

INTEGRATED WASTE MANAGEMENT ACTION PLAN FOR THE BATANGAS BAY REGION



GEF/UNDP/IMO Regional Programme for the Prevention and Management
of Marine Pollution in the East Asian Seas

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Preface

The Batangas Bay Region, located in the southern part of Batangas Province, is in the throes of industrialization. Economic growth, including the development of an international port for transshipment of raw and finished products, the influx of industry to the coastal area and the intensification of commerce, is occurring at a rapid rate. With the economic growth, there is also an increase in urban population amidst a provincial population growth rate of 2.38 percent annually. These activities will generate increasing quantities of waste, both hazardous and non-hazardous. Existing waste management facilities and operations in the Region are grossly inadequate. Hence, it is important to address waste generation, collection and disposal if the health and environment of the Batangas Bay Region are to be safeguarded.

The development of the Integrated Waste Management Action Plan represents a collaborative endeavor with the Provincial Government of Batangas and the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas. The aim of the Plan is to provide a framework by which waste management and disposal can be effectively carried out, consistent with national, regional and provincial policies, and in accordance with developmental goals and environmental standards set in the Region. The Plan provides a cross-sector and cross-media approach to waste management, utilizing the combined resources and capacities of the public and private sectors. It is envisioned that the Plan will pave the way for effective and sustainable management of waste in the Batangas Bay Region.

The Plan was the product of an intensive process of consultation with local and national government officials, industry, private sector representatives, NGOs and other local stakeholders. Insights gained from the process were incorporated into the final version of the Action Plan and subsequently, into Voluntary Agreements with stakeholders for implementing the Plan.

The Integrated Waste Management Action Plan for the Batangas Bay Region was adopted by the Batangas Bay Council for Integrated Coastal Management (BBCICM) on 21 August 1996 in Batangas City by Resolution No. 02-96.

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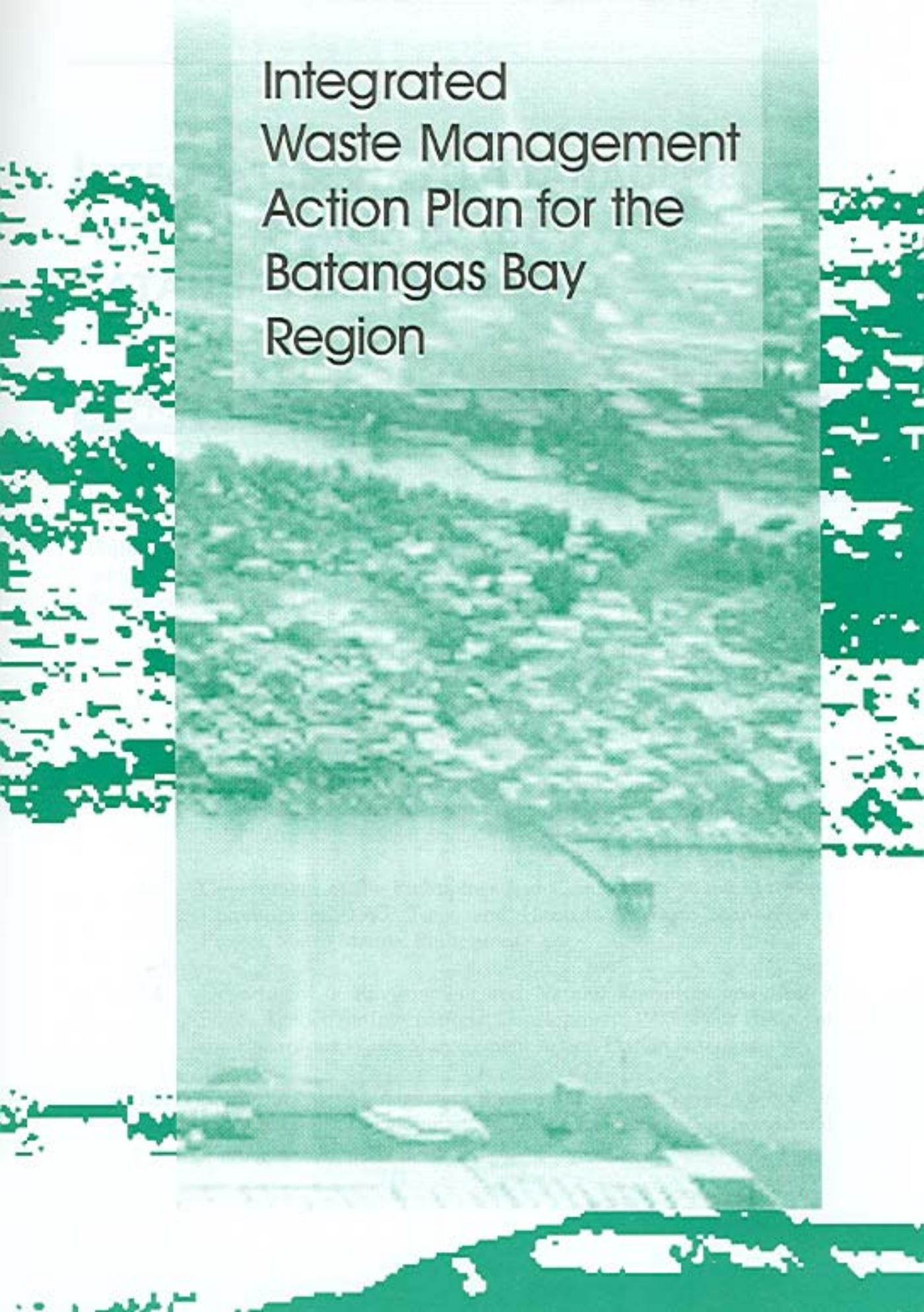
The Integrated Waste Management Action Plan for the Batangas Bay Region was prepared with the support of the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas (MPP-EAS). Mr. S. Adrian Ross, Senior Programme Officer coordinated the development of the Action Plan with technical inputs from the following: Dr. Chua Thia-Eng, Regional Programme Manager; Dr. Huming Yu, Technical Adviser; Mr. James Paw, Technical Programme Officer; and the Batangas Bay Demonstration Project (BBDP) staff, namely: Ms. Corazon L. Abansi, Officer-in-Charge; Ms. Josefina Matanguihan, Environmental Management Specialist; and Ms. Maribel Aloria, Environmental Monitoring Specialist.

