibility, accountability, ownership, commitment and participation of the public partner. The PPP needs organized public sector participation.

Public Partner Participation: The Role of Central and Local Governments

The Philippine 1991 Local Government Code sets out the legislative framework within which "the process of decentralization shall proceed from the national government to the local government units." State policy is one of decentralization and autonomy.

In this instance, the public partner is not just one LGU but three cities, 31 municipalities and the provincial government. An LGU at each level has its own special powers. Each LGU has an elected chief executive (mayor or governor) who is responsible to the respective *sanggunian* (legislative body) for the program of government.

The provision of sustainable and affordable municipal solid waste management does, however, require LGUs to group themselves and coordinate their efforts. Making the transition from autonomy to consolidation and coordination requires either a change to or the addition of a new dimension to the existing organizational structure of local government. The Ecological Solid Waste Management Act of 2000 calls for the establishment of local government solid waste management plans and mandates the LGUs to consolidate and coordinate their efforts, services and resources. The central government is committed to addressing environmental issues. The public sector, as a group of independent government units, may also have the desire to consolidate and organize

themselves. How this should be done is yet to be addressed on a national level. The central government may need to take an active role in guiding policy and facilitating an effective consolidation process.

Batangas Environmental Services Inc.: A Role Model for Sustainable Development?

A local government organization, with the mandate to consolidate, coordinate and pursue the delivery of essential services through the PPP, was finally conceived for Batangas in March 2001 when some of the LGUs joined together and incorporated the Batangas Environmental Services Inc. (BESI) with the Philippine Securities and Exchange Commission.

BESI is expected to become a role model for other local government initiatives by demonstrating how to improve the quality of solid waste management/public service delivery through consolidation and coordination, and how local government can prepare for the PPP.



Figure 1. The proposed Batangas Provincial Environmental Management and Research Center.

Providing BESI with the mandate and resources to enact the integrated solid waste management plan and pursue security over land tenure through transparent public consultation is needed. It is the quality of support and resources provided to organizations like BESI by elected government officials that will determine the outcome of the creation of a working model for local government to provide a sustainable solid waste management solution for the people of Batangas.

Lessons and Challenges

For a PPP to be successfully developed, the local government partner needs to prepare itself by:

- consciously looking at its preferred role in the partnership;
- organizing itself in accordance with that role;
- allocating skilled resources to manage that role;
- assigning responsibility with authority; and
- · remaining accountable.



The signing of the MOU between Batangas LGUs and the WSNZL in July 1999.



An example of an engineered sanitary landfill using a high-density polyethylene liner system.

In the case where a group of autonomous local government organizations have the collective desire to consolidate themselves in preparation for the PPP, a dedicated organization with unwavering political commitment and financial support must be established at the outset of preparations.

In developing countries, the central government may have a role to play in facilitating the development of essential environmental infrastructure where individual LGUs do not have sufficient economies of scale to establish the sustainable delivery of those services.

The PPP is as much about the use of private sector skills, management expertise and operational experience as it is the opportunity to access private financing and technology.

Sustainable development, environmental protection and natural resources management are basics of modern society. The PPP is one of many innovative mechanisms that may be used to successfully deliver essential public services. The success or failure of the Batangas Integrated Solid Waste Management Project, through the PPP is yet to be proven. What is clear and indisputable is that something needs to be done to halt environmental damage caused by current waste management practices and deal with the growing volume of garbage in a sustainable manner. 🗖

Bibliography

- GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas. 1997. Environmental management atlas of the Batangas Bay region. MPP – EAS Technical Report No. 14, 144 p. Quezon City, Philippines.
- Irish Business and Employers Confederation. Avail from: www.ibec.ie
- McCann Fitzgerald Solicitors. Legal briefing public private partnerships. Avail from: http:// www.mccann-fitzgerald.ie/legal_briefing/ ppp/whatis_ppp.html [October 2001]
- Melissa Program. Managing the environment locally in Sub Saharan Africa. Avail from: www.melissa.org/English/publications/ InfoBrief/infobrnov99.htm [25 October 2001]
- Ministry of Municipal Affairs (MMA). 1999. Public private partnership — a guide for local government. MMA, British Columbia, Canada.
- Multidisciplinary Team of Experts. 1996. The coastal environmental profile of the Batangas Bay region. MPP-EAS Technical Report No. 5, 148 p. GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, Quezon City, Philippines.
- National Development Plan. Public private partnership. Avail from: http:// www.informatic.ie/ppp/home_page.asp [30 October 2001]
- Nolledo, J.N. 1999. Republic Act 7160. The 1991 Local Government Code of the Philippines with basic features.
- Office of the Provincial Planning and Development Coordination. 1999. Batangas province: annual population growth rates. Batangas province socio-economic profile.
- Ross, S. A., C. Abansi and A. M. Saniano. 1999. Public private partnerships. Alternative delivery mechanism for environmental service in the East Asian Seas region. Trop. Coasts 5 (2) and 6 (1): 3-10.

www.pemsea.o<mark>rg</mark>



Get the latest news and information on marine and coastal environmental management in the East Asian Seas region online @ www.pemsea.org

The countries included in the region are: Brunei Darussalam, Cambodia, China, DPR Korea, Indonesia, Japan, Malaysia, Philippines, RO Korea, Singapore, Thailand and Vietnam.

Functional information is discussed in the section on the various programme components of PEMSEA:

- integrated coastal management;
- managing subregional sea areas and pollution hot spots;
- capacity building;

5

- environmental management and investments;
- scientific research;
- integrated information management systems;
- civil society;
- coastal and marine policy; and
- regional mechanism.

Now with more links, the PEMSEA website presents a wider array of references and databases particularly regarding the practice of two environmental management approaches integrated coastal management, and risk assessment and risk management.

Also, lists of relevant and timely publications and trainings are featured. Plus a lot more.

Visit the PEMSEA website. Now.

December 2001

Jong Geel Je

Principal Research Scientist Marine Environment and **Climate Change Laboratory** Korea Ocean Research and **Development** Institute Seoul, RO Korea

Background

Shihwa Lake was formerly a long stretch of tidal mud flat fronting the Yellow Sea along the Republic of Korea's west coast. It had huge tidal flats bordering the cities of Ansan, Siheung and Hwasung, However, when the 12.7-km dike was constructed in 1994, the shallow bay became an artificial lake. The government built the dike to develop an approximately 50 km² freshwater reservoir and to convert adjacent wetlands into farmlands.

Many Shihwa projects were pursued and became entangled in the political and social goal for dispersing population and factories from greater metropolitan of capital city of Seoul. As a result, two citytowns were established on the northern side of the lake. A population of about 700,000 people moved to reside in these industrial regions where more than 4,500 factories are in operation as of today. While the cities were booming outwardly, there was no consideration for residential waste or industrial wastewater treatment. These wastes were directly discharged into the lake, and this continued even after the completion of the Shihwa dike in 1994 (Ansan YMCA, 1995). In 1996, while the water quality of the lake was deteriorating, a water purification and treatment facility was installed.

Partnerships for Shihwa¹¹ **Environmental Management:** Local Governments, **Civil Society** and Scientific Communities



Jong-In Choi

Although a major industrial center, migratory birds still come to Shihwa Lake.

The environmental problems in the lake have affected the local communities economically, socially and emotionally.

With the dike enclosing the lake, insufficient water circulation worsened the problem, resulting in algal blooms and eutrophication. Mass mortalities of organisms were observed in the adjacent areas which used to be tidal flats before

the construction of the dike. Water in the reservoir was declared unfit for agricultural use. Traditional fishing activities became unsustainable as indigenous coastal communities were dispersed. On top of these, air pollution from the two national industrial complexes located at the northern part of the lake raised public concerns on its possible adverse impacts on public health.

^[1] Shihwa is PEMSEA's second ICM parallel site established in the Republic of Korea. A Memorandum of Arranaement was signed on 15 March 2001 among IMO (PEMSEA), the representatives of the Ministry of Maritime Affairs and Fisheries, and the governments of Kyonggi Province, Ansan City, Siheung City and Hwasung City.

Awakening

Back in the 1970s, reclamation projects (such as Shihwa Lake) were viewed as highly desirable and essential for ensuring national food security, especially for economically backward regions. At that time, the assimilative capacity of the environment was not fully recognized. However, as a result of the Shihwa experience, government, nongovernment organizations (NGOs) and the general public became aware of the dangers of unmitigated coastal development. Local politicians started to focus on major local issues, such as the environment, which became important public concerns.

In addition, politicians had to reconsider their view that the economy and environment were two distinct issues. The economic crisis made them realize that it was impossible to stimulate the local economy without due consideration of the environment.

As public access to the lake's adjacent areas became limited due to planned reclamation and infilling projects, these developed into grasslands and various wildlife species started to come back. Then, when seawater flowed into the lake in 1997 with the opening of the floodgates, the marine ecosystem started to recover.

These developments encouraged various sectors to work together vis-



Shihwa coastal area used to be a very productive wetland.

à-vis the future of Shihwa Lake. The discovery of dinosaur egg fossils at the southern part of the reclaimed area also gave local residents more hope towards an environment-friendly development of the area.

Initiating Partnerships

Local experts, citizens' groups, and local governments gained some confidence that the lake can be restored and that much more beneficial results can be obtained when natural resources are wisely used instead of unplanned, shortsighted and unorderly development done without environmental consideration. Through regular meetings and consultations, they formulated proposals to explore environment-friendly uses of the lake. This had a ripple effect and people were looking at the lake with different views. Ten different research projects were started at the same period dealing with Shihwa Lake environmental management. Finally, Shihwa Lake was officially recognized as a saltwater lake by the central governments in February

2001, implying that the governments recognized the need for changing their policy direction on Shihwa Lake management.

The Shihwa Lake partnership did not intentionally try to replicate global models (Chua et al., 1999; Ross, 1999), although intersectoral partnerships to solve environmental problems became common in many countries. Rather, partnerships were formed through problem–solving processes and were viewed as necessary to confront complex environmental problems. Partnerships in Shihwa Lake proceeded on their own volition without any guidance from experienced organizations.

Establishment of a Unified Group

Hanwha Industry's construction of a petroleum transfer station on Maechurchi (Quail) Island sparked the first public protest in Shihwa Lake (Save Our Daebudo-NGO, 1996). This

Manila Bay: Making

The Country's Gateway

Manila Bay in the Philippines is a semi-enclosed estuary facing the South China Sea and is one of the best natural harbors in the world. It is also the premier international gateway to the country's political, economic and social center.

The bay is a historical site and a silent witness to millenia of Philippine history. From Central Java immigrants arriving to create settlements (300–200 BC) to being the site of the last organized resistance against the Japanese invasion in 1942, the Manila Bay area has been a venue of many historical events that helped shape all that is Filipino.

Within the backdrop of its seminal past, the bay area remains an important national asset. It is a major source of economic income for the country. The bay and its surrounding provinces contribute an estimated 55 percent of the country's gross domestic product and account for almost a third of the country's agriculture, fisheries and forestry production.

The Bay's Challenges

Manila Bay is also famous for one other thing – its continuously degrading environment. Unsustainable use has taken its toll on the bay with pollution from landand sea-based activities causing significant environmental degradation. Inadequate infrastructures resulted in domestic, commercial and industrial solid wastes entering the bay directly or indirectly via river and drainage systems.

The Pasig River alone receives an estimated 168 metric tons of domestic sewage daily as these are discharged from 11 major areas in Metro Manila. Sea-based activities are another source of environmental degradation with high maritime traffic giving rise to oil spills. The bay is overfished and mangrove clearing has become so severe that as of 1995, only 794 hectares remain from an estimated 54,000 hectares in 1890. Philippine President Gloria Macapagal-Arroyo formally receives the Manila Bay Declaration and the Manila Bay Coastal Strategy from Department of Environment and Natural Resources Secretary Heherson Alvarez (left) and United Nations Development Programme Resident Representative Terence Jones in a ceremony held in Malacañan on 26 October 2001. President Arroyo gave her support to attain the shared vision of Manila Bay stakeholders.



Stakeholders - government, business and civil society groups in Bataan regularly conduct beach cleanup activities to rid the coast of garbage and other debris.

Bataan Coastal Care Foundation



Stakeholders in the Manila Bay region sign the Manila Bay Declaration at the Philippine International Convention Center in Manila on 24 October 2001.

Partnerships Work

Towards a Working Partnership

To effectively address the mounting problems of Manila Bay, the Philippine Government, through the Department of Environment and Natural Resources in partnership with the GEF/UNDP/IMO Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), is implementing the Manila Bay Environmental Management Project (MBEMP).

The MBEMP attempts to foster partnerships among the private sector, donors, international organizations, scientific community, non-government organizations, local communities, and local and central governments to collectively rehabilitate, protect and maintain a healthy ecosystem in Manila Bay. At the same time, MBEMP promotes developing both terrestrial and marine and coastal resources on a sustainable basis.

From August 2000 to July 2001, stakeholder consultations were conducted throughout the region to formulate a shared vision on the future of the bay. These consultations also resulted in the formulation of the Manila Bay Coastal Strategy.

The strategy is a comprehensive environmental management framework with action programs that emphasize the need for partnerships among stakeholders as well as the synergies derived from different skills, expertise and perspectives for integrating economic development and environmental management of the bay.



There is an overlapping jurisdictional boundary among various coastal municipalities based on the 15 km limit as provided for in Republic Act 8550 known as the Philippine Fisheries Code of 1998. With these overlaps there is a need for partnerships among local governments to solve transboundary environmental issues

Manila Bay area Coastline length

Approximately 190 km Bataan, Pampanga, Bulacan, National Capital Region and Cavite Bordering province

Coastal population Noncoastal population

9,826,622 13,218,820

FAST FACTS

Approximately 1,800 km²

THE VISION Manila Bay - reflective of God's glory - is a clean, safe, wholesome and productive ecosystem, a center of socioeconomic development and a natural heritage nurtured by genuine Filipino values with regard to better quality of life for the present and future generations.

PEMSEA

December 2001

Manila Bay Declaration 2001

RECOGNIZING that Manila Bay is a source of food, employment, income, transportation, recreation, beauty, culture and history for the people of the area and the Philippines as a whole;

APPRECIATING that Manila Bay is the international gateway to the Philippines, and one of the best natural harbors in the East Asian region, and contributes over half of the country's gross domestic product through activities such as fishing and aquaculture, manufacturing, shipping, agriculture, mining and quarrying, and tourism;

APPRECIATING that the Manila Bay area has natural values, such as, upland forests and wetlands, mangroves, mudflats, coral reefs and seagrass beds, that provide important sources of food and habitat for many species, help maintain water quality and provide shoreline defense against floods and erosion;

UNDERSTANDING that the sustainability of Manila Bay and its diverse ecosystems are threatened by a variety of land and sea-based human activities such as over-fishing, introduction of alien species, uncontrolled coastal and river basin development and habitat destruction, and such threats have transboundary impacts;

RECOGNIZING the clear linkage between environmental degradation and the serious consequences to coastal populations, in particular the poor and other marginalized groups in Filipino society who depend extensively on the natural resources of Manila Bay for sustenance, and the need to address these two issues in an integrated fashion;

ENVISIONING that Manila Bay—reflective of God's glory can be a clean, safe, wholesome and productive ecosystem, a center of socioeconomic development, and a natural heritage nurtured by genuine Filipino values with regard to a better quality of life for both women and men today and for the future generations;

COMMITTING ourselves to the development and implementation of a comprehensive environmental management framework with targeted outcomes and action programs;

NOW THEREFORE, for and in consideration of these premises, and in order to ensure the sustainable development of Manila Bay, we, the stakeholders in Manila Bay, do hereby mutually declare and commit ourselves to this Declaration as follows:

To be collaborative partners in achieving a shared vision for Manila Bay by:

PROTECTING human welfare and the ecological, historical, cultural and economic features of Manila Bay for the benefit and security of present and future generations;

MITIGATING environmental risks that occur as a consequence of human activities in the Manila Bay coastal and watershed areas;

DEVELOPING areas and opportunities for both women and men in Manila Bay in consonance with environmental goals, policies and plans, thereby striking a balance between economic development and environmental management;

COMMUNICATING with the stakeholders of their rights and responsibilities, and the issues concerning the coastal and marine environment, to ensure their involvement and active participation in the development and implementation of an environmental management program; and

DIRECTING the formulation and implementation of policies and institutional mechanisms to achieve sustainable development in Manila Bay through interagency and intersectoral partnerships at the national and local levels.

To individually and collectively implement the Manila Bay Coastal Strategy, addressing the complex administrative, social, economic and environmental issues surrounding the sustainable development and management of Manila Bay and its resources by confirming our commitments to the following roles and responsibilities:

NATIONAL GOVERNMENT, strengthening national policies, strategies, plans and programs for the protection, restoration and sustainable development of the coastal and marine resources of the Philippines, and fulfilling national obligations under multilateral environmental instruments, thereby creating a policy and investment environment for implementation of the Manila Bay Coastal Strategy;

LOCAL GOVERNMENTS, including coastal and noncoastal provinces, cities and municipalities of Manila Bay, developing and implementing local and gender-responsive coastal strategies and action programs in partnership with local stakeholders, and identifying opportunities for economic development and environmental investment, thereby achieving the objectives of the Manila Bay Coastal Strategy;

BUSINESS AND INDUSTRIES, exercising corporate responsibility with regard to sustainable development and use of the resources of Manila Bay, and investing in the environment and development of opportunities that benefit people and the environment, in accordance with the Manila Bay Coastal Strategy;

NON-GOVERNMENTAL ORGANIZATIONS, PEOPLES' ORGANIZATIONS, AND CIVIC ORGANIZATIONS,

organizing and mobilizing communities and other sectors/stakeholders, especially in the fields of education, gender equity, poverty alleviation, youth education, alternative livelihood programs, credit and extension services and other related concerns, thereby ensuring community awareness and participation in the implementation of the Manila Bay Coastal Strategy; **ACADEME**, providing expertise and advice in policy and decision-making processes at the local and national levels, and undertaking research programs that address information gaps and uncertainties relevant to policy and management issues in the implementation of the Manila Bay Coastal Strategy;

LOCAL COMMUNITIES, getting informed on appropriate human activities that have a negative impact on their local environment, and becoming environmental managers and stewards of Manila Bay's coastal and marine resources in accordance with the Manila Bay Coastal Strategy;

The UNITED NATIONS AND OTHER INTERNATIONAL

AGENCIES AND DONORS, providing training and education, technology transfer and other capacity building initiatives, and assisting the national and local governments in leveraging investments in environmental facilities and services, in support of the Manila Bay Coastal Strategy; and

INTERGOVERNMENTAL FINANCIAL INSTITUTIONS AND COMMERCIAL AND DEVELOPMENT BANKS.

providing expert advice and assistance to plan, develop, finance and operate self-sustaining environmental facilities and services in support of the Manila Bay Coastal Strategy.

IN WITNESS WHEREOF, the parties have hereunto affixed their signature.

National Government Agencies Hon. Heherson T. Alvarez. Secretary

Department of Environment and Natural Resources Department of Agriculture Department of Foreign Affairs Department of Interior and Local Government Department of Mitchel and Eocal Gover Department of Science and Technology Department of Education Department of Health Department of Public Works and Highways Department of Tourism Department of Trade and Industry Department of Transportation and Communications Housing and Urban Development Coordinating Council Laguna Lake Development Authority Maritime Industry Authority Metro Manila Development Authority National Commission on Culture and Arts National Commission on the Role of Filinino Women National Economic and Development Authority Pasig River Rehabilitation Commission Philippine Information Agency Philippine Coast Guard Philippine Ports Authority

Bataan

Cavite

Laguna

Rizal

Tarlac Las Piñas

Malabon

Navotas

Parañaque

Las Piñas Parañaque

Navotas

Malabon

Bulacan

Navotas

Cavite

Laguna

Rizal

Avala Foundation

Nestle Philippines

Petron Cornoration

Finance Exec. Institute

Management Association of the Philippines

Philippine Business for Social Progress

Caltex Phils., Inc.

Pampanga

^arañaque

Manila

Pasay Quezon City

Nueva Eciia

Pampanga

Bulacan

Local Government Units

Hon. Leonardo B. Roman. Governor Hon. Josefina M. de la Cruz, Governor Hon. Ireneo S. Maliksi, Governor Hon. Teresita S. Lazaro, Governor Hon. Tomas N. Joson III, Governor Hon, Manuel M, Lapid, Governor Hon. Rebecca A. Ynarez, Governor Hon. Jose V.Yap, Governor Hon. Vergel A. Aguilar, Mayor Hon. Amado S. Vicencio, Mayor Hon. Joselito L. Atienza, Jr., Mayor Hon. Tobias M. Tiangco, Mayor Hon. Joey P. Marquez, Mayor Hon. Wenceslao B. Trinidad, Mayor Hon. Feliciano R. Belmonte, Jr., Mayor Hon. Luis I. Bustamante, Vice Mayor Hon, Florencio M. Bernabe, Vice Mayor Hon. Lutgardo V. Cruz, Vice Mayor Hon. Mark Allan Jay G. Yambao, Vice Mayor

Hon. Leonardo Q. Montemayor, Secretary H.E. Teofisto T. Guingona, Jr., Secretary

Hon. Simeon A. Datumanong, Secretary

Hon. Jose D. Lina, Secretary

Hon. Raul S. Roco, Secretary

Hon. Mar A. Roxas. Secretary

Hon. Manuel M. Dayrit, Secretary

Hon, Richard J. Gordon, Secretary

Hon. Estrella F. Alabastro. Secretary

Congress

Hon. Wilhelmino M. Sy-Alvarado, Congressman 1st District Hon. Federico S. Sandoval II Hon. Zenaida C. Ducut, Congressman, 2nd District Hon. Eduardo C. Zialcita Hon. Plaridel M. Abaya, Congressman 1st District Hon. Gilbert Cesar C. Remulla, Congressman 2st District Hon. Uliran T. Joaquin, Congressman 1st District Hon. Joaquin M. Chipeco, Jr., Congressman 2nd District Hon. Rodolfo S. San Luis, Congressman 4th District Hon. Michael John R. Duavit, Congressman, 1st District Hon. Isidro S. Rodriguez, Jr., Congressman 2nd District **Private Sector** Teresita C. Villacorta. Associate Director

Nicholas C. Florio, Country Chairman Rupert K. Suarez, President Ricardo S. Pascua,, President Juan B. Santos, Chairman and Chief Executive Officer Motassim A. Al-Ma'Shouq, President Ma. Luisa Y. Perez-Rubio, President

Philippine Chamber of Commerce and Industry Philippine Environmental Industry Association Pilipinas Shell Petroleum Corp. Trust International Paper Corporation Unilever Philippines

Baclaran Alliance of Youth and National Idealists

Catholic Bishops Conference of the Philippines

Management Council, National Capital Region

Australian Agency for International Development

Embassy of Sweden and the Swedish International

United Nations Development Programme United States Agency for International Development

Canadian International Development Agency

GEF/UNDP/IMO Partnerships in Environmental

Delegation of the European Commission

Japan International Cooperation Agency

Management for the Seas of East Asia

Development Cooperation Agency

Bankers' Association of the Philippines

Rizal Commercial Banking Corporation

Kapisanan ng mga Brodkaster sa Pilipinas

University of the Philippines - Los Baños

University of the Philippines - Marine Science Institute

Bukluran ng mga Mangingisda at Masaganang Bukid

Montalban Aggregate Producers' Association Eastern Rizal Miners' Association

Development Bank of the Philippines

Roval Netherlands Embassy

Asian Development Bank

Land Bank of the Philippines

World Bank

National Press Club

Rizal State College

Bulacan State University

Central Luzon State University

Central Azucarera de Tarlac

Tourism Association of Laguna

Jhon and Jhon Farms

Bataan Coastal Care Foundation

Clean and Green Foundation, Inc.

Earthsavers Movement, Philippines

Fisheries and Aquatic Resou

Fisheries and Aquatic Resource Management Council, Region 3

Fisheries and Aquatic Resource

Federation of Free Farmers Integrated FARMC of Manila Bay

Manila Baywatch Foundation

Philippine Coast Guard Auxiliary Philippine Rural Reconstruction Movement

Save Parañaque River Foundation

Likhang Kabitenyo

Urban Land Reform

Management Council, Region 4

Non-government Organizations

Marvin E. Laddaran. Vice President Marilou G. Erni, President Msgr. Hernando M. Coronel, Spokesperson Imelda S. Sarmiento, Executive Director Cecile G. Alvarez. Communication Director

Oscar S. Reves. Chief Executive Officer and President

Howard D. Belton, Chairman and Chief Executive Officer

Miquel B. Varela. President

Antonio S. Tria, Pre

George Chu, President

Crispin E. Cahile, Chairman

Villamor Santos. Chairman

Rogelio P. Montiel, Chairman Dean Jeremias U. Montemayor, National President Danilo Exconde, Chairman Alexis Q. Agoncillo, President Werner Lettmeyer, President Rear Adm. Matias B. Anzar III, National Commander Wigherto F Tañada President Corazon Alma de Leon, Chairman Mercedes R. Castro. Vice-Chairperson

UN and Other International Agencies

Peter Smith Counsellor Viviene Scott. Head H.E. Yves Gazzo, Ambassador

Chua Thia Eng, Regional Programme Director Hideo Ono, Resident Representative H.E. Theo Arnold, Ambassador

Lars Andreasson. Minister Deputy Head of Mission Terence D. Jones, Resident Representative Patricia K. Buckles, Director

Financial Institutions

Günther Hecker, Country Director Placido L. Mapa, Jr., President Remedios L. Macalingcag, President and Chief Executive Office Margarito B. Teves. President Valentin A. Araneta. President and Chief Operating Officer Leonora Aquino-Gonzales, Country Director

Media

Joselito G. Yabut. Chairman Louie T. Logarta, President

Academe

Rosario Pimentel, President Fortunato A. Battad. President Heracleo O. Lagrada, President Wilfredo P David Chancellor Gil S. Jacinto, Directo

Stakeholders' Groups

Carmelita Torres, Control Officer Susan S. Zabala. President Polly R. Dizon, Chairman Antonio Pinzon President Veronica Lee, President Nilcar B. Donato. President

Hon. Pantaleon D. Alvarez, Secretary Hon. Michael T. Defensor. Chairperson Calixto R. Cataquis, General Manager Oscar M. Sevilla. Administrator Beniamin S. Abalos. Chairperson Maria Fina C. Yonzon, Executive Director Aurora Javate- De Dios Chairperson Dante B. Canlas, Director-General Emilia Boncodin, Chairperson Roberto T. Capco, Press Undersecretary Vice Admiral Reuben S. Lista. Commandant Alfonso G. Cusi, General Manage Public Estates Authority Benjamin V. Cariño, General Manager

Bataan Declaration on Environmental Protection

The people of Bataan:

- recognizing the need to address critical environmental concerns in the province as well as the present and future challenges;
- determined to implement appropriate measures to balance economic development, and protection and conservation of Bataan's marine and coastal resources in order to achieve sustainable development and wellbeing of Bataeños; and
- realizing the significant role of Bataan in the national and regional economic and social development and in consideration of the current state of Manila Bay's environment;

hereby unanimously make a commitment to the Bataan Declaration on Environmental Protection.

I. Importance of the Bataan Environment

- 1. Bataan is a peninsular province occupying an important area in the Manila Bay region and the Central Luzon Growth Corridor. The condition of the province's ecological environment is an important factor in the continued prosperity not just of Bataeños but also to the economic and social development of the entire Manila Bay and Central Luzon regions. Hence, preserving the ecological integrity of Bataan's environment is a strategic factor in achieving sustainable development both in the regional and national level.
- 2. Alongside Bataan's march to economic progress and development, came the continuous deterioration of its upland and coastal environment. Destruction in the uplands resulted in shallowing waterways, perennial flooding and coastal erosion. An increasing population correlates directly with increasing pollution levels. As such, the whole ecology of Bataan is facing and coping with the enormous impacts of increasing population pressures. If these go unchecked, the damage to Bataan's natural systems would mean a decline in the service functions of the land-sea area as well as its capacity to sustain development and resource use. Continuous degradation of Bataan's environment would threaten development prospects in the province as well as in the Manila Bay and Central Luzon regions, causing economic dislocation in the national level as well.

3. Ensuring sustainable development of Bataan is of critical importance to the well-being of the Manila Bay and Central Luzon regions as it threads the path to economic and social development. The improvement of the province's environmental systems requires systematic and program-based solutions and actions, partnerships among its coastal municipalities, government agencies, non-government organizations, the business community as well as other concerned groups and individuals that make Bataan whole. Solutions require the long-term application of effective and efficient measures. To promote sustainable development of the province and of the region, we hereby solemnly declare our commitment to fulfill our responsibilities to implement the Coastal Strategy of the Province of Bataan, and pledge to take actions to protect and rehabilitate Bataan's ecosystems and maintain their functional integrity.

II. The Bataan Coastal Strategy

- 4. We envision "a well-developed community with abundant natural resources, clean environment and responsible citizenry empowered to care for nature and its bounty."
- 5. Following the stated vision, our mission is as follows:

"to clean the environment, develop it sustainably and make it safe from harmful human activities for us to live peacefully, blissfully and honorably amidst nature's bounty through active participation in integrated resource management efforts."

- 6. We shall implement the following strategies with our full support and commitment:
 - Protecting and preserving the significant values of Bataan's coastal environment with distinct natural and cultural features for the future and present generations;
 - Mitigating the impacts of damaging human activities in order to sustain the range of values supported by Bataan's coastal environment;
 - c. Developing suitable development areas and opportunities as well as directions for future uses of the Bataan's coastal environment; and
 - d. Informing stakeholders of the issues and problems concerning the coastal environment of Bataan, and mobilizing them towards sustainable and active participation in environmental management programs.
- 7. We recognize that the implementation of the coastal strategy requires the full cooperation and active involvement of key stakeholders in Bataan such as the national government agencies, local government units, private sector, civil society and other stakeholders.

III. Institutional Arrangements and Key Responsibilities

8. Institutionalizing management mechanisms is a key solution to realize Bataan's vision. Thus, we have formed the BIGKIS–Bataan program to serve as a primary coordination structure for the integrated

management of Bataan's upland and coastal resources. This is composed of members from the provincial government, provincial level government agencies, representatives from non-government organizations and the business community through the Bataan Coastal Care Foundation, Inc. The program will serve as a mechanism to coordinate efforts to conserve Bataan's coastal and marine resources, environmental monitoring, supervision and a conduit for policy formulation.

- 9. Bataan is located in a region with cross-administrative boundaries and distinctive socio-economic and physiographical features. Actions aimed at improving and rehabilitating Bataan's environment should conform with the policies, general principles, standards and requirements of the laws and regulations concerning environmental protection both at the national and regional levels. Parallel to this, considering the specific characteristics of Bataan, it is essential to enact and implement provincial and municipal level policies and resolutions so as to provide and strengthen the implementation of the BIGKIS-Bataan Program and other activities pertaining to the development, management, protection and rehabilitation of Bataan's environment.
- 10. BIGKIS-Bataan is currently funded by the provincial government in partnership with the Bataan Coastal Care Foundation, Inc., a group composed of several key industries that contribute the necessary funds for program implementation. Other stakeholders, especially local government units, other public and private businesses, societal organizations and individuals will also be invited to contribute in funding and/or managing the program. The funds will be mainly used for information, education and communication programs, mitigative environmental management

actions, related scientific and technological researches, capacity building and human resources development.

- 11. Solutions to Bataan's environmental problems would require the support of scientific research and development institutions along with available environmental management technologies, financial inputs from donor organizations, and extensive national and international cooperation. We recognize the importance of transregional information sharing, dissemination and interchange on environmental resources management. We are willing to be part of relevant international organizations and interact with other coastal countries, provinces and areas in the world in order to have mutual technological coordination, cooperation and transfer to make noteworthy contributions to the improvement of the marine environment not only in the Manila Bay region but also in the East Asian Sea Region and the world.
- 12. We propose that provincial governments around the Manila Bay and Central Luzon regions, the local municipal governments and society as a whole take heed and pay attention to the maintenance of ecosystems in their respective areas; develop, use and protect the environmental resources in a scientific and rational manner such that the government and all sectors of society could benefit from sustainable use of land and sea resources.
- 13. Again, we reiterate the call that in making relevant policy decisions and taking specific actions in the future, we shall always consider and follow the aforementioned principles, conscientiously preserve and protect Bataan's environment and natural resources for the sake of the present but most especially the future generations.

Signed on the 20th of August, year 2001, in Makati City, Philippines.

que her

Hon. LEONARDO B. ROMAN Governor, Province of Bataan

Hon. JOSE ALEJANDRE PAYUMO III President, Mayors' League, Province of Bataan

loy J.

Ms. MARILOU G. ERNI President, Bataan Coastal Care Foundation, Inc.

Partnerships were formed through problem-solving processes and were viewed as necessary to confront complex environmental problems. Partnerships in Shihwa Lake proceeded on their own volition without any guidance from experienced organizations.



Figure 1. Schematic diagram on the formation of the Shihwa NGO.

continued from page 31

was the first of a series of public protests aimed at stopping industrial wastewater discharges into the lake and instituting comprehensive water quality improvement measures (Korean Federation for Environmental Management, 2001). In 1995 and 1996, Shihwa Lake residents held spontaneous and sporadic protest actions against several environmental issues such as: damage to grape farms in Hwasung City Songsan-myun due to the salt flown from dried tidal mudflat; illegal wastewater discharges into Shihwa Lake; and saving the environments of Daebudo and Ooeido.

These initiatives, however, were limited in terms of strategy, finances and legal personality. The rallies merely ventilated environmental concerns without providing any viable alternatives. Different groups of protestors also presented conflicts among themselves.

One major development in forging partnerships in the region was the formation of "The Ansan-Siheung-Hwasung Citizens' Group for Save Our Shihwa Lake" (hereafter, referred to as Shihwa Lake Citizens' Group). The Shihwa Lake Citizens' Group sought to establish partnerships to rehabilitate the degraded environment and to pursue sustainable coastal development. It likewise formulated Group Missions and organized local citizens through committees. However, the Shihwa Lake Citizens' Group had limitations in terms of building awareness and providing alternatives. The local residents and advocacy groups realized the need for establishing a more consolidated organization, which can serve as the unified voice of the Shihwa Lake region. Hence, the "Hwasung-Siheung-Ansan Citizens'

Aspect	Shihwa Lake Citizens' Group	Shihwa NGO
Motives and setting	 Discharge of industrial wastewaters into Shihwa Lake; Absence of effective water quality improvement measures from the government; Conflicting interests among government agencies; and Absence of citizens' opinion and cooperative system from NGOs. 	 Destruction of ecosystem of the Shihwa Lake region; Negative reputation of the region and damage sustained by local residents; Identification of the government's accountability in creating Shihwa Lake; Abandoning of government's plan to use freshwater from Shihwa Lake; Need for a new vision for Shihwa Lake; Directions to improve water quality; and Action plans for citizens to save Shihwa Lake.
Activities	 Explore consensual approaches to solve Shihwa Lake problems; Find alternative solutions to Shihwa Lake problems; Inquire agenda of political candidates; and Demand reorientation of Shihwa Lake policy. 	 Prepare citizens' plans for an ecopark; Publicize citizens' plans; Conduct ecosurvey of Shihwa Lake; Hold public education through eco-exploration of Shihwa Lake and educational tours; and Execute citizens' actions.
Participation	 Although local environmental NGOs have taken the lead role, labor unions, business organizations and damage control groups related to Shihwa Lake were encouraged to participate; and Local experts and civil servants, politicians and residents. 	 Organization of an executive committee using a local citizens' group as its main force; Real substantial participation by the Siheung, Ansan and Hwasung cities; Participation from all local citizens' groups-NGOs was encouraged; and Possible avenues were provided for local stakeholders and concerned people to participate in activities initiated by citizens' groups.

Table 1. A comparison between the Shihwa Lake Citizens' Group and the Shihwa NGO.

Coalition for Shihwa, a Lake of Hope" (hereafter, referred to as Shihwa NGO) was established in March 1999 (see figure 1).

The Shihwa NGO drastically differed from the previous unconsolidated groups protesting against industrial wastewater discharges into the lake and the Hanwha petroleum transfer station. It became a genuine local NGO with a mission focusing on Shihwa Lake. It received support from experts and local government. Table 1 compares the Shihwa Lake Citizens' Group with the Shihwa NGO.

Shihwa NGO: Early Stages

In March 1999, 12 people – technical experts, NGO representatives and environmental activists – decided to form the Shihwa NGO. Its first activity was a public consultation on making Shihwa a lake of hope. It presented an operational plan, which included public hearings, experts' meeting, NGO workshops, ecological surveys and publication of a white paper. Later that month, in commemoration of Water Day, the Shihwa NGO conducted another public meeting with 300 participants.

In April, the NGO conducted its first workshop to develop a Citizens' Proposal on the lake (see box 1 on page 41). It likewise participated in a rally against the construction of a landfill for industrial waste, which the Ministry of Environment proposed. In May, it held an experts' forum on appropriate uses of the lake and an environmental concert. The Shihwa NGO's proposal on the ecological use of the lake was considered unprecedented since it provided a clear measure on solving local environmental problems.



Figure 2. Blueprint for Shihwa ecopark as proposed by local citizens.

The Citizens' Proposal on Shihwa as a lake of hope has been formulated through countless consultations at various meetings (Je, 1999a, b, c). Herein, Shihwa stakeholders, particularly government, experts and citizens' groups, expressed their visions for the region. Around this time, the Ansan City Government was also formulating a management plan for Shihwa Lake. Hence, various stakeholders were able to exchange and confirm their viewpoints (Ansan Development Committee for Environmental Conservation in the 21st Century, 1999). As a consequence, the city's plan and the citizens' proposal became merged into a coherent plan.

With this plan at hand, stakeholders proceeded with the formation of the Shihwa NGO, which is composed of government representatives, experts and citizens' groups. The NGO shall ensure the implementation of the citizens' proposal.

One of the recommendations in the citizens' proposal is the creation of an ecological park or ecopark (see figure 2). In fact, local residents were surprised that Shihwa Lake attracted a lot of visitors in spite of its negative reputation. A survey revealed that more than 7 million people visit areas surrounding Daebudo annually (Ansan, 2000). The citizens' proposal received positive recognition from domestic and international communities. Likewise, local and central governments and regional autonomous governing systems welcomed the proposal as a sound alternative.

The proposal has successfully pushed environmental issues into the political agenda, particularly during presidential and local elections. It has forced several development agencies to review existing plans or fast track their schedules to establish Shihwa Lake as a pilot site for a Special Management Area (Hwasung– Siheung–Ansan Citizens' Coalition for Shihwa, a Lake of Hope, 1999).

In spite of internal conflicts, the Shihwa NGO has successfully accomplished its objectives. It still plays a lead role in public opinion formation in Shihwa Lake. At present, it has to formulate another set of action plans integrating various management and development plans on Shihwa Lake formulated by different sectoral agencies.

Enabling Local Partnerships

Several factors contributed to the successful establishment of the Shihwa NGO and the partnership among interested parties on Shihwa Lake. In all probability, the Shihwa NGO would have had difficulty surviving without the following:

- A loose but early prototype citizens group already existing with the mission on restoring Shihwa Lake;
- Presence of active and committed local environmental movement activities;
- Existence of local expert groups in various fields who can provide consultations when needed;
- Implementation of autonomous local government system;
- Cooperation from local governments;
- Continuous outbreaks of environmental problems; and
- Heightened environmental awareness.

When environmental problems started to erupt in Shihwa Lake, the Ansan YMCA played a lead role vis-à-vis public protest. It provided much needed information and served as the training ground for future NGO leaders.

Several academic and research institutions are located adjacent to Shihwa Lake. These include the Korea Ocean Research and Development Institute, Hanyang University and Ansan Technical College, Ansan First College and Seoul Art College in Ansan. These organizations could provide scientific and technical advice responding to local needs.

Box 1. Outline of the Citizens' Proposal on Shihwa Lake.

- Background
- Purpose
- Shihwa vicinity
 - · Shihwa Lake and its reclaimed land
 - Local community
 - ✓ Space resources of Shihwa Lake
 - ✓ Exceptional accessibility
 - Discovery of fossilized dinosaur nesting sites
 - ✓ Various historical and cultural sites
 - Local products and seafood specialties
 - ✓ Wintering sites for migratory birds
- Tourism as a new alternative
 - Fostering right conditions for tourism
 - ✓ Creation of access-friendly space within the lake
 - Rehabilitation of inlet and development of fisheries market center
 - Designation of protection area for natural ecosystem and fisheries resources
 - Improvement of Shihwa Lake scenery
 - Restoration of coastal wetlands/ marine environment and building of education complexes
 - Establishment of natural history museum and aquarium
 - Provision of space for marine sports
 - Preparation of tourist facility for family outings
- Publicizing/promoting Shihwa as a comprehensive tourist attraction
- Economic evaluation of Shihwa Lake as a feasible tourist attraction
- Future of Shihwa Lake and its vicinity

Partnerships were formed through problem-solving processes and were viewed as necessary to confront complex environmental problems. Partnerships in Shihwa Lake proceeded on their own volition without any guidance from experienced organizations.



Figure 3. Process of building local partnership for Shihwa Lake environmental management.

Local people likewise provided detailed, accurate and critical information.

Local governments became more sensitive to public opinion given the policy of national government towards an autonomous local governance system. With the Earth Summit Conference held in Rio de Ianeiro. Brazil, in 1992 encouraging citizens and civil servants to find solutions to local environmental problems, the local governments found several proposed local initiatives worthy of support and funding. Thus, partnerships on environmental management and protection gained strength.

Environmental problems in Shihwa Lake caused social problems, such as feelings of uneasiness and fears to local residents. These environmental problems forced local residents into action. They realized the importance of making a stand and deciding the future of Shihwa Lake. At this juncture, the Shihwa NGO's proposal received wide acceptance and support.

The most important factor in protecting local environment is the human factor, such as committed local people dedicating themselves in protecting local environment. This dedication entailing often laborious footwork provided detailed, accurate and critical information about Shihwa Lake to the local community.

Conclusion

The improvement of Shihwa Lake's environment may be considered as a unique and positive example to be upheld both locally and internationally. Much of this success may be attributed to the formation and strengthening of partnerships for preserving local coastal resources and improving the lake environment, the process of which is described in figure 3.

At present, responsible government agencies, such as the Ministry of Construction and Transportation and the Ministry of Agriculture and Forestry, are preparing a new development plan for the Shihwa Lake region, while the Ministry of Maritime Affairs and Fisheries (MOMAF) has prepared an Action Plan for Shihwa Lake Environmental Management. It is expected that the viewpoints of local communities shall be integrated into the new plan, the extent of which, however, shall depend on the strength of partnerships formed among stakeholders.

The "Shihwa Declaration on Sustainable Coastal Use and Environmental Protection" was signed on 15 March 2001 by the representatives of MOMAF, the governments of Kyonggi Province, Ansan City, Siheung City, and Hwasung City, and national congresspersons representing local stakeholders. This declaration is expected to play a role in developing a new partnership among various multisectoral and multi-agency stakeholders. A strong partnership first requires a common vision, which is arrived at through deeper, wider and mutual understanding. Understanding is the key binding factor as stakeholders may have different interests and backgrounds. Depending on the approach taken, these differences may even result in complementary partnerships and stronger cooperation.

The challenge now is to expand partnerships within the local government system. If local governments join, the future shall be much brighter since local integration is critical for successful policy implementation.

Bibliography

- Ansan. 2000. A study on establishing a national natural history museum complex near Shihwa Lake. (In Korean). 169 p.
- Ansan Development Committee for Environmental Conservation in the 21st Century. 1999. A proposal for turning Shihwa Lake into an ecopark as an environmental conservation method - a new direction for Shihwa Lake utilization in the future. (In Korean). 22 p.
- Ansan Young Men's Christian Association. 1995. Shihwa Lake as freshwater lake: can we rehabilitate it? (In Korean). Paper presented at the Fifth Ansan Forum for the 21st Century.
- Ansan Young Men's Christian Association. 1999. Ansan report 1998. (In Korean). 433 p.
- Chua, T.-E., S. A. Ross, Y. Huming, G. Jacinto and S. R. Bernad. 1999. Sharing lessons and experiences in marine pollution management. MPP-EAS Technical Report No. 20, 94 p. GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas. Quezon City, Philippines.
- Hwasung Siheung Ansan Citizens' Coalition for Shihwa, a Lake of Hope, 1999. Citizens' Proposal for ecopark of Shihwa Lake.
- Je, J.G. 1999a. Present and future studies on tidal flat fisheries experience of Daebudo . Public discussion on developing a proposal for Shihwa Lake environmental protection.(In Korean) Ansan YMCA Grassroot Environmental Center.

- Je, J.G. 1999b. A proposal to develop Shihwa Lake into an ecopark as an environmental protection measure. Public discussion on developing a proposal for Shihwa Lake environmental protection.(In Korean). Ansan YMCA Grassroot Environmental Center.
- Je, J.G. 1999c. Shihwa Lake and coastal park city. Public discussion on developing a proposal for Shihwa Lake environmental protection. (In Korean). Ansan YMCA Grassroot Environmental Center.
- Joins Joong Ang Ilbo. 2001. Seoul, Korea. Avail from: http://search.joins.com
- Korean Federation for Environmental Management. 2001. Seoul, Korea. Avail from: http://kfem.or.kr.
- Ross, S.A. 1999. Editorial: public-private partnerships in coastal and marine resource management. Trop. Coasts 5 (2) and 6 (1) 3-10.
- Save Our Daebudo-NGO. 1996. Symposium on Sustainable Development and Environmental Protection of Daebudo, Ansan.
- Siheung Environment Movement/People for Blue Gyeonggi 21. 2000. Citizen's Movement on Air Quality Improvement of Shihwa and Banwol Industrial Complexes. (In Korean). 174 p.

Donald O. Hodgins President Seaconsult Marine Research Ltd. Vancouver, Canada

Introduction

Management decisions regarding pollution control and abatement benefit greatly from sound predictions of contaminant transport and fate for particular coastal zone problems. Hence, transport and fate predictions must be accurate, readily accessible and cost-effective to be useful for evaluating environmental risk and impact mitigation. In most stratified coastal seas, accuracy usually demands the use of three-dimensional modelling techniques for both hydrodynamics and dispersion of contaminants. Developing, applying and verifying such models are timeconsuming, exacting processes oceanographers and mathematicians typically carry out. Data requirements to run such models are also large. As a result, the routine use of complex three-dimensional models is often out of reach for integrated coastal management (ICM) sites in East Asia both in terms of finances and trained personnel.

Water Quality Modelling in East Asia: A Partnership between PEMSEA and Seaconsult



During its first phase, the GEF/ UNDP/IMO Partnerships for the Seas of East Asia (PEMSEA) recognized the benefits of predictive water quality modelling. It began to look for an efficient way to deliver these services to the region. Two goals were established early on. First, there had to be an efficient way to standardize, compile and access basic data needed to define pollution loads. Second, there had to be an efficient process to bring numerical models onstream for ICM sites, complete the required predictive runs, and then quickly assess the results. Ideally, there should be a close linkage between the data compilation process and modelling.

To meet its first goal, PEMSEA laid out the conceptual design for a relational database for use in its ICM sites and at its regional program office (RPO) in Manila. Seaconsult Marine Research Limited^[1] developed data

^[1] Seaconsult Marine Research Limited of Vancouver, British Columbia, Canada, is a multidisciplinary consulting organization established in 1975 to provide specialized services in coastal engineering, oceanography and computer science. The company brings together highly qualified professionals combining experience and academic achievement in engineering, marine sciences and computer applications.

recording specifications, spanning many different categories, under contract with the RPO. These specifications were followed during the initial implementation of the database program, which became known as the integrated information management system (IIMS) (Hodgins and Salvador, 1999). The IIMS is a relational environmental database. capable of handling large sets of data on coastal and marine environment. It serves as a decision-support system when linked with a geographic information system (GIS) and hydrodynamic and pollutant fate forecasting models.

Throughout the design and software development phase, the linkage to predictive modelling was kept very much in view – both for defining input data on pollution loads and for analyzing model results using simple GIS tools. Once the design was established, further expansion of the software and development of the database were transferred to PEMSEA staff.

The drive toward the second goal began with an innovative concept, which Seaconsult suggested. The concept consisted of global networking over the Internet to facilitate data exchange between ICM sites and a specialist modelling facility, which brings together the requisite skills and computer resources in a sustainable commercial setting (see figure 1). The idea evolved from the SEACAST system developed in the mid–1990s by Seaconsult (Hodgins, 2000), which



provided online forecasts of red tides and sea surface temperatures to users in the Northeast Pacific. Since that time, the system has been expanded and widely used for water quality, sediment quality and environmental impact assessments.

Partnership Arrangement

Putting the predictive modelling capability in place for East Asia required collaboration on two fronts. First, three-dimensional models do evolve through research and development (R&D): the physics improves, computational efficiency increases and the model becomes more generalized as it is applied to a broader range of problems. This R&D phase advances the scientific foundation of the model and prepares for the type of predictive water quality modelling required by coastal zone planners. Second, the software needed to formulate input data and view output must be developed with specific features required by the regional program.

Both PEMSEA and Seaconsult realized that a partnership would be beneficial for all concerned. In 2000, an agreement was forged to enhance the IIMS and bring the SEACAST system online. For the first phase, to last until 2003, personnel from both organizations shall focus on developing the model and complementary software tools. The cost of these activities shall be shared. Cost-sharing the R&D phase makes sense for Seaconsult, a forprofit corporation, because the investment will be recovered through downstream royalties when the model enters regular use. PEMSEA benefits through the reduction of direct investment in such highly specialized software tools as SEACAST and IIMS. The collaboration also provides a

two-way exchange of ideas and data for modelling activities, leading to more robust software that conforms well to the needs of the region.

Key Features of SEACAST

The SEACAST modelling system may be used for predicting water quality and the motion of oil spills. There are no geographical restrictions on its use, although the models must obviously be carefully implemented and verified for areas where they will be applied. The IIMS is used to supply data to the model at two levels.

First, some of the basic data to implement, run and verify the model can be extracted from the IIMS database. Typically, these data consist of river discharge measurements, water property observations and wind or tide measurements. Other data such as bathymetry (underwater topography) are obtained from specialized agencies outside of the IIMS. These data resources are currently being assembled for Manila Bay.

Second, the IIMS may be used to formulate pollution loads to the model. In this step, specific scenarios are created and the data on point or nonpoint source loads are derived in the format required for input. These basic scenario data are stored in the IIMS, forming a catalogue of model runs. Again, PEMSEA takes the lead role in developing scenarios to be run with the model. The scenario data are sent to Seaconsult in Vancouver, Canada, where the model is run on a Sun Solaris workstation network. Upon completion, the results are processed and posted to a PEMSEA webpage for downloading to a local computer, where they are viewed using a simple Windows program called Seainfo.

Predicting Pollution Dispersion

A three-dimensional hydrodynamic and thermodynamic model (C3) forms the core component of the software system. Input data include tide, wind, river runoff, solar insulation and longterm variations in sea level and ocean salinity and temperature. The output data on ocean currents and stratification are then used in the water quality component to calculate the movement and dilution of a range of chemical, bacteriological or particulate contaminants. For example, bacteria, settleable solids, dissolved chemical contaminants and biochemical oxygen demand can all be simulated. A buoyant plume module for analyzing multiport ocean outfalls is included as an integral part of the water quality system. This module is important because it prescribes the correct depth and strength of pollutants entering the water column as the effluent plume responds to changes in current speed and seawater density. A simple ecology model is also included in SEACAST to simulate the response of plankton to changes in temperature, salinity and nutrient content. The

present formulation is based on a lumped-species phytoplanktonzooplankton-nutrient model (Kremer and Nixon, 1978).

The circulation, water quality and ecology models are all based on systems of partial differential equations expressing conservation of mass and momentum in the flow fields. These fundamental equations are solved numerically on regular or irregular grids for specified boundary and initial conditions. Grids range from highresolution meshes with spacings of 50-100 m for near-field plume simulations, up to 1000 m or more for open ocean models. Fine grids can be nested into regional models to increase resolution in critical areas.

Two specialized submodels one for oil spills and one for sedimentation - complement the basic SEACAST system. SPILLSIM is used to predict the movement of floating slicks (Hodgins et al., 1991). After drawing current information from the C3 circulation model, it computes the trajectory and weathering of a spill for a range of crude and refined petroleum products. This model can be used for emergency response, and for contingency planning and training. Transport and diffusion using particles is a relatively new model (Hodgins et al., 2000) designed for calculating the movement and settling of sewage solids, harbor dredging materials and offshore oil well cuttings and produced water.

Both models are solved with particle tracing methods and a random walk procedure to simulate the effects of turbulence.

GIS Data Products

The delivery of the model output is an important component of the system. A key goal is to provide nonmodellers at PEMSEA and the other sites in the region easy access to the results of each scenario investigated in the model. To meet this goal, SEACAST output is presented accurately in georeferenced form, and a simple GIS program called Seainfo is used to provide display, animation and query support. A key feature of Seainfo is simplicity of use and a direct, meaningful display of complex three-dimensional model output.

Case Study: Manila Bay

In 2000, SEACAST was implemented for Manila Bay as part of the joint development process (see figure 2). A regular grid with a spacing of 400 m in each direction was used in this particular model. This fine grid provides excellent resolution of bathymetry, shoreline and circulation of the bay. Important factors that govern water flow and the movement/dilution of contaminants were addressed. These include tide, runoff from three major rivers, open-ocean exchanges of water with the bay and winds measured in the port area of Manila.

A critical test of the model is the accuracy of the predicted tide inside the bay. Figure 3 illustrates a fortnightly









Figure 3. Verification of the modelled tide at Manila Station ML for the dry season (*upper panel*) and the wet season (*lower panel*).



Figure 4. Example of the Seainfo display showing fecal coliform counts in the surface layer for a hypothetical scenario in Manila Bay.



Figure 5. Risk quotient illustrating the multiplier on a fecal coliform count of 1,000 MPN/100 mL.

comparison of measured and predicted water levels for the dry and wet seasons – the model skill is obviously very good with no perceptible phase difference and high–low water differences of less than 10 cm in the 110 cm tide range. Other tests have shown that the model correctly maintains the freshwater budget of the bay, taking the seasonal changes in river runoff into account.

As part of the development phase, PEMSEA and Seaconsult defined several purely hypothetical trial scenarios for pollution dispersion. One such scenario considered three-point sewage sources, as well as the Pasig River which flows through Metro Manila, for bacterial loads. A typical map for the predicted surface layer fecal coliform count is illustrated in figure 4, using a logarithmic scale in the Seainfo program. This map is one of many stored in the scenario database every three hours for a two-week period. Seainfo allows the user to animate the entire sequence of maps, which gives an immediate grasp of the tidal oscillation in the bay, the location of hot spots and the overall rate of dilution along the principal dispersion pathways. Other features include guery with the mouse pointer that returns the predicted fecal coliform count anywhere on the map along with the latitude and longitude coordinates, area and length of shoreline exposed above water use criteria and a mapping of risk quotient. Figure 5, for example, shows the risk quotient corresponding to the map in figure 4 using a criterion of 1,000 MPN/100 mL. The color scale represents the ratio of the predicted concentration to the criterion, and shows that in this particular scenario, the risk quotient is well above 10 near the sources and the Pasig River.

The tools developed in Seainfo allow the model data "consumer" a means of rapidly assessing the results for a scenario to be tested. Contaminant distributions can be compared visually, in map format, with valued ecosystem components or areas of high human use. It is easy to tabulate the spatial area and shoreline affected by pollution, maximum concentrations or maximum risk quotients at any depth. Such simple basic parameters quickly show the benefits of a particular pollution mitigation strategy.

Present Status

The partnership collaboration between PEMSEA and Seaconsult has produced beneficial results. The IIMS is now up and running, whereby data for Manila Bay are being entered and analyzed. With more experience, the software shall improve. New tables have been added for cataloguing model scenarios and results. The core models in SEACAST are now well developed: confidence in threedimensional circulation for Manila Bay is high, and the water quality and ecology modules are ready for scenario evaluation. The model formulation is generalized and ready for applications at other ICM sites. SPILLSIM has been implemented for Manila Bay using currents from the hydrodynamic model. Training of project staff in oil spill modelling will take place in early 2002.

The Seainfo program is also ready for use in the regional program. It contains new features, developed specifically for PEMSEA to allow coastal managers to quickly assess the results of several scenarios. These scenarios can be generated with the aid of the IIMS and sent to Seaconsult via e-mail. The model results can be downloaded over the Internet or delivered in CD-ROM (if the data volume is very large). The collaborative approach provides many benefits for the region. Some of these may be summarized as follows:

- Lowest user cost for predictive modelling with three-dimensional accuracy and defensible results;
- Accurate scenario definition using the IIMS data resources;
- Rapid turn-around time for scenarios, with convenient Internet access;
- User-friendly graphical program to view and analyze results;
- Integrated modelling capability from basic hydrodynamics to water quality and oil spill trajectory and fate;
- Data exchange with other commercial software packages (e.g., GIS);
- Quality control of model output data by experienced oceanographers and water quality modellers; and
- Model run cataloguing and data archiving with the ability to reproduce results at any time in the future.

Looking Ahead

The work has identified some ways to make predictive modelling system even more convenient for coastal planners and other users. Looking ahead, one can envisage placing more interface software programs into a server to eliminate the need for transmitting large amounts of data between ICM sites and the modelling center in Vancouver. In particular, Seainfo may be presented as an applet launched through the users' Internet browser, with one application oriented toward creating the scenarios and a second application dedicated to viewing and analyzing results. All model input/ output data reside on the server in Vancouver with full access through familiar Internet software and Windows applications. This approach will eliminate the need to install software on each ICM site computer, enabling Seaconsult to provide software support and updates more efficiently and effectively.

References

- Hodgins, D.O. 2000. Online information management for coastal monitoring and Protection, 2000. Int. Coast. Zone Manage. (Spring) 2000. 145-150 p.
- Hodgins, D.O. and S. Salvador. 1999. Online information management tools for technological and management intervention among ICM sites, p.400-409. *In* Proceedings of the Challenges and Opportunities in Managing Pollution in the East Asian Seas, Manila.
- Hodgins, D.O., D.S. Dunbar and S.L.H. Hodgins. 1991. A high-resolution coupled hydrodynamic and oil spill modelling system applied to the Port of Vancouver, p. 39-56. In Proceedings of the 14th AMOP Technology Seminar, Vancouver, Canada.
- Hodgins, D.O., S.L.H. Hodgins and R.E. Corbet. 2000. Modeling sewage solids deposition patterns for the Five Fingers Island Outfall, Nanaimo, British Columbia. In Proceedings of the Watershed 2000, Water Environment Federation, (CD-ROM). Vancouver, Canada, 10-12 July 2000.
- Kremer, J.N. and S.W. Nixon. 1978. A coastal marine ecosystem simulation and analysis. Springer-Verlag, Berlin. 212 p.

Minerva R. Alfonso Senior Vice President International Association of Independent Tanker Owners Asia Representative Office Singapore

Introduction

One of the primary reasons why the public and legislators alike have such a negative impression of shipping in general and tanker shipping in particular is that for many years the shipping industry itself tolerated inadequate standards, among both its own members and other elements of the shipping sector. Not enough efforts were made in the past to weed out substandard ship operators; to rigorously enforce existing regulations; to deflect ill-conceived new regulations; and to work with other interested parties to tackle the inherent weaknesses of waterway management systems.

A high price was paid for such a *laissez faire* attitude, even while the tanker industry quietly made advances, such as the introduction of inert gas systems, segregated ballast tanks, crude oil washing and enhanced surveys.

A series of major tanker spills in the late 1980s and early 1990s generated a public outcry, followed by a welter of new regulations covering tanker safety and pollution prevention.

Towards Safer Navigation and Cleaner Seas: INTERTANKO's Partnership Perspective



While several of the new rules are of debatable merit, there is no doubt that much of the new, stricter regulatory regime is providing tanker shipping with a solid base from which to move forward.

Those major oil spills also helped tanker owners focus on the need to adopt a much more proactive stance. However, the safety of our ships and seafarers depends on all the links in the chain of responsibility (figure 1), so it is important that all concerned work in harmony to mutual benefit.

Putting Its Own House in Order

INTERTANKO, the International Association of Independent Tanker Owners, representing over 70 percent of the independent tanker fleet today, has taken on a strong leadership role in this drive for improved standards. The association, as a whole, and its members individually have become intolerant of substandard practices, both among fellow ship operators and in related sectors of the industry. The association was established in 1970 to represent the interests of independent tanker owners around the world. INTERTANKO advocates safe transport, cleaner seas and free competition. As of November 2001, INTERTANKO has some 256 members with 2,076 tankers totalling 164.5 million tons deadweight (dwt). The independently owned tanker fleets represent about 72 percent of total tanker fleets. In addition to its full members, INTERTANKO also has an associate membership which now stands at some 387 companies.

It has rigorously enforced a membership criteria and shall continue to do so in the future. By improving the quality of its operations, the industry shall gain enough leverage to convince other elements in the shipping sector to fulfill their obligations.

INTERTANKO maintains a strong proactive stance in its efforts to represent the tanker industry effectively at international, regional, national and local levels. The Secretariat has a staff of 30 while the association's network of 14 committees and three regional panels is responsible for coordinating a work program. In recent years, greater attention has been given to developing relationships with other shipping and related organizations, working together whenever possible to mutual benefit and advocating for a more equitable sharing of responsibilities and liabilities among all parties involved in the tanker transport chain. This process was taken a stage further with the opening of its new offices in Singapore and the US (Washington DC) in 1999.

Oil Pollution from Tankers

As figure 2 illustrates, tanker accidents make up only three percent of the total oil pollution at sea. Tanker operations contribute another seven percent. The main pollution source, however, is from industrial wastes comprising 62 percent. INTERTANKO advocates safe transport, cleaner seas and free competition. It has rigorously enforced a membership criteria and shall continue to do so in the future. By improving the quality of its operations, the industry shall gain enough leverage to convince other elements in the shipping sector to fulfill their obligations.

Despite increasing tanker trades, there has been a significant reduction in accidental pollution from tankers. Approximately, 99.9 percent of oil transported by sea reached their destinations safely and without incident. From 1970 to 1984, tankers



Source: United Nations Environment Programme, 1998.

Figure 2. Source of oil pollution into the sea.

spilt 3,824,000 t of oil worldwide. During the next 15 years (1985–1999), spillage decreased to 1,535,000 t. Such represented a 60 percent reduction in spite of an 80 percent increase in tanker activity since the mid–1980s.

Over the past decade, there has been a major decline in oil spills from tankers (see figure 3). From 1991 to 1995, there were 823 oil spills recorded. However, these were reduced to 193 during 1996– 2000. The biggest oil spills recorded were *Natuna Sea* (stranded in the Singapore Strait) 7,000 t; *Westchester* (fractured through stranding at lower Mississippi, USA) 1,800 t; and *Kingfisher* (stranded at Cilacap, Indonesia) 550 t. Operational discharges from tankers have also been dramatically reduced in recent years. In overall terms, the amount of oil pollution from tankers has decreased by approximately 80 percent over the last 20 years.

This safety improvement did not happen by luck. Rather, it was the result of a concerted effort by many segments of the tanker industry. The tanker safety record has improved steadily since 1980, following the introduction of the 1973/78 International Convention for the Prevention of Pollution from Ships (MARPOL) and the requirement for inert gas systems



Stena Vision, 314,000 dwt, built in 2001.



Figure 3. Oil spills from tankers, '000 tons.

on board crude oil tankers. At the same time, spills resulting from fire, explosion and structural damage have almost entirely disappeared.

INTERTANKO was able to note – based on Port State Control's published summaries of the results of the inspections – that tankers did not in fact feature prominently in the lists of substandard or detained ships. The tanker industry, it became more and more apparent, had in fact a better safety and environmental record than other parts of the shipping industry. Even so, INTERTANKO contacts and follows-up with members whose tankers are detained.

Some of INTERTANKO Activities

Responsibility Chain/ Partnership Agreements

Two things were apparent surrounding the largest tanker casualties. First, in contact accidents almost all the casualties occurred within the sight of land. Second, careful analysis showed that there were always more than one factor contributing to each particular accident.

In contrast to real life, where many factors often come into play, when a tanker accident does occur, the media and the public tend to focus their notions of blame on one source – usually the ship or its crew. Existing maritime liability regimes, too, are structured in such a way that fault is focused firmly on the ship even though other parties may bear ultimate responsibility for the accident. This has sometimes led to a lack of responsibility on the part of some of the other parties involved in the movement of oil by sea. These participants need to be motivated to improve their own practices, just as the tanker industry had done.

The responsibility chain depicts how other parties can help to raise safety standards and contribute to minimizing oil spills. Under current international laws, tankers bear the entire responsibility for safe and pollution–free operations yet exercise only 50 percent control.

The greatest risk of a tanker accident occurs in nearshore waters. Of the 20 largest tanker oil spills over the last 30 years, all but five occurred within sight of land. It is essential that various shore authorities share the responsibility in ensuring the safe passage of ships.

INTERTANKO is taking steps to help other participants in the responsibility chain to understand the complex nature of the tanker safety and pollution prevention problem more fully and to cooperate in the process of amending the regulatory regime in order to fill some important gaps and spread the liability burden more equitably.

In 1994, a major INTERTANKO program was launched under the title

"Prevention Through Partnership." The program called on the active support of other industry partners in improving the infrastructure of tanker shipping. Tanker owners had improved the safety and pollution prevention capability of ships but other sectors still need to respond with the same veracity. Onshore traffic control in ports and congested areas, proper regulation of pilotage and towage, shore-based casualty response capabilities, improved salvage provision and adequate waste reception facilities were highlighted as areas needing improvement. The campaign followed closely the US Coast Guard's program "Prevention Through People," which showed human failing as a cause of accidents.

The responsibility chain has been welcomed so positively by the US Coast Guard and the European Commission. In April 1998, **INTERTANKO** signed a partnership agreement with the US Coast Guard under which the two organizations pledged to work cooperatively in identifying and removing conditions hazardous to navigation in US waters. The responsibility chain also forms an integral part of the European **Commission's Quality Shipping** Campaign, an initiative which places emphasis on, among other things, a more active involvement of all the stakeholders in maritime transport, not just the shipowners, in promoting safety at sea.

In the Asian region, INTERTANKO together with the Oil Majors approached the Singapore Maritime and Port Authority for the purpose of cooperating and working actively on regional issues. The three organizations agreed that it is necessary that the links in the transport chain do everything which is reasonably practicable to rid the seas of substandard shipping. They decided to form a tripartite working group, composed of representatives from the three organizations.

US Port and Terminal Safety Study

A former Exxon man, William (Bill) O. Gray was commissioned in 1995 to study casualty prevention and equipment provision in American ports and on busy American coasts.

In its Port and terminal safety (PTS) study, the final version of which was launched in October 1996, INTERTANKO stated that many charts for US ports show outdated water depths and that responsibility for providing adequate data on water depths in the approaches between federally maintained channels and terminal berths should fall on the federal government. Similarly, terminals should ensure that the water depth information for their particular berthing area is accurate.

The PTS study also identifies the lack of an effective, functional vessel traffic services (VTS) policy in the US as one of the most important failings in the ports system. Several years ago, the US Coast Guard has developed VTS 2000, a national baseline for vessel traffic services, but in 1996 Congress rejected the scheme on the grounds that it was overly designed and did not reflect sufficient input from the local user community.

The initiative has since been relaunched and the Coast Guard has utilized the findings of the PTS study to help in directing the new effort. A VTS Outreach Group, on which INTERTANKO is represented, has been given the task of developing a national VTS standard which is more costeffective and acceptable to local user groups than VTS 2000. The association believes that federal funding, to underwrite such a critical safety feature, is essential to the success of the new program.

Accident Analysis

One factor essential for improving and preventing incidents from recurring is to learn from previous mistakes. INTERTANKO considers it important to disseminate widely its latest discussion paper on tanker accident analysis with the objective of introducing changes into the investigation of serious tanker accidents and establishing "root causes." Unfortunately, routines for investigating, analyzing and reporting ship accidents vary widely among maritime nations.

The aim of the initiative is to replace the currently practiced "blame culture" with a "fact finding culture," where people directly involved in accidents have a greater role to play in establishing what lessons can be learned. The success of the International Safety Management (ISM) Code will depend on this new safety culture in shipping.

Regulatory Environment

Tanker shipping is truly international. The industry fully accepts, indeed supports that there must be strict rules governing it. Loss of seafarers' lives and pollution of shore and sea are anathema for tanker owners. But it is essential that they all face the same set of rules. Not only do they require that for the purpose of a level playing field, but also for the very important reason that different rules in different places can cause confusion and thus actually be counterproductive. The latter issue has been strongly underlined in the decision by the US Supreme Court when it, on 6 March 2000, decided unanimously in INTERTANKO's favor in the case we had brought against the state of Washington. INTERTANKO is the body that decided in 1995 to take the state of Washington to court and have won on all major counts, and the outcome underlines something very important for this industry and will have far reaching implications not only within the US, but also beyond.

In the opinion of the US Supreme Court, the state of Washington had erred in enacting legislation in an area where the federal rules preempt state legislation. The court ruled that matters affecting vessel navigation are, and historically have been, the exclusive preserve of the federal government of the United States. This decision provides a rational framework for vessel safety regulation in the US for decades to come. The powers of the federal government have been resuscitated and the spectra of the states gnawing away at significant elements of the federal and international safety structure have been exorcised.

The US Supreme Court invalidated on their face four Washington state regulations that govern such matters as requirements for crew training; English language proficiency; manning relating to the number of licensed officers required on the bridge, and casualty reporting. Consideration of some remaining regulations of the state has been remanded to lower federal courts for a disposition consistent with the Supreme Court ruling.

The impact of this ruling cannot be underestimated. Many states have been keen to introduce their own requirements, but have held back because of INTERTANKO's legislative challenge to the state of Washington. Had the outcome been different, then there could have been a "free for all" of new rules. Perhaps each one could have some merits, but the totality of all would have been a patch work which would have provided an actual safety problem rather than the intended purpose of improved safety.

INTERTANKO strongly supports the work of the International Maritime Organization (IMO) in London. We play a very active part in the deliberations of this organization as a nongovernment organization with consultative status. This is where the decisions should be made, so that the industry would have international uniform standards, and not disparate or conflicting rules on regional, national or even municipal level. Once new rules have been made, they need to be ratified quickly and thus brought to national legislation, as well as properly enforced.

Environmental Considerations with Increasing Oil Trades in East Asia

With the increasing energy demand in most countries in East Asia, the region is set to be the growth area for seaborne oil trades (figure 4). Although oil pollution and accidents have reduced globally over the past 30 years, the increasing traffic in the major oil tanker routes in the region will also mean greater exposure to maritime incidences. Over seven million barrels of oil per day are carried by tankers through the Malacca Straits and the South China Sea. As an importing region, Asia accounts for 25 percent of the world seaborne oil trade. In the very large crude carriers segment, Asia accounted for 54 percent (Japan, 22 percent) of world seaborne oil trade, of which 89 percent was lifted from the Persian Gulf.



Seaprite, 147,188 dwt, built in 1999: a modern double-hulled Suezmax.



Figure 4. Growth of seaborne oil trades of select countries.

In general, ratification of international conventions relating to marine pollution by East Asian countries shows a rising number, but still a relatively poor record of implementation. The efficacy in developing marine pollution regimes has been dictated by the countries' degree of political maturity and level of environmental awareness. With the rapid industrialization and population increase in East Asia, it is important to keep in mind that the environment and resources can easily be depleted or degraded through misuse and indiscriminate exploitation caused by socioeconomic pressures. The old methods of declining to comment and refusing access were no longer seen as adequate. Now members are urged to invite journalists and opinion-formers onboard ships, to make contact with local "green" groups - and to be more positive in promoting the industry's image.

Public Perception/Media

Those in favor of further tightening standards in tanker shipping and in INTERTANKO's membership had other ambitions and these came forward to work on a policy of "transparency," or access to information about tanker shipping. INTERTANKO began to offer media awareness courses to members, the Secretariat and the Executive Committee being early students. Run by professionals, these courses taught students - up to the chief executive level - how to cope with the difficult business of handling media attention, in case of a high-profile incident or other event-drawing attention. The courses did not encourage coverup but urged more, rather than less, exposure.

The old methods of declining to comment and refusing access were no longer seen as adequate. Now members are urged to invite journalists and opinion-formers onboard ships to make contact with local "green" groups - and to be more positive in promoting the industry's image.

Conclusion

Tankers attract public opprobrium easily due to their ability to pollute large stretches of beach should an oil spill occur. It is quite right that tanker shipping is governed by a well-developed regulatory regime. In recent years, this regime has been widened to embrace the concepts of transparency and accountability more rigorously and to tackle all aspects of the human element. These are positive developments.

However, public outrage leads to political pressure and, on occasion, tanker rules are promulgated much too rapidly, without proper risk assessment or cost-benefit analysis work having been carried out. Such rules are often punitive rather than preventive and place an undue burden on the tanker industry.

The cumulative effect of these rulemakings is that the relatively mature and well-rounded regulatory regime governing tanker shipping is not matched by that governing the responsibilities of shoreside authorities charged with the safe navigation and handling of shipping. This situation is reflected in the historical record of tanker accidents and reinforced by many of the more recent incidents. INTERTANKO has outlined the nature of these shoreside shortcomings in its US PTS study. The association believes that many of the recommendations in the PTS study, which seek to minimize the risks associated with tanker visits to US ports, have global applicability and will continue to promote their acceptance at regional and international industry meetings throughout the world.

Single associations in the maritime field do not exert enough political clout. It is important, if a more equitable sharing of the responsibility for ensuring safe shipping is to be achieved, for the entire maritime community to come together without delay to work on a united front. Ultimately, safety will be dependent on cooperation among the tanker industry, charterers, other shipping and trade organizations and the responsible shoreside agencies.



Hodgins' paper, "Water quality modelling in East Asia: a partnership between PEMSEA and Seaconsult" presents a partnership between a regional program (PEMSEA) and a multidisciplinary consulting organization specializing in coastal engineering and computer science (Seaconsult). The partnership goal is to enhance science by developing a user-friendly and accessible computer-based water quality modelling software. Aside from two-way exchanges of ideas and data, the partnership leads to some specific benefits. For Seaconsult, its investments will be recovered when the model is commercially released. For PEMSEA, the project has become cost-effective through the reduction of direct investment in specialized modelling software.

Finally, Alfonso's paper, "Towards safer navigation and cleaner seas: INTERTANKO's partnership perspective" demonstrates partnership which is global in scope. Despite increasing trades, there has been a significant reduction in pollution arising from accidents and operations of tankers. This safety improvement was the result of concerted efforts by many sectors of the tanker industry. However, internal partnership among independent tanker owners is not enough. The safety of ships and seafarers is dependent on all the links in the "responsibility chain" that include ship owners, shipyard owners, terminal operators, pilots, port authorities, cargo owner and charterers.

The articles in this issue illustrate that partnerships go beyond an association of persons and/ or organizations who share risks and rewards in a joint undertaking. It is a give-and-take process filled with dynamic interpersonal and organizational interactions. True partnership goes beyond rhetorics or contractual formalities. At the substantial level, it is important to ask whether or not such partnership would create development opportunities, mobilize resources, increase effectiveness of networks, enhance cost efficiency and strengthen knowledge base. The bottom line of partnership is that all parties involved become better off - as compared to conducting such an undertaking on their own.

PEMISEA INTERNSHIP P R D G R A M

Attention: Highly motivated, young professionals and managers working in the fields of coastal and marine resources and environment of participating countries of PEMSEAI

PEMSEA offers hands-on training in actual program development, planning and implementation through direct exposure to its work.

PEMSEA's diverse list of subject areas includes:

- Project development and management
- Integrated coastal management
- Environmental risk assessment and risk management
- Marine pollution monitoring
- Integrated environmental impact assessment
- Economic assessment and valuation of coastal and marine resources
- Waste management
- Environmental accounting
- Oil spill prevention, response and management
- Legal regimes in marine pollution

Interested applicants must submit a completed application form (which may be downloaded from PEMSEA's website @ <u>www.pemsea.org</u> or requested from the Regional Programme Office).



Partnerships in Environmental Management for the Seas of East Asia

www.pemsea.org

57





3 - 5 July	Strategies, Tools and Techniques in Implementing International Conventions (Manila)
1 - 9 October	Port State Control (tentative)
4 - 9 November	Integrated Coastal Management Leadership Training (Manila and Xiamen)

Note: The above schedules may be subject to change.

PEMSEA's training initiatives provide unique learning experiences through:

Involvement of multisectoral stakeholders in coastal and marine environmental protection and management

Field studies integrated into training courses, complementing theory with actual practice

Site-specific application of acquired new skills ensuring enhanced capability and confidence

Concrete plans for follow-on actions, encouraging participants to make a difference

Effective environmental management requires trained and skilled people... Be one of them!



For further information, please contact:

The Regional Programme Director

GEF/UNDP/IMO Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)

Mailing Address: RO. Box 2502, Quezon City 1165, Philippines Tel.: (632) 920 2211 to 14 Fax: (632) 926 9712 Website: http://www.pemsea.org e-mail: info@pemsea.org



The Alumni Network offers:

- New and up-to-date information on PEMSEA activities
- Information on opportunities for professional upgrading and degree programs available on fields relevant to coastal and marine environmental management
- A chance to be a member of the PEMSEA roster of trainers
- Information on PEMSEA related training activities within the region

To join, visit the PEMSEA website and complete the registration form.



Strategies, Tools and Techniques in Implementing International Conventions

C

The course will provide participants with legal tools, strategies and techniques for implementing international conventions related to marine pollution prevention and management including International Convention for the Prevention of Pollution from Ships 1973 (MARPOL); International Convention on Civil Liability for Oil Pollution Damage 1969 and 1972 (CLC); International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 (FUND); International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC); and Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter 1972 and 1996 (London Convention).

Topics Covered

- Framework for International Law and Conventions
- Status of Implementation of International Conventions in East Asia
- Developing National Policies and Legislation
- Strategies, Tools and Techniques in Marine Pollution Prevention and Management
- Regional Mechanisms and Initiatives

Who Should Attend?

- Government Planning Officers and Policymakers
- Coastal Planners and Managers
- Environmental Legislators
- Local Government Executives
- Shipping Industry Representatives
- Members of the Regional Network on the Legal Aspects of Marine Pollution

Entry Requirements

- Must be involved in the formulation or implementation of coastal or marine policy or law
- English language proficiency



S

Objective

HOTSPO

Μ

S

E

Α



E

Ρ

Malacca Straits Conference Recognizes Need for Multisectoral Partnerships

Partnerships should be forged across governments. agencies and other sectors if constraints on managing the Straits of Malacca are to be overcome. This was one of the points made during the Second International Conference on the Straits of Malacca held in Penang, Malaysia, from 15 to 18 October 2001. The theme of the conference was Charting Strategies for the Millennium. There were 116 participants from the three littoral states - Indonesia, Malaysia and Singapore - and seven other countries.

The conference provided perspectives from different sectors on the required approach to environmental management for the Straits of Malacca. Other issues identified during the conference included the need for a more holistic management strategy, addressing economic, social and environmental values, threats and goals; engaging local government units in managing coastal and marine resources within their respective administrative jurisdictions; and developing and adopting policies/ business charters that emphasize sustainable development principles and implement action programs/working models that translate policies and principles into desired management outcome.

PEMSEA was a co-sponsor and co-organizer of the conference. Other sponsoring/collaborating groups included the Japan International Cooperation Agency, Department of Fisheries, Malaysia, World Fish Center (ICLARM) and Malaysian Fisheries Society. The Malacca Straits Research and Development Centre and Universiti Sains Malaysia organized the conference.

The Regional Programme Office was represented by Mr. Adrian Ross, PEMSEA Senior Programme Officer. Mr. Ross presented a keynote address, co-authored with Dr. Chua Thia-Ena, PEMSEA Regional Programme Director entitled "Creating a shared vision for environmental management of the Straits of Malacca." He also presented a technical paper, co-authored with Prof. Low Kum Sang of the University of Malaya entitled "The Malacca Straits environmental information system (SMEIS): applications for multi-sectoral users."



East Asian Experts Examine Lack of Regional Environmental PHILIPPINES Cooperation

Experts examined the reasons behind the lack of cooperation among countries in the East Asian reaion and the absence of a reaional agreement on environmental management during the Senior Experts Dialogue on Coastal and Marine Policy held on 13-14 July 2001 in Manila, Philippines. The experts, consisting of lawyers, scientists, engineers, diplomats and heads of some of the region's leading coastal and marine institutions, attended the dialogue to brainstorm on a host of issues facing the East Asian Seas region especially in light of the impacts of economic globalization on the coastal and marine environment and natural resources.

The dialogue saw spirited discussions on an Ocean Think Tank for the region, the role of PEMSEA in forging regional cooperation, and policy reforms required to deal with national and transboundary environmental issues. While expressing dissatisfaction on the lack of regional cooperation, the participants supported PEMSEA's Environmental Strategy for the Seas of East Asia, describing it as "a very good and comprehensive document that can be very helpful to the countries in the region." They likewise offered suggestions for the improvement of the strategy and its promotion, identifying PEMSEA as being in a unique position to bring partners together for an integrated approach to environmental management of the Seas of East Asia.

Regarding the Ocean Think Tank, the experts agreed on the need to organize a core group of members from various disciplines, and to complement that expertise by inviting resource persons for particular issues. The participation of financial experts was considered crucial in light of the need to develop sustainable financing for implementation of the Environmental Strategy.



Xiamen Enters Second ICM Cycle

Xiamen University shall host the PEMSEA regional ICM training center



Xiamen, People's Republic of China, is now on its second cycle of the integrated coastal management (ICM) program (2001-2004). On 30 July 2001, Dr. Chua Thia-Eng, PEMSEA Regional Programme Director, and Mr. Zhang Chanping, Executive Vice-Mayor of Xiamen, signed the Memorandum of Arrangement (MOA) for this program.

The MOA affirmed the commitments of PEMSEA and the Xiamen Municipal government to establish the PEMSEA Regional ICM training center and to further develop and implement the ICM program based on the foundation, experiences and lessons of the regional programme's first phase (1994-1999). The regional training center shall be built upon the existing International Center for Coastal and Marine Management in collaboration with the Xiamen University and the State Oceanic Administration (SOA).

During the ceremony, Mr. Zhu Yayen, Xiamen Mayor, reviewed the past seven years of the ICM program. He noted the positive contribution of the regional programme in providing much-needed technical inputs and strengthening the capacity of the local government. Mr. Li Haiqing, representing the SOA, discussed the impact of the ICM program and stressed its replicability throughout the coastal areas in China and the East Asian seas region.

Dr. Chua, meanwhile, affirmed the success of the Xiamen demonstration project. He cited the contributions of the staff and local leadership and the role of Xiamen in promoting the concept and practice of integrated management.

The municipality of Xiamen is one of China's five special economic zones. It has been transformed into a beautiful port city with fairly complete infrastructure and vigorous economic exchange both local and abroad. In view of this, the ICM project seeks to undertake ICM as an effective approach in resolving multiple coastal and marine use conflicts, in minimizing adverse impacts on ecosystems and in ensuring sustainable socio economic development of coastal areas. Under the MOA, IMO committed US\$ 317,000 with the Xicmen municipal government providing counterpart support worth US\$ 350,000 for continuing activities at the demonstration project.



Eight PEMSEA Countries in IMO White List

Eight PEMSEA participating countries have made it to the International Maritime Organization (IMO) White List, which gives full and complete effect to the revised International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 95). The 1995 amendments, which entered into force on 1 February 1997, revised the original 1978 Convention by adopting mandatory competency requirements for all seafarers and taking into account developments in technology. Inclusion in the White List indicates that the country has complied with these requirements. Memberstates in the White List may, as a matter of policy, elect not to accept seafarers from excluded countries.

According to Mr. William O'Neil, IMO Secretary-General, "the publication of the White List is a clear demonstration that the global regulatory process for shipping is taking ever greater account of the human element. The revised STCW Convention . . . aimed squarely at addressing human issues in shipping. Although technical matters will retain their importance, improving the standards of seafarers is a vital part of the safety equation. The White List shows that the human element is taking its proper place in the industry's priorities."

It has been estimated that some 80 percent of marine casualties are due in some part to human error. In explicitly stating the countries meeting the latest standards and requirements, the White List marks a significant step forward in IMO's global effort to rid the world of substandard ships and shipping. For the first time, it provides an IMO "seal of approval" for countries that have properly implemented the provisions of a convention. East Asian countries that made it to the White List include China, Indonesia, Malaysia, Philippines, RO Korea, Singapore, Thailand, Vietnam and Japan.

PEMSEA Partners Gather in Busan

М

≥ N E W S

S

E

Α

E

Ρ

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.

BUBLLOETAN

"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/.

Environmental Strategy for the Seas of East Asia: A Functional Partnership



uring an intergovernmental meeting in Dalian, China, in July 2000, 11 countries agreed to prepare a regional strategy for forging cooperation in addressing the alarming degradation of the Seas of East Asia.

The countries include Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Indonesia, Malaysia, Philippines, Republic of Korea, Singapore, Thailand and Vietnam. The strategy puts forth an innovative approach to environmental management. It focuses on:

- Interconnections of environmental issues and responses in the marine environment and the associated catchment areas;
- Partnerships among governments, international agencies, private sector and civil society; and
- Interlinkages among multilateral environmental agreements, regional programs of actions, national policies and programs, and local operational activities.

For years, environmental issues have been regarded as the sovereign responsibility of individual nations and the respective sectors, and transnational issues as the primary concern of international organizations. The environmental strategy provides a paradigm shift from this way of thinking.

The strategy will be the basis for a regional approach to integrated management of the Seas of East Asia. Furthermore, the strategy can be used by countries, local governments, the private sector and civil society groups as a basis for their own respective strategies for sustainable development.

The Environmental Strategy for the Seas of East Asia expresses the common will of the countries and the approaches to achieve their shared vision. Specific strategic actions include:

- · Sustainable use of coastal and marine resources;
- · Preservation of species and areas of ecological or cultural significance;
- · Protection of critical ecosystems;
- · Development of suitable areas for economic growth;
- · Implementation of relevant international instruments; and
- · Effective communication with all concerned stakeholders.

In all these strategies, dynamic partnerships are indispensable.

For more information on the Environmental Strategy for the Seas of East Asia, visit www.pemsea.org



21. Mount Odaigahara and Mount Omine

42 Yancheng

- 18. Kutcharo-ko

37. Zhalong