

Project Proposal: Development and Implementation of Investment Opportunities in the East Asian Seas Region

**by the
GEF/UNDP/IMO Regional Programme on Partnerships in
Environmental Management for the Seas of East Asia
(PEMSEA)**

Background:

The formation of PEMSEA (i.e., the GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia) evolved from the increasing realization of the magnitude and complexity of the environmental problems in the East Asian Seas region and the need to mobilize collective efforts, resources and skills of all sectors and interest groups through genuine partnerships.

PEMSEA's geographical scope covers that of the East Asian Economy (ASEAN + 3). PEMSEA's objective is to establish a multi-country, multi-sectoral shared vision for the Seas of East Asia, along with supporting strategies and environmental action programs for attaining that vision. PEMSEA activities focus on:

- a) enabling local governments to effectively manage coastal and marine resources and their environment through strengthening local capacity in integrated planning and management of their coastal areas in collaboration with civil society and other stakeholders;
- b) promoting multi-country and multi-agency cooperation in managing subregional sea areas and marine pollution hotspots through shared visions, strategic management plans and common action programs;
- c) developing management related methodologies, techniques, working models, and standards to strengthen practical efforts in the field;
- d) providing policy support and scientific advice to the decision-makers;
- e) identifying and demonstrating the synergies and linkages between related international environmental instruments and facilitating their integrated implementation, and
- f) creating environmental investment opportunities, sustainable financing mechanisms and institutional arrangements for implementing marine environment related international conventions and action programmes.

PEMSEA's Approach

A major component of PEMSEA is the development and promotion of investment opportunities in environmental improvement and management through partnerships between the public and private sectors. PEMSEA's approach includes:

- a) establishing a suitable environment for investment at the national and local levels, by setting in place institutional arrangements (e.g., supporting policies and regulations; enforcement capabilities; strategic environmental management plans; delineation of roles and responsibilities of major players), formulating issue-specific and area-specific action programmes with local partners, and building consensus among stakeholders on the values and benefits of changing existing behaviour;

- b) identifying priority environmental facilities and services that address the shared vision of stakeholders, affordability, and compatibility with social, cultural and economic characteristics of the site;
- c) packaging investment opportunities, taking into account existing operations, capacities, needs and shortfalls, including stakeholders' willingness-to-pay for desired changes;
- d) promoting investment opportunities to local, national and international companies, investors and other interested parties with the appropriate technology, expertise and financial capacity to partner with the local stakeholders; and
- e) bringing the two parties together into a partnership.

In identifying investment options and the role of the private sector in such investments, governments are required to select a financing mechanism that is most suited to local conditions and offers the best delivery system. Table 1 lists some basic objectives of governments when seeking the involvement of the private sector in environmental management:

Public-private partnership (PPP) is the investment arrangement being promoted by PEMSEA in the sites where it is applicable. Under PPP, the public entity forms a joint venture with a private partner where both have an equity position in the new organization, assume co-ownership and co-responsibility, and share the risks as well as the rewards.

Table 1: Governments' Objectives in Seeking Partnerships with the Private Sector

- Bring technical and managerial expertise and new technology;
- Inject investment capital or gain access to private capital markets;
- Improve economic efficiency – in both operating performance and the use of capital investment;
- Reduce public subsidies and/or increase public revenues;
- Provide long-term incentives for pollution abatement and efficient use of resources.

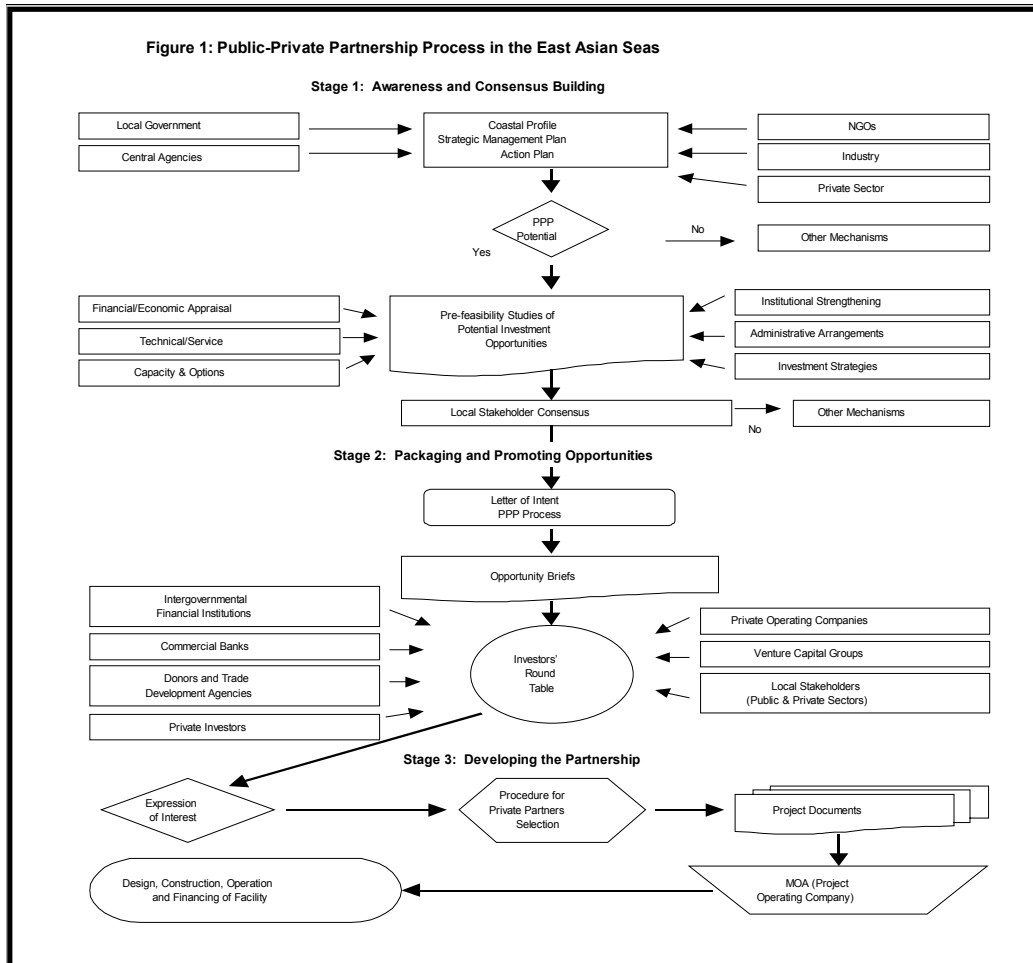
PEMSEA's Project Sites

PEMSEA is working in four subregional sea areas/pollution hotspots (i.e. Malacca Straits; Gulf of Thailand; Manila Bay; and Bohai Sea), as well as in ten integrated coastal management (ICM) projects (i.e., Sihanoukville, Cambodia; Xiamen, China; Nampo, DPR Korea; Bali, Indonesia; Klang, Malaysia; Batangas, Philippines; Shihwa Lake, RO Korea; Chonburi, Thailand; and Danang, Vietnam). Another eight ICM projects will be developed and implemented over the next three and a half years.

The management frameworks that are being applied at each project site are designed to strengthen political will, improve public sector know-how and heighten civil society awareness and ownership in developing and managing marine and coastal resources. By institutionalizing self-sustaining environmental management programmes, PEMSEA is addressing a major issue of investors – political risk.

Political risk is one of the greatest constraints to investment by the private sector in the developing world due to a real or perceived lack of political will, uncertainties over

project commitment, corruption, and poor transparency of process. The advantage of PEMSEA's procedure in developing investments is that political will and, subsequently, governmental commitment to a transparent process, are established prior to detailing investment opportunities. The public sector must invest time, effort and resources in creating a suitable environment for investment before packaging and promoting the investment opportunities to potential partners.



Source: Ross (1999). "Implementation of Public-Private Partnerships: Batangas Case Study," In Chua Thia-Eng and N. Bermas (eds.). *Challenges and Opportunities in Managing Pollution in the East Asian Seas*.

How does this approach benefit the private sector from a business perspective? Some of the advantages include:

- Up-front costs for the preparation of project proposals and/or competitive tenders are substantially eliminated;
- The cost of entry into partnership with the local parties is the investment in a feasibility study. The feasibility study is the basis for future decision-making and negotiation between partners;
- Project development, planning, approval and financing are shared responsibilities;
- Innovation in planning and design, well-managed construction, effective budgetary control, timely delivery and efficient facility operation result in rewards to both parties; and

- Contributions of local capital by local partners minimize foreign exchange risk.

Investment Opportunities

Investment opportunities have been identified at PEMSEA sites as a consequence of:

- a) a series of consultations with local stakeholders to create a shared vision and coastal strategy at each location; and

- b) the conduct of environmental risk assessment, to identify and build consensus on priority issues regarding protection and management of marine and coastal ecosystems, human health in coastal communities and the general well-being of the local society.

Outputs from these two processes are summarized for four PEMSEA sites in Appendix A. Overviews of investment opportunities, specifically the facilities and services that are required in order to address priority environmental concerns, are listed along with selected information on the sectors of interest and related institutional arrangements.

Environmental Investment Opportunities in the Bohai/Yellow Sea and the South China Sea Large Marine Ecosystems

1. Bohai Sea Subregion:

- Municipal wastewater treatment facilities, including recycling/reuse provisions (US\$ 2.1 billion)
- Municipal solid waste (US\$ 540 million)
- Industry refurbishment/upgrading
- Off-shore exploration/production facilities upgrading
- Port development/upgrading, including shore reception facilities

2. Manila Bay - Pollution Hotspot in the South China Sea:

- Sewerage systems development and expansion (US\$ 50 million)
- Water supply systems development and expansion
- Municipal solid waste collection and disposal systems (US\$ 150 million)
- Centralized industrial wastewater processing/disposal facilities
- Shore reception facilities (US\$ 2.5 million)

Environmental Investment Opportunities at ICM Sites in the East Asian Seas Regions

1. Danang, Vietnam:

- Improving/constructing sewage

- collection and treatment system (US\$ 41 million)
- Improving/expanding existing landfill
- Upgrading/expansion of water supply system
- Expansion and development of two seaports, including shore reception facilities (US\$ 175 million)
- Development of six industrial parks, including cleaner production processes and wastewater treatment and disposal facilities (US\$ 259 million)
- Eco-tourism development (US \$300 million)

2. Bali, Indonesia:

- Centralized and communal sewage treatment and disposal facilities
- Province-wide integrated waste management facility
- Centralized industrial waste processing facility

Project Objective

The objective of the proposed project is to develop investment opportunities at PEMSEA sites for the purpose of:

- a) establishing the economic viability and appropriate financing mechanisms for the initiatives;
- b) promoting and forging sustainable partnerships between the public and private sectors to develop and manage the capital investments.

Project Development

The project will be developed as a collaborative activity with PEMSEA. To fast track PEMSEA investment efforts at selected sites, extra-budgetary resources are required to:

- undertake pre-feasibility studies
- build local stakeholder support
- identify potential partners and investors in environmental facilities and services for the East Asian Seas region and their expectations
- package and disseminate investment briefs to potential partners
- bring the local stakeholders and potential partners together for a round table on investments and partnerships
- forge agreements between local parties and their selected partners concerning the development and implementation of environmental facilities and services.

Project Strategy/Approaches

The project will be undertaken in the following stages:

1. Pre-feasibility Studies: Building Local Stakeholder Commitment

Pre-feasibility studies are required in order to:

- a) delineate technical options for each proposed facility and service;
- b) prepare financial assessments of the options;
- c) evaluate economic implications on local users and beneficiaries;
- d) address local capacities to provide and/or participate in the development, financing and management of the investment;
- e) review related policies and administrative arrangements; and
- f) build consensus among local stakeholders on the most appropriate financing mechanism for the proposed facility and service.

A principal purpose of the pre-feasibility study is to reach a consensus among local stakeholders on the potential investment, the benefits of partnerships, the structure of relationships, and an implementation strategy for moving the investment opportunity forward to external investors and operating companies.

In addition, a pre-feasibility study explores technical, financial and economic aspects of the facility or service. This preliminary assessment is designed to address basic

questions of potential partners and investors, to generate interest in the investment, and to promote interactions with local stakeholders.

2. Packaging and Promoting Opportunities for Partnerships

Two actions are required in packaging and promoting investments to potential partners. First, the development of a package of information on the situation at the site, which will be of interest to investment groups, private operating companies, venture capital groups and commercial banks, is required. The second action is to identify which of the identified groups or group members are interested in environmental projects in the East Asian Seas region, and the public-private partnership approach as an alternative to the traditional contracting methods and relationships with the public sector.

Opportunity briefs are a consolidation of information collected during pre-feasibility studies. They contain information on the community and the sector(s) of interest, 20-year economic and market projections for the sector(s), cost estimates of alternative technologies, processes and procedures, an analysis of local stakeholder capacities, and a review of national and local institutional arrangements, pertinent regulations and policies, incentives and constraints to proposed partnerships.

Developing linkages with a global network of investors, venture capital groups and operating companies is a major effort, but one that is essential to the public-private partnership mechanism as envisaged by PEMSEA. Three issues are of key importance when setting up the network:

- a) Network members must be willing and able to fulfill the objectives of the public sector in a partnership arrangement, as outlined in Table 1;
- b) The expectations of network members regarding environmental investments should be clear and consistent, so that local stakeholder groups can package their investment opportunities accordingly; and
- c) The process by which network members become involved as partners with local stakeholders, and the related commitments, must be fair, transparent and well-understood by all parties.

To facilitate interconnection between providers and users of technologies, services, expertise and financial resources, a "virtual center for environmental investments" will be developed and brought on-line. A virtual center will serve as an on-line guide for technical and business exchanges, technical cooperation among environmental professionals, and an electronic sourcebook and access to information about environmental technology, investments and financing. The virtual center will assist in building long-term partnerships between local stakeholders in the region and the global network of investors.

3. Investors' Round Table

The Investors' Round Table is an event designed to bring the local stakeholders/ project proponents together with interested investors and potential partners. At the Round Table, investment opportunity briefs are presented by local proponents to promote private sector participation in the planning, development, financing, construction and operation of environmental facilities and services.

The Round Table has three objectives, namely:

- a) Affirmation of the political will and commitment of the local stakeholders and project proponents;
- b) Confirmation of the follow-on process for identifying and selecting partners and the roles and responsibilities of both the public and private sectors in such a process;
- c) Expression of interest on one or more of the projects from the private sector, and agreement to participate in the follow-on process.

4. Forging Agreements between Public and Private Sector Partners

The partnership selection process entails: a) written proposal from interested private sector parties on the strategy, process and suggested arrangements with local proponents to plan, develop and implement the proposed investment; b) the formation of a local selection committee comprised of appropriate local stakeholders from the public and private sectors and a representative of PEMSEA, who will oversee the process to its completion.

Upon selection of the private partner, a Memorandum of Agreement is negotiated between the parties, to formally agree on the roles, responsibilities and commitments of the signatories, leading to the construction and operation of the proposed facility or service. Typical considerations in such an Agreement include:

- Ensuring that all activities are in compliance with national and local laws
- Clarifying the permit and approval process
- Accessing sites for investigative field studies
- Providing supporting information, including available technical and financial reports
- Valuating property, facilities and services
- Developing, adopting and enforcing regulations and controls to ensure a level playing field
- Conducting a detailed feasibility study
- Developing a bankable document for submission to investors and lending institutions
- Detailing milestones for decision-making, and the process and criteria by which parties will determine the viability of the project
- Preparing and implementing a communication plan to build awareness among policy makers, government agencies, the private sector and civil society.

The signing of the MOA marks the commencement of the partnership. The terms of the MOA provide the guidance and benchmarks for parties to follow in proceeding to the commissioning and operation of the environmental facility.

Roles and Responsibilities

Governments of participating countries

National and local governments shall provide technical and administrative support for conducting the pre-feasibility studies, organizing meetings and workshops with

stakeholders, ensuring access to relevant information, developing consensus on proposed investments among local stakeholders, participating in Round Table meetings and negotiating MOA's between project proponents and private sector partners.

Local stakeholders

Local stakeholders, including local government agencies, the private sector, NGOs, scientific and technical institutions and/or pertinent local community groups, as appropriate, shall participate in the formulation, implementation and evaluation of the pre-feasibility studies, coming to a consensus on appropriate options for addressing environmental priorities and related financing mechanisms.

The Private Sector

International investors, operating companies, venture capital groups, green investment funds, etc. with interest in environmental projects in the East Asian Seas region and the public-private partnership approach to financing environmental facilities and services in the region, shall form a global network, establish linkages to a virtual center of regional investment opportunities, provide technical, legal and financial advice and assistance for the preparation of opportunity briefs, participate in Investors' Round Tables, and negotiate MOA's with project proponents concerning investments of interest.

The Global Environment Facility

The GEF shall provide a grant to assist PEMSEA, the participating governments of the region, local stakeholders and the private sector to demonstrate and verify a financial mechanism that facilitates public sector and private sector investment in self-sustaining environmental facilities and services in the Bohai Sea-Yellow Sea and South China Sea areas, through practical applications.

PEMSEA

PEMSEA will develop and coordinate the investment and partnership development activities in the Bohai Sea, Manila Bay, Danang and Bali sites. PEMSEA shall oversee the preparation of pre-feasibility studies and opportunity briefs and co-organize the Investors' Round Tables. PEMSEA shall serve as an objective the third party in the selection of private sector partners by local stakeholders and the negotiation of MOAs between project proponents and selected partners.

Project Duration

The project will be implemented over an 18-month period.

Expected Outputs

The project will result in:

1. Four new environmental investment projects involving public-private sector partnerships
2. A global network of environmental investors
3. A virtual center of investment opportunities for the region
4. A proven approach to facilitating public sector and private sector investment in priority environmental facilities and services.

Project Budget Estimate

<i>Activity</i>	<i>Technical, Legal and Financial Consultants and Experts</i>	<i>Meetings/Workshops</i>	<i>Travel</i>	<i>Misc.</i>
1. <i>Pre-feasibility Studies</i>	2 subregional sites @ \$75,000 ea. 2 ICM sites @ \$25,000 ea.	2 subregional @ \$25,000 ea. 2 ICM sites @ \$2,500 ea.	\$20,000 \$10,000	\$5,000 \$5,000
2. <i>Packaging and Promoting Opportunities:</i>				
a) Packaging/consensus building	2 subregional sites @ \$50,000 ea. 2 ICM sites @ \$20,000 ea.	2 subregional sites @ \$10,000 ea. 2 ICM sites @ \$2,500 ea.	\$10,000 \$7,500	\$2,500 \$2,500
b) Global network of investors	Global network established @ \$75,000 Virtual Center established as on-line linkage between project proponents and potential global partners @ \$75,000	2 @ \$5,000 ea.	\$10,000 \$15,000	\$2,500 \$2,500
3. <i>Investors' Round Tables (2)</i>	2 @ \$25,000 ea.	2 @ \$25,000	\$30,000	\$5,000
4. <i>Forging Partnerships</i>	4 partnerships @ \$25,000 ea.		\$15,000	\$2,500
SUBTOTALS	\$640,000	\$140,000	\$117,500	\$27,500
Project Overhead	\$75,000			

Total Estimated Budget: US \$1,000,000

GEF contribution: US \$1,000,000

APPENDIX A
SITE PROFILES

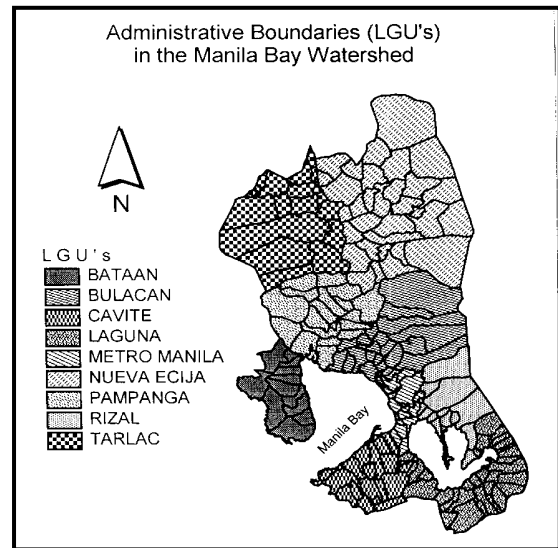
Manila Bay Profile

Site description:

Coastline length: 190 km
Water surface area: 1800 km²
Watershed area: 17000 km²
Mean water depth: 17 m
Mean retention time: 2 weeks to one month (seasonal variation)
Watershed population: 16 million

Priority environmental issues:

- Coastal waters severely contaminated with sewage
- High levels of PO₄ in the water column, with localized NH₃ hotspots
- Elevated levels of Cu and Cd in sediments
- Human health risk associated with high levels of metals and pesticides in fish tissue
- Degradation/destruction of coastal habitats
- Overexploitation of fisheries/destructive fishing practices
- Erosion and sedimentation due to coastal development/reclamation projects
- Inadequate potable water supply



Investment Opportunities:

1. Sewerage expansion programmes in the National Capital Region (NCR)
2. Several proposed sites for centralized sewerage systems in Bulacan and Nueva Ecija (US\$ 50 million)
3. Water supply expansion programme for households without safe water supply/limited access to piped water in NCR and Provinces
4. Solid waste management facilities for Metro Manila (US\$ 100 million), and for Provinces outside of Metro Manila (e.g., Bataan Province: US\$ 7.5 million)
5. Centralized processing and disposal facilities for electroplating industry, liquid hazardous wastes, food and beverage industry, and oily wastes in Metro Manila
6. Shore reception facilities for ports under the Philippine Port Authority (US\$ 2.5 million).

Sector profiles:

Municipal sewage treatment and disposal

- 554,000 m³ of domestic wastewater generated daily
- 82% of households with flush toilets
- only the NCR has a central sewerage system
- less than 1.5% of population connected to sewage treatment facilities
- over 2 million septic tanks, with limited desludging services

Municipal water supply

- 692,000m³/day is the current demand; 2% growth per year
- over 4.6 million households
- 46% of households are served by central distribution systems
- 25% of households fetch water from a community source
- 19% of households do not have access to a safe water supply

Municipal solid waste

- 14,516 tonnes of garbage are generated daily
- <75% of household waste is collected
- <60% of household waste is disposed in approved facilities

Hazardous waste management

- 1.17 million tonnes of hazardous waste generated per year
- no central facilities for treatment and disposal of hazardous waste
- top five generators of hazardous waste are: metal finishers, industrial chemicals, food and beverage, basic metals and electricity generators
- top types of hazardous waste generated are acids, alkalis, inorganic chemicals, oils, organic waste and plating waste

Ship and port waste management

- >35,000 ship arrival per year
- >53,000 tonnes of used oil generated
- no shore reception facilities

Industrial waste management

- 7,596 industrial establishments based on census
- 63% of establishments with wastewater treatment facilities

Agricultural waste management

- >34 million head of livestock
- 20% comprised of backyard operations with no treatment facilities
- 80% of commercial operations with treatment facilities

Institutional Arrangements:

Local governments are responsible for pollution control (Local Government Code, RA 7160)

Local governments are responsible for solid waste management, including development of sanitary landfills, collection of fees and private sector participation (Ecological Solid Waste Management Act, R.A. 9003)

Department of Environment and Natural Resources regulates toxic chemicals and hazardous wastes (Toxic Substances and Hazardous and Nuclear Wastes Control Act, R.A. 6969) and industrial waste (Philippine Environment Code and Presidential Decree 984).

In Metro Manila, the Metro Manila Development Authority (MMDA) provides services, which transcend administrative boundaries, including health, sanitation and pollution control. The Metropolitan Waterworks and Sewerage System (MWSS), a government-owned and controlled corporation, has jurisdiction over all waterworks and sewerage systems of all cities and municipalities in Metro Manila as well as selected areas in surrounding provinces. Two concessionaires have entered into 25-year contracts with MWSS and are obliged to achieve service targets, and to maintain, upgrade and install new facilities to meet such targets.

The Local Water Utilities Administration (LWUA) promotes the development of provincial water supply outside of Metro Manila. It is authorized to form Water Districts to take over the management and operation of local water systems. LWUA is mandated to provide financial assistance in the form of short and long-term loans for foreign and domestic sources.

The Board of Investments (BOI), under the Department of Trade and Industry, is responsible for implementing the 1987 Omnibus Investments Code (E.O. 226). The Code provides a comprehensive set of incentives for local and foreign enterprises engaged in activities high priority for national development.

Bohai Sea Profile

Site Description:

Coastline length: 3,784 km
Water surface area: 77,284 km²
Mean water depth: 18 m
Mean retention time: 16 years
Coastal provincial population: 205 million

Priority Environmental Issues:

- Increased occurrences of Red Tide
- High concentrations of nitrogen in the water column
- Contaminant build-up in tissues of marine organisms
- Disappearance of marine species
- Degradation/destruction of coastal habitats
- Oil contamination of coastal and marine areas from ship operations and off-shore development/production activities
- Conflicting uses of coastal and marine resources



Investment Opportunities:

- Establishment and operation of sewage treatment plants, Tienjin
- Recycle/reuse effluents from sewage treatment plants in Tienjin and Qingdao
- Treatment/recovery of black liquors in pulp mills in Panjin (Liaoning Province) and Tongying (Shandong Province)
- Ecotourism in Qinwandao (Hebei Province)
- Ecotourism in protected area covering sand dune (one of two coastal sand dunes in the world exceeding 40 meter high) in the coastal area of Qinwandao
- Coal terminal management in Qinwandao;
- Oil terminal management in ports around Bohai Bay.
- Organic fertilizer production using wastes from pulp mills in Tongying and Panjin
- Establishment of pollution monitoring stations in the Bohai region
- Design and production of small-scale incineration plants for island and coastal areas, Pamjin

Sector Profiles:

Municipal Sewage Treatment and Disposal

- 7.34 million m³ of domestic sewage daily
- 20% of the sewage receives treatment prior to discharge
- National People's Congress requires the rate of sewage treatment to be 45% across the country by 2005
- Sewage treatment capacity in the Bohai Sea region will need to increase by 1.5 million m³ per day in order to meet the 2005 target.

Municipal Water Supply

- Severe water shortages in Tienjin, Qingdao and other cities in northern China
- Cities pursuing water conservation programs, including recycle/reuse of municipal wastewater

Municipal solid waste

- 90.4 million tones generated in 2000
- 24% of wastes collected and disposed in open dumps
- integrated waste management and sanitary landfills being targeted in cities and provinces of the region

Industrial Waste

- 780+ industries in the coastal area
- 3.8 million m³ of industrial wastewater generated daily
- 80% of industrial wastewater is treated (1998)
- industrial processes being upgraded using cleaner production technologies

Hazardous waste

- industrial sectors suspected of generating hazardous wastes include chemical, petrochemical, papermaking, electroplating, mining, metallurgy, print and dying mills and power
- no hazardous waste facility at present

Sea-based Sources of Marine Pollution

- oil pollution in coastal waters; pollution hotspots in local areas
- 70 ports in the region, no shore reception facilities
- second largest oil field in China located in the Bohai Sea, with extensive offshore oil exploration and production
- 65% of oil pollution estimated to originate from coastal oil fields
- dumping of dredged material not monitored or controlled

Tourism

- Bohai region is an important Chinese coastal settlement and socio-economic hallmark
- richly endowed with “Golden Beaches”, mountains, historical landmarks and natural scenery
- >6 million tourists each year.

Mariculture

- 418,000 ha of mariculture
- seaweed, mussels, prawns and scallops produced
- pollution and Red Tide threaten industry

- 1989 Red Tide resulted in US\$40 million economic damage to mariculture
- improved technology required in order to increase productivity, improve quality of products and reduce environmental impact of the industry

Fisheries:

- major spawning area for Yellow Sea fisheries
- coastal habitats under threat due to pollution and over-exploitation of resources
- over-fishing resulting in reduced catch

Institutional arrangements:

State Oceanic Administration (SOA) has overall responsibility for ocean functional zoning and sea area use, and control of marine sources of pollution.

State Environmental Protection Agency (SEPA) is responsible for regulating land-based activities, and the prevention and management of marine pollution from land-based sources.

Ministry of Agriculture is responsible for conservation of fish stocks, control of pollution caused by aquaculture, and the economy of the fishing industry.

Ministry of Commerce is responsible for economic development

The Navy is responsible for monitoring and enforcement of maritime regulations, and for search and rescue.

Local government units are responsible for implementing policies and regulations prepared and adopted by central government.

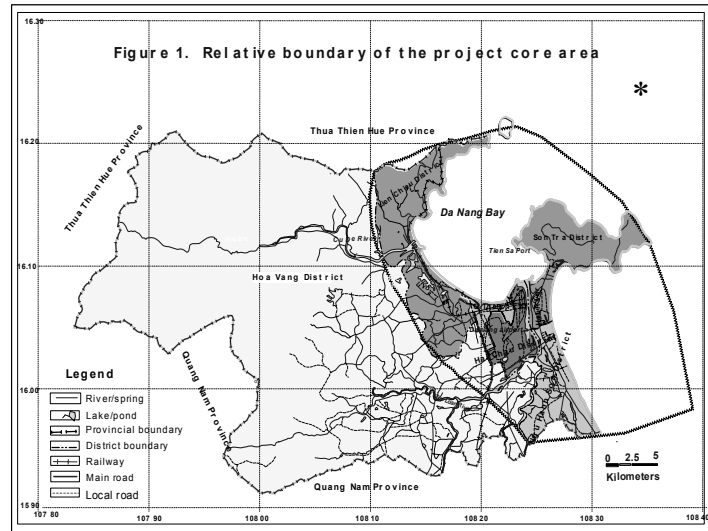
Danang ICM Site Profile:

Site Description:

Coastline length: 30 km
Water surface area: 3,750 km²
Watershed area: 954 km²
Maximum water depth: 20 m
Watershed population: 702,546

Priority Environmental Issues:

- Uncontrolled/illegal disposal of municipal solid waste
- Sea-based sources of oil pollution/waste discharges
- Rivers and coastal waters contaminated with sewage
- Industrial waste discharges to coastal areas
- Hazardous and toxic waste
- Uncontrolled development/use of coastal resources
- Flooding and coastal erosion



Investment Opportunities:

- Improving/constructing sewage collection and treatment system (US\$ 41 million)
- Improving stormwater drainage system
- Upgrading septic tanks for 32 communes
- Improving/expanding existing landfill
- Upgrading/expansion of water supply system
- Port expansion and development, including shore reception facilities (US\$ 175 million)
- Development of six industrial parks, including the provision of cleaner production technology and industrial wastewater treatment and disposal facilities (US\$ 259 million)
- Ecotourism development (US \$300 million)

Sector Profiles:

Municipal sewage treatment and disposal

- No central wastewater treatment facilities
- 6,000 m³ raw sewage discharged daily
- <20% households on sewage collection system
- World Bank project approved (1999-2004) for sewerage and drainage system

Municipal water supply

- 52,000 m³ daily water supply
- 93% of population has access to tap water
- World Bank and AusAid project underway to rehabilitate and expand water supply system
- New pumping station, water treatment plant, water storage and distribution system proposed (200,000 m³ capacity)

Municipal solid waste

- 723 m³ generated daily (estimate)
- <50% of garbage is collected
- one open dump site
- medical and industrial wastes being disposed at same site

Industrial waste

- 145 factories rated as high, medium and low polluters, located in residential areas; no waste treatment provided
- 219 industrial establishments located in three existing industrial parks/export processing zones with existing or proposed treatment facilities
- 6 new industrial estates planned, removing industry from residential areas and upgrading technologies and providing treatment facilities

Hazardous waste

- 24 medical/hospital facilities
- Stockpiles of banned pesticides
- Stockpiles of toxic chemicals from war

Ship and port waste

- 3 seaports; two port expansions being planned
- no shore reception facilities for ship wastes
- vessel traffic management/oil spill response required

Tourism

- one of 3 core tourist areas in Vietnam
- 15% of total tourism revenue for Vietnam
- two marine protected areas have been established
- three UNESCO World Cultural Heritage Sites in the area

Flood Management

- several districts and most coastal communes affected
- development of special housing in flood prone areas
- relocation of some communities under high risk of flooding

Institutional arrangements:

Danang's People's Committee is responsible for policy development and implementation and the overall administration of Danang. Authorized to grant investment licenses for projects with investment capital up to US\$ 5 million. Danang City Development Master Plan (2000-2010) has been adopted.

Danang Industrial Zone and Export Processing Zone Authority is authorized to grant investment licenses to projects valued at US\$ 5 million for industrial zone enterprises, and up to US\$ 40 million in the export processing zone.

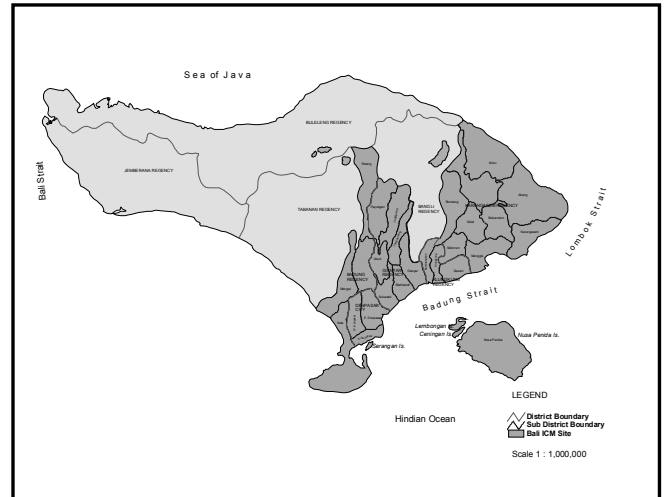
Bali ICM Site Profile

Site Description:

Coastline length: 219 km
Water surface area: 3,350 km²
Watershed area: 1,791 km²
Site population: 1,769,261

Priority Environmental Issues:

- Rivers and coastal waters contaminated with sewage
- Coastal habitats threatened by waste mismanagement
- Uncontrolled development in coastal areas, resulting in erosion and destruction of habitat
- Overexploitation/destructive fishing practices
- Conflicting uses of marine and coastal resources



Investment Opportunities:

- Construction of sewage collection and treatment facilities
- Development of a municipal solid waste management system

Sector Profiles:

Municipal sewage treatment and disposal

- no central collection and treatment system
- some beaches contaminated with sewage

Municipal water supply

- >150 million m³ annual domestic water demand (Province-wide)

Municipal solid waste

- >2,900 tonnes of waste generated daily in the Province
- waste currently disposed to open dump in the coastal area

Industrial waste

- 1216 small scale industries
- no central facilities for wastewater treatment

Hazardous waste

- textile, printing and publishing, chemical and food and beverage industries present
- no hazardous waste facilities

Ship and port waste

- 4 ports in the Province
- >6 million arrivals/departures (1999)
- >4 million tones of cargo handled
- >6,500 boats/vessels in the area

Tourism

- 1,355,000 tourists (1999)
- significant growth in industry predicted over next five years

Coastal development and public works

- 65 km stretch of beach eroded in Bali (as of 1997)
- engineering structures needed to control beach erosion: eg breakwater constructed in Sanur Beach

Institutional arrangements:

- Law Number 22 of 1999 on Regional Government gives direct legal mandate to district and town governments in coastal and marine management
- Provincial government has jurisdiction over marine areas up to 12 nautical miles from shoreline; District and town governments have jurisdiction over marine areas up to 1/3 of the provincial marine areas measured from the shoreline
- central/national government has jurisdiction over marine areas beyond 12 nautical miles (eg Department of Sea Exploration and Fisheries, Indonesian Maritime Council)