The Action Plan has undergone several revisions through extensive consultations with stakeholders in Batangas and representatives from regional and national government agencies. Sincere gratitude and appreciation are extended to them. Special thanks go to the Provincial Government of Batangas; the Government of Batangas City; the Municipal Governments of Bauan, San Pascual and Mabini; the Batangas Coastal Resources Management Foundation, (BCRMF) Inc.; the Philippines Ports Authority (PPA); the Philippine Coast Guard (PCG); the Maritime Industry Authority (MARINA); and the Port Management and Advisory Council (PMAC) of Batangas. The assistance and co-operation of Ms. Angelita Brabante, Environment Management Bureau (EMB); Mr. Tim Hake and Mr. Arsenic Villanueva, Pilipinas Shell, Inc.; Mr Edmond Moreno and Mr. Vic Arellano, Philippines Ports Authority; and Ms. Evelyn Estigoy, Head of the Provincial Government's Environment and Natural Resources Office are acknowledged.

The editorial assistance of the Publications Unit at PDMO, namely, Mr. James Paw, Ms. Lilian Jimenez-Marfil, Ms. Allyn Baldemor and Jonel P. Dulay is also acknowledged.

List of Acronyms

BBDP	Batangas Bay Demonstration Project
BCRMF	Batangas Coastal Resources Management Foundation
BOT	Build-Operate-Transfer
CEC	Commission of the European Communities
CEO	Chief Executive Officer
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DAO	Department Administrative Order
DOH	Department of Health
EMB	Environmental Management Bureau
ENRO	Environment and Natural Resources Office
GEF	Global Environment Facility
GOP	Government of the Philippines
ICC	Investment Co-ordination Committee
IDRC	International Development Research Centre
IEMP	Industrial Environmental Management Project
IMO	International Maritime Organization
LGA	Local Government Academy
LGC	Local Government Code
LGU	Local Government Unit
MARINA	Maritime Industry Authority
MARPOL	International Convention for the Prevention of Pollution from Ships
MPP-EAS	Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas
NEDA	National Economic and Development Authority
NGO	Non-Government Organizations
PO	People's Organizations
OECD	Organization for Economic Co-operation and Development
PBE	Philippine Business for the Environment
PCG	Philippine Coast Guard
PENRO	Provincial Environment and Natural Resources Office
PMA	Pollution Management Appraisal
PMAC	Port Management Advisory Council
PPA	Philippines Ports Authority
RA	Republic Act
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development

An aerial photograph of a coastal city, likely Batangas, Philippines. The city is densely packed with buildings and is situated along a bay. A prominent bridge spans across the water. The foreground shows a large, flat area, possibly a port or industrial zone. The overall scene is captured from a high angle, providing a comprehensive view of the urban and coastal landscape.

Integrated Waste Management Action Plan for the Batangas Bay Region

INTEGRATED WASTE MANAGEMENT ACTION PLAN FOR THE BATANGAS BAY REGION

1.0 Background

A number of studies have recently been conducted by national and international organizations and donor agencies focusing on the problems and priorities of hazardous and non-hazardous waste management in the Philippines. Among the projects, there have been a number of investigations which, directly and indirectly, describe the waste management situation in the Batangas Region. The studies referred to include:

- 1.1 Environmental Management Bureau and International Maritime Organization. 1994. *Global Waste Survey: Philippines' Case Study on the Development of Waste Management Options to Phase Out Ocean Dumping of Industrial Waste.*
- 1.2 Environmental Management Bureau and International Bank for Reconstruction and Development. 1995. *Urban Environment and Solid Waste Management Study*, vol. 4. Batangas.
- 1.3 Government of the Philippines and Commission of the European Communities. 1995. *Toxic and Hazardous Waste Management Project.* Metro Manila, Philippines.
- 1.4 Department of Environment and Natural Resources and United States Agency for International Development. 1995. *Pilot Testing of the Hazardous Waste Management Action Plan in Batangas.*
- 1.5 Environmental Management Bureau and United States Agency for International Development. 1995. *Industrial Environmental Management Project in the Batangas Region.*

The outputs from these studies, in conjunction with the Coastal Environmental Profile and the Strategic Environmental Management Plan for the Batangas Bay Region,¹ present a reasonable overview of the state of waste management in the Batangas Bay Region. Although the data are sparse in some areas, (for example, the types and quantities of wastes being generated by different sectors and the current disposal methods), it is generally agreed that action needs to be taken in order to avoid serious marine pollution problems in Batangas Bay and the surrounding coastal and inland areas.

¹ The Coastal Environmental Profile and the Strategic Environmental Management Plan for the Batangas Bay Region were produced as part of the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas for the Batangas Bay Demonstration Project.

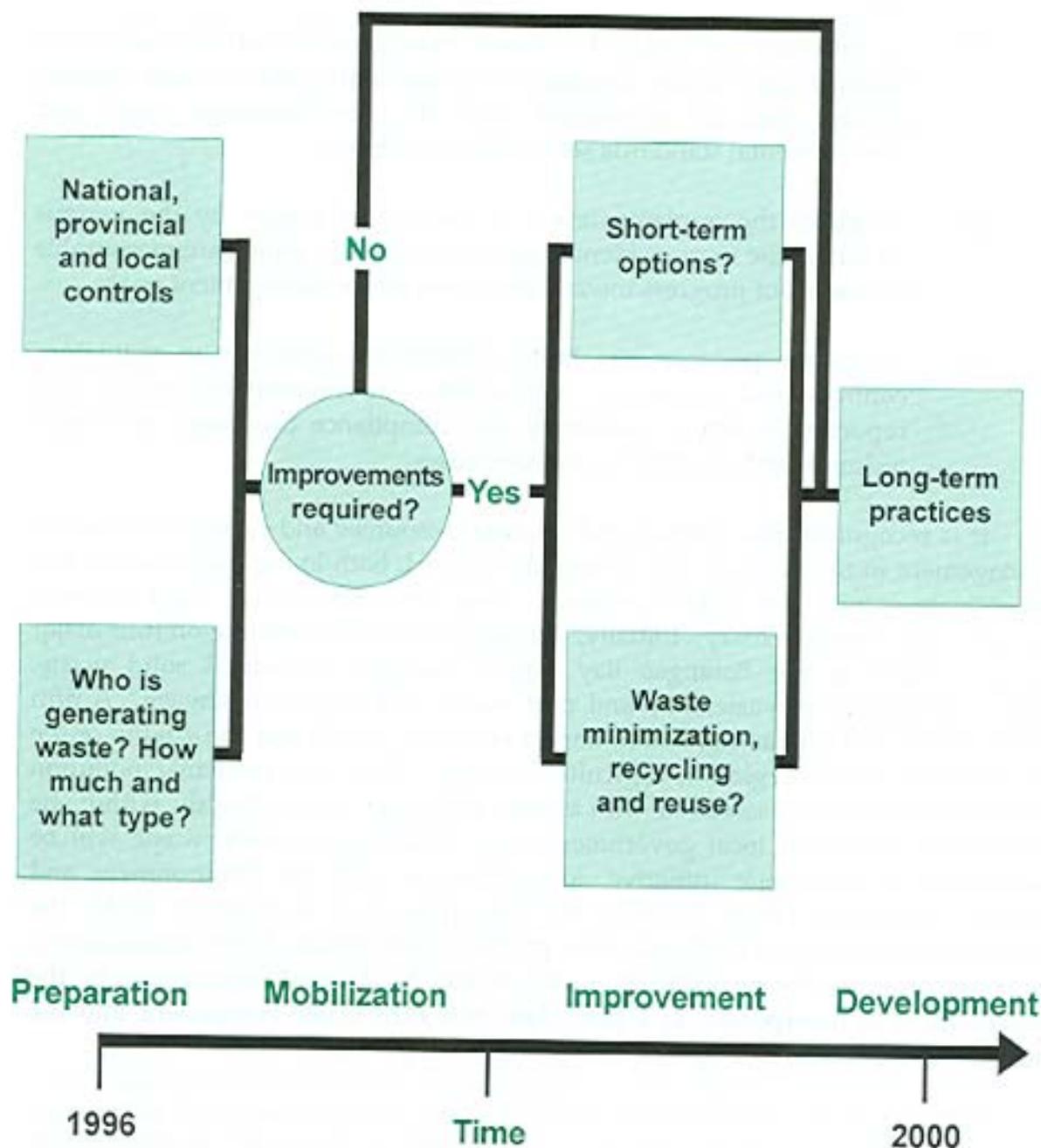
2.0 Program Objectives

The objectives of the Batangas Bay Integrated Waste Management Action Plan are as follows:

- 2.1 To eliminate existing waste handling and disposal practices which pose an immediate risk to public health in the Region or threat to the quality of the marine environment of Batangas Bay;
- 2.2 To improve the standard of waste management and disposal in the Batangas Bay Region, consistent with national, provincial and regional policies, and in accordance with the developmental goals and environmental standards set within the Region;
- 2.3 To guide the implementation of short-term actions by the various sectors in the Region, identifying interim targets which are measurable indicators of progress toward long-term waste management goals;
- 2.4 To gain experience and build appropriate capacities in regulatory controls and economic instruments, information gathering and reporting systems, monitoring and compliance programs, and legal, technical and scientific knowledge bases.

It is recognized that human and financial resources and capacities in waste management in the Batangas Bay Region are limited, both in the public sector and the private sector. To achieve progress, these limited resources must be well-focused and complementary. Initially, the program will concentrate on four major waste streams in the Batangas Bay Region, namely: municipal solid waste; industrial hazardous waste; ship and port waste; and municipal sewage. A fifth waste stream, which has significant impact on public health and the quality of the environment in the Region, is agricultural waste. Since this particular pollution source is principally associated with inland areas and is not directly within the jurisdiction of coastal local government units (LGU), agricultural waste will be addressed as a separate initiative, in conjunction with the Environment and Natural Resources Office (ENRO), the Department of Agriculture (DA), the Department of Health (DOH) and other pertinent authorities. Upon establishing a program of action for agricultural waste, it may be deemed appropriate by the stakeholders to incorporate, at a later date, this fifth waste component into the Integrated Waste Management Action Plan of Batangas Bay.

Figure 1: General Framework for the Batangas Bay Integrated Waste Management Action Plan



3.0 Program Components

3.1 Action Plan Framework

To maintain clarity in the description of the program, each of the four waste streams has been addressed as a distinct element in the Action Plan. However, it should be borne in mind that an integrated program, by definition, includes a cross-sector and cross-media approach to waste management. All four elements will be linked.

The general framework of the five-year action plan is illustrated in *Figure 1*. Proposed actions on each of the waste streams, (i.e., municipal solid waste; industrial hazardous waste; ship and port waste; and municipal sewage), involve four stages or phases of activity. The four phases include: preparation, mobilization, implementation and development.

The *preparatory phase* includes identification of the applicable laws and requirements that are in place to control wastes generated from land- and sea-based sources, and the development of a knowledge base on the sources, quantities and types of wastes being generated and disposed. An effort will also be made to forecast future waste loadings at this stage.

The *mobilization phase* requires an assessment of need for improving the situation. The question that will be addressed during this phase is, "Are improvements required?" If improvements are required, a strategy and schedule for making those improvements will be completed in the mobilization phase. Because of limited resources, priorities will need to be set. It is conceivable that, initially, small or less significant waste generators will have a lower priority. Another important activity in the second phase is the assessment of training needs. Training requirements in monitoring and enforcement, waste audits, record-keeping and reporting, management and operation of waste facilities, etc. will be determined. Appropriate training opportunities will then be identified and/or developed for the benefit of local constituencies.

It is also at this stage that a "voluntary agreement" between the public and private sectors will be examined and, if it is viewed to be beneficial, formulated. In brief, the signing of a voluntary agreement is a declaration by the waste generators to reduce, for example, waste loads to a certain limit and within a given timeframe. The declaration on the part of the public sector is to monitor progress in an agreed format and schedule and to collaborate in the development and implementation of both transitional and long-term solutions for waste management, as required. Further details on the breadth and application of voluntary agreements are included in the respective action plans for industrial hazardous waste and ship and port waste.

Improvement, the next phase, is the actual implementation of actions, including hands-on experience in managing and disposing waste, monitoring and reporting, and training initiatives. At this stage, plans for long-term actions begin to develop, based on the experience of the transitional measures and the voluntary programs.

The final stage is the *development phase*. At this point, after working through the actions of the preceding phases, public and private stakeholders will have reached an evolutionary stage where long-term solutions for waste management have been identified and capacities are in place for development. The public sector will have evolved a capacity to monitor and enforce established or revised regulations and policies. The private sector has had an opportunity to respond to regulations and control requirements in a practical and cost-effective manner, and is now capable of making sound decisions concerning the selection of the most appropriate long-term waste management options.

To assist concerned stakeholders with the implementation of the Action Plan, a series of project proposals have been prepared for each action phase. The proposals describe the substance of the action, and identify a lead agency or organization that will be tasked to guide the endeavor. Potential linkages and input from other groups have by then been suggested, including the vital role of the general public in decisions concerning waste management and the implementation of environmentally sound, socially acceptable programs. *The list of project proposals is not to be considered all-inclusive, nor are the descriptions comprehensive, in the annexes to this action plan. The information is provided as a starting point and a stimulus for discussion among stakeholders in the Batangas Bay Region.*

3.2 Action Plan Timing and Financing

The Action Plan extends from 1996 to the year 2000. It is estimated that Phase 1 of the Plan will be completed within six to nine months of start-up; Phase 2, one to two months; Phase 3, twelve to eighteen months; and Phase 4, twelve to twenty-four months. Obviously, the speed with which the Plan is implemented very much depends on two factors, namely, the stakeholders' commitment to the Plan and the availability of funds to implement the Plan.

Stakeholders commitment is achieved through consensus building. Consensus building was initiated among the public and private sectors in the Batangas Bay Region during the Action Plan's formulation. However, further groundworking is required. Resolution is needed among chief executive officers (CEOs) and senior government officials in support of the Action Plan, and

confirmation that such commitment will be acknowledged throughout their respective agencies and organizations.

Obligations of stakeholders during the early phases of the program include: (a) the identification of focal points that will be responsible for co-ordinating and/or implementing proposed actions; and (b) the time required by staff to collect and collate essential information. Phases 1 and 2 (*Figure 1*) entail only limited financial commitments from the various participants. Principally, in-kind support for information gathering, workshops and training sessions and co-ordination of activities will be required.

Phase 3, the improvement phase, is the stage at which increasing funding support will be needed. At this stage, transitional measures to improve current methods of handling and disposing wastes will be developed and implemented. It is also at this stage where actions such as waste minimization and recycling programs, technical and economic assessment of long-term options and the development of monitoring and enforcement capacities are undertaken. As the program moves into Phase 3, avenues to reduce the financial burden on individual stakeholders will be explored, including financial assistance from donors and potential joint ventures with private investors.

Phase 4, the development phase, focuses on long-term financial investments. It is at this stage, for example, that decisions on centralized treatment and disposal facilities will be made and the necessary capital investments sought, incorporating innovative approaches such as public sector-private sector partnerships.

3.3 Action Plan Format

The balance of this document concentrates on the four priority wastes, and the specific actions required over the next five years. The Action Plan has been prepared as follows:

Section 4.0: Municipal Solid Waste

Section 5.0: Industrial Hazardous Waste

Section 6.0: Ship and Port Waste

Section 7.0: Municipal Sewage

4.0 Municipal Solid Waste

4.1 Background

In the Philippines, the Local Government Code (Republic Act 7160 of 1991) devolves responsibility for solid waste collection to the barangays and solid waste management system development, including final disposal, to the municipal and city levels of government. Under the Code, municipalities and cities also have authority to assume responsibility for solid waste collection should barangays fail to meet their obligation.

Another important document with respect to municipal solid waste management in the Philippines is the Integrated National Solid Waste Management System Framework, which was adopted by Cabinet in 1993. The Framework contains five basic waste management objectives for the country, namely:

- reduction/minimization of wastes generated at source;
- improvement of collection efficiency from all sources of solid waste;
- improved efficiency and effectiveness of transfer and transport system from source to processing and final disposal sites;
- reduction of solid waste disposal volume to extend serviceability of final disposal sites; and
- establishment of safe, environmentally acceptable way of disposing wastes collected from different sources.

The following goals and actions have been developed, employing the principles, objectives and strategies contained in the Local Government Code and the National Framework documents as guidance for proceeding toward an improved municipal solid waste management system for the Bay Region.

4.2 Goals

The goals of the municipal solid waste management action plan for Batangas Bay Region are as follows:

- 4.2.1 To develop and implement a municipal solid waste management master plan for the Batangas Bay Region, including siting, design and

- commissioning of a sub-regional or regional sanitary landfill, recycling center and compost facilities;
- 4.2.2 By 1998, to extend municipal solid waste collection services to 100% of the market and commercial establishments in the Region;
- 4.2.3 By 1998, to eliminate all unlicensed, illegal open dumps and to eliminate other illegal solid waste disposal practices and activities;
- 4.2.4 By 1999, to implement an appropriate fee schedule/cost recovery system across the Region which will support the administration, operation, monitoring and enforcement of the solid waste management system for the Region;
- 4.2.5 By 2000, to achieve a 25 percent reduction in the amount of solid waste being disposed to landfill;
- 4.2.6 By 2000, to privatize and/or contract out all municipal solid waste collection, processing and disposal services throughout the Region;
- 4.2.7 By 2000, to extend municipal solid waste collection services to all coastal barangays in the Batangas Bay Region; and
- 4.2.8 To gain public acceptance for and involvement in the development and implementation of a regional municipal solid waste management master plan.

4.3 Program Approach

To achieve the above targets over the next five years, LGUs in the Batangas Bay Region are faced with a tremendous challenge. The challenge is to overcome social, economic and technological constraints associated with the existing waste management system; and to do so with the participation and support of the general public.

The implementation of a municipal solid waste management action plan entails three basic strategies:

- 4.3.1 generate consensus among the LGUs, industrial and commercial sectors and the general public on long-term waste management goals that are practical and beneficial to the communities and the environment;

- 4.3.2 develop the necessary experience and information on solid waste management in the public and private sectors, through the application of transitional activities leading to recognized long-term goals; and
- 4.3.3 build capacity in the public sector to monitor and enforce existing and future regulations and ordinances dealing with solid waste management.

4.4 Short-Term Actions

a) Consensus Building among LGUs and the General Public

The first step in implementing a municipal solid waste management action plan is to exact a commitment from LGUs to adopt and support a proposed plan. This document represents a resource that may be used as the basis for discussion and development of such consensus. Clearly, there are insufficient data to suggest long-term singular goals or the optimum solution. To move forward, however, measurable end targets must be identified. Over time, as more information and local experience is gained, the goals may be modified or changed completely.

The building of consensus requires a two-pronged approach. First, stakeholders and the general public in particular, need to be shown that past mistakes in managing solid waste can be overcome. This can be achieved through demonstration. The demonstration will cover the development and implementation of an environmentally sound and socially acceptable method of handling and disposing municipal solid waste at the local level. The project will focus on a single city or barangay within the Region, and will address four components of a municipal solid waste management system:

- generation
- collection
- processing
- final disposal

The overall aim of the demonstration project will be to: (i) build confidence among stakeholders that a systematic approach to waste management has environmental and social benefits; and (ii) build capacity within the selected LGU to effectively develop and manage an integrated waste management system, by strengthening skills and knowledge through hands-on experience.

The second phase of consensus building is the public awareness/public education component. The program will be designed: (i) to keep the public apprised on scheduled activities; and (ii) to afford the public an opportunity to participate in the development, implementation and evaluation of scheduled activities. The aim is to establish a consultative and participatory planning process in which an informed general public has full confidence.

The demonstration project will be implemented in the Municipality of Bauan and will be led by the local government. Technical and financial support will be sought from national, provincial, local and international entities, through the GEF/UNDP/IMO Regional Programme Office and ENRO. The public awareness and public participation program will be organized and co-ordinated by a national non-government organization (NGO), in conjunction with ENRO, and a people's organization (PO).

b) Transitional Initiatives

Transitional initiatives include a series of interrelated actions designed to provide improvements to the current method of administering, controlling and operating waste management systems across the Region, while at the same time, developing a local knowledge base and expertise that will allow for informed decisions concerning the development and implementation of the long-term regional waste management system. The transitional initiatives are presented in the form of project proposals, which are included in Annex 1. The projects are grouped into four categories, i.e., preparation; mobilization; improvement; and development. *The proposals are further identified according to the sector or organization deemed appropriate for leading the undertaking, as follows:*

Phase 1: Preparation

Lead Agency: LGUs

- Residential Waste Generation and Management in the Batangas Bay Region.

Lead Agency: ENRO

- Management of Institutional and Commercial Wastes in the Batangas Bay Region

Phase 2: Mobilization

Lead Agency: ENRO

- A Model Ordinance Covering the Generation, Segregation, Collection, Handling, Processing and Disposal of Residential, Commercial, Industrial and Institutional Solid Wastes
- Development of Municipal Solid Waste Management Guidelines
- Assessment of Training Needs

Lead Agency: National NGO

- Public Education and Awareness

Phase 3: Improvement

Lead Agency: LGU

- Formulation and Implementation of a Demonstration Project in the Municipality of Bauan

Lead Agency: ENRO

- Identification and Evaluation of Appropriate Market-Based Policy Instruments for LGUs in the Batangas Bay Region

Phase 4: Development

Lead Agency: LGU

- Development of a Sanitary Landfill Facility in the Batangas Bay Region

c) Monitoring and Enforcement

Training within the LGUs is required to ensure that an effective integrated solid waste management system can be introduced and maintained (mobilization phase). Training modules and programs will be developed in conjunction with the Local Government Academy (improvement phase). Depending on the manner in which LGUs determine that solid waste systems are going to develop in the Region (e.g., fully privatized; community operated; etc.), training requirements will need to be assessed and appropriate modules developed and presented.

This activity will be co-ordinated by ENRO, in close co-operation with LGUs, the Local Government Academy (LGA), Department of Environment and Natural Resources (DENR) and other appropriate agencies.

5.0 Industrial Hazardous Waste

5.1 Background

In 1990, the Government of the Philippines enacted the Toxic Substances, Hazardous Wastes and Nuclear Wastes Control Act, commonly known as RA 6969. This legislation is designed to respond to increasing problems associated with toxic chemicals, hazardous and nuclear wastes in the country.

RA 6969 is a major commitment for both the public and the private sectors in the Philippines. The DENR has been designated numerous authorities and responsibilities under the Act. In June 1992, Department Administrative Order 29 (DAO 29) was promulgated, providing a general regulatory framework for compliance with RA 6969. Title III of DAO 29 refers specifically to hazardous and nuclear wastes.

The strategy adopted by DENR² for implementing the hazardous waste sections of DAO 29 involves:

- industry gradually adjusting and adapting to the new requirements for hazardous waste management;
- DENR focusing resources on priority hazardous waste generators and bringing other generators into compliance over time; and
- introducing a phase-in approach, with the first phase (which began in 1995) focusing on registration of waste generators.

The goals and actions which have been developed for the Batangas Bay Region have been formulated with due consideration of DENR's objectives and strategies under DAO 29.

5.2 Goals

The goals of the industrial hazardous waste management action plan for the Batangas Bay Region are:

² Environmental Management Bureau, Department of Environment and Natural Resources, Philippines. 1995. *Orientation Manual on Implementing Rules and Regulations for Title III: The Management of Hazardous Waste*. DENR Administrative Order No. 29, Republic Act 6969.

- 5.2.1 To develop and implement a hazardous waste management plan for the Batangas Bay Region including, as appropriate, the siting, design and commissioning of centralized hazardous waste storage, processing and disposal facilities;
- 5.2.2 By 1998, to establish and implement appropriate methods and practices for proper identification and classification, packaging and transport, treatment and disposal, and administrative control of hazardous wastes in the Batangas Bay Region;
- 5.2.3 By 1998, to implement an effective manifest system for tracking hazardous wastes which are transported from the point of generation off-site to the point of final disposal;
- 5.2.4 By 1999, to eliminate all unlicensed, illegal hazardous waste recycling and disposal operations and practices;
- 5.2.5 By 2000, to achieve a twenty-five percent (25%) reduction in industrial hazardous waste generation; and
- 5.2.6 To gain public confidence in the private sector's capacity and willingness to manage hazardous wastes in an environmentally acceptable and socially responsible manner.

5.3 Program Approach

The regulatory process concerning hazardous waste management in the Philippines is evolving. It is clear that the Government's policy concerning hazardous waste is "the polluter pays," meaning that generators of hazardous waste are legally and financially responsible for the "cradle-to-grave" management of their waste. At present, the public sector is building capacity to ensure that generators of hazardous waste comply with existing and proposed regulations. Industry has an opportunity, in the short term, to voluntarily develop and implement measures and activities which are in accordance with national objectives. By demonstrating a responsible and practical approach to managing hazardous waste, industry can avoid a future situation wherein a fully-equipped public sector will be prescribing hazardous waste control measures—measures which may be difficult for an unprepared waste generator to put into effect.

The strategies used in the implementation of a hazardous waste management action plan for Batangas Bay include:

- 5.3.1 formulating a voluntary agreement between industry and government, in which industry in the Batangas Bay Region develops and implements a self-imposed action program on hazardous waste management;
- 5.3.2 developing the necessary experience and information on hazardous waste management in both the public and private sectors through the implementation of short-term or transitional actions, which lead to identified long-term goals; and
- 5.3.3 building capacity in the public sector to monitor and enforce existing and future regulations dealing with hazardous waste management.

Following is an outline describing how the public and private sectors can work in a co-operative and complementary manner in order to put the above strategies into effect.

5.4 Short-Term Actions

a) Voluntary Agreement

A voluntary agreement is a mechanism that allows government and industry to begin implementing preventive and mitigative measures to address hazardous waste, even though legislative, regulatory, technological and human resource capacity may be lacking.

The agreement includes a series of measurable targets that industry agrees to achieve within an identified timeframe. Government, on the other hand, agrees to a monitoring and reporting schedule and to provide training and guidance in the interpretation and application of appropriate regulations and guidelines. As long as industry is complying with the agreed conditions and schedule, it will be established that further control requirements or actions will not be imposed by government.

The aim of the agreement is to provide each party with a clear indication of their respective roles and responsibilities, and to set the goal posts for a hazardous waste management program in the Batangas Bay Region for the next five years. The formulation and negotiation of long-term goals and a model voluntary agreement will be the responsibility of DENR, the Batangas Coastal Resources Management Foundation (BCRMF), LGUs and ENRO. The final agreements will be negotiated and signed by each industry, DENR, the respective LGU and ENRO.

Development and implementation of a voluntary agreement will require a commitment of resources on the part of both sectors. The suggested steps that will be required in the development of such an agreement include:

- identification of long-term objectives for hazardous waste management;
- preparation of an action plan which identifies each sector's role, responsibility and resource commitment to achieving identified transitional milestones which will lead to the long-term goals;
- development of a reporting process, stipulating monitoring and reporting requirements for each party;
- designation of a body or review procedure that provides a mechanism for regular reporting and evaluation of progress;
- formulation of a model agreement for distribution to industry in the Batangas Bay Region; and
- signing of voluntary agreements.

To be successful, the voluntary agreement concept must have complete support from decision-makers and top management in both the private and public sectors. Politicians and managers must understand the benefits of the arrangement and how it fits into the integrated waste management program for the Region. They must also understand and be committed:

- to assigning someone who will be responsible for developing and implementing the agreement package; and
- to providing time, staff and financial support to meet the conditions of the agreement.

b) Transitional Initiatives

Transitional initiatives include a series of interrelated *actions* which are designed to provide improvements to the current method of administering and controlling hazardous waste in the Region, while simultaneously developing a local knowledge base and expertise that will allow informed decisions concerning the development and implementation of a regional hazardous waste management program. The transitional initiatives are presented in the form of project proposals which are found in Annex 2. The project proposals are grouped into four categories: preparation; mobilization; improvement; and development. *The proposals are further identified according to the sector or organization deemed responsible for leading the undertaking, as follows:*

Phase 1: Preparation

Lead Agency: BCRMF

- Inventory of Hazardous Waste Generators, Transporters, Storage, Treatment, Recycling and Disposal Facilities in the Batangas Bay Region

Lead Agency: ENRO

- Identification of Current National, Provincial and Local Requirements for Industrial and Hazardous Waste Management

Phase 2: Mobilization

Lead Agency: BCRMF

- Development of a Pool of Experts among Industry in the Batangas Bay Region

Lead Agency: DENR

- Guideline on the Accreditation of Laboratories for Testing and Analysis of Hazardous and Toxic Wastes
- Hazardous Waste Guidelines for Use by Generators, Handlers, Transporters, Processors and Disposal Operations

Lead Agency: ENRO

- Strengthening the Market Value of Recyclable Materials in the Batangas Bay Region
- Assessment of Financial Mechanisms to Support Hazardous Waste Management Services in the Batangas Bay Region
- Hazardous Waste Management Training Needs Assessment

Phase 3: Improvement

Lead Agency: BCRMF

- Implementation of an Industrial Hazardous Waste Minimization Program

- Identification and Evaluation of Transitional Technologies, Practices and Facilities for Off-Site Hazardous Waste Processing and Disposal in the Batangas Bay Region
- Preparation of a Proposal Concerning a Hazardous Waste Storage, Treatment and Disposal Facility for the Batangas Bay Region

Lead Agency: DENR

- Development of a Hazardous Waste Management Database and Technical Information System for the Batangas Bay Region
- A Hazardous Waste Management Plan for the Batangas Bay Region, 1998-2023

Phase 4: Development

Lead Agency: BCRMF

- Joint Venture for Hazardous Waste Facilities and Services in the Batangas Bay Region

c) Public Awareness and Participation

Public awareness initiatives will be aimed at a broader audience in the region. The program will be designed with a view to:

- the political constituency that will be facing decisions concerning hazardous waste management in the Region;
- to raise the awareness of the general public on issues associated with hazardous waste and of the need for more effective management;
- generators of hazardous waste and the options available for addressing such problems;
- potential opponents to centralized hazardous waste facilities, to make them aware of the practical issues related to hazardous waste generation and effective management.

The public awareness/public participation component will be organized and co-ordinated by ENRO, employing a national NGO in conjunction with a people's organization, to develop and implement appropriate activities.

Lead Agency: ENRO

- Implementation of a Public Awareness Program in the Batangas Bay Region

6.0 Ship and Port Waste

6.1 Background

In Batangas Bay, there are a total of 22 ports in operation. The identified ports include the Batangas Base Port, three government ports and 18 private ports. Domestic vessel traffic to the base port has increased significantly over the past seven years, from 5,308 shipcalls in 1988 to 13,994 in 1995. Foreign traffic is also increasing, expanding from 14 to 89 shipcalls over the same seven-year period. Statistics on shipcalls to the other 21 ports in the Bay are undetermined at this time. However, it is envisaged that, with the further development of the Batangas Port as an international deepwater port, there will be further increases in vessel traffic and, as a result, an even greater potential risk of marine pollution due to ship and port operations.

At present, there is no program in place which addresses protection and management of the marine environment from ship and port activities in the Bay. While it is recognized that some terminal ports have oily waste reception facilities for vessels, and some private companies are operating solid waste collection services, administration and control of these activities on a Bay-wide scale is not evident.

Philippines Ports Authority (PPA) Administrative Order No. 16-95 decrees the prevention and management of oil, garbage and sewage waste through the use of reception facilities and the collection of vessel-generated refuse. The authority for the Order is based on four instruments, namely:

- Presidential Decree No. 875
- PPA Memorandum Circular No. 07-95
- PPA Memorandum Circular No. 04-85; and
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

The purpose of the Order is to keep harbors clean and to prevent or minimize the pollution of the marine environment through proper disposal of vessel waste. Its scope includes all foreign and domestic vessels calling at any government or private port within the jurisdiction of the Philippines Ports Authority (PPA).

Other sources of waste that are to be considered in the implementation of a comprehensive waste management action plan include wastes related to cargo handling and storage; ship repair yards; dredging and the disposal of dredged

materials; oil and chemical spills; equipment and vehicle maintenance areas; administration centers and offices, etc. Existing authorities for managing and controlling wastes generated from these sources in the port area are shared among various jurisdictions including the PPA, Philippine Coast Guard (PCG), Maritime Industry Authority (MARINA), DENR, ENRO and the LGUs.

The following goals and actions have been developed with a view to preparing a comprehensive approach to management of wastes from ship and port operations in Batangas Bay. It is emphasized that such wastes are only part of the total waste system that is operating in the Batangas Bay Region. As such, the proposed actions will be integrated into the waste handling and management program of other stakeholders in the Bay—to provide practical and cost-effective solutions that address the needs of all sectors in both the public and private domains.

6.2 Goals

The goals of the ship and port waste management action plan for Batangas Bay are as follows:

- 6.2.1 To develop and implement a Bay-wide program to equip all ports with adequate facilities to receive and handle ship-generated wastes by the year 2000;
- 6.2.2 To develop and strengthen procedures to enforce the legislation and regulations on the use of available reception facilities, and to monitor the wastes and services provided to ships and vessels in port areas;
- 6.2.3 By 1998, to implement an appropriate fee schedule/cost recovery system which will support the administration, operation, monitoring and enforcement of the ship and port waste management system for the Bay;
- 6.2.4 By 1999, to establish safe and efficient land-based waste facilities and practices for the management of wastes collected from vessels, cargo handling and storage, ship repair yards and other related port activities and, where appropriate, to incorporate such facilities and practices into the activities of LGUs, industry and the private sector in the Batangas Bay Region;

- 6.2.5 To build capacity to monitor and control dredging and dredged material disposal, and to identify environmentally sound disposal techniques and sites; and
- 6.2.6 To strengthen the capability in the Region to effectively prevent and combat oil and chemical spills in the ports and in the open waters of the Bay.

6.3 Program Approach

While one of the primary objectives of the Action Plan is to develop and implement ship waste reception and management facilities, the program has a broader focus: it will address all sources of waste related to shipping and port activities. The purpose is to develop a Bay-wide program for the ports using inter-port co-operation to make the system practical and cost-effective, partnerships with the private sector to provide facilities and services, and agreements with LGUs and local industry to take advantage of economies of scale in providing environmentally acceptable waste management and disposal facilities.

The strategies used in the implementation of the ship and port waste management action plan are as follows:

- 6.3.1 formulate a voluntary agreement among key stakeholders who use or benefit from shipping and port operations in the Bay, to develop and implement a self-imposed action program for ship and port waste management;
- 6.3.2 develop the necessary experience and information on ship and port waste management through the implementation of short-term or transitional actions, which lead to identified long-term goals;
- 6.3.3 build capacity to monitor and enforce waste management regulations and requirements in the Bay through training programs and hands-on experience in implementing voluntary agreements;
- 6.3.4 strengthen capacity in oil and chemical spill prevention and management through the development of Bay-wide contingency plans, response capacities and training programs; and
- 6.3.5 establish financial instruments which will ensure the sustainability of waste management activities over the long-term.

6.4 Short-Term Actions

a) *Consensus Building among Stakeholders*

The first step in the ship and port waste management action plan is to build consensus among the key players in the Batangas Bay, in both the public and private sectors, to agree to the objectives and to participate in implementing the Action Plan. The key stakeholders include the Port Management Advisory Council (PMAC); PPA; PCG; MARINA; the shipping companies; the owners and operators of private ports; terminals and ship repair yards and the coastal municipalities. The stakeholders will need to agree on the long-term goals of the program and the Action Plan that has been devised as a means of progressing toward those goals.

b) *Voluntary Agreement*

Aim:

The voluntary agreement is a mechanism that allows key stakeholders to begin implementing preventive and mitigative measures to address ship and port wastes even though legislative, regulatory, technological and human resource capacity may be lacking. The aim of the agreement is:

- to identify a series of measurable targets or milestones;
- to provide all parties with a clear indication of their respective roles and responsibilities over the duration of the agreement;
- to identify a monitoring and reporting schedule to keep track of progress;
- to confirm co-operation among parties; and
- to set the goal posts for actions to protect and manage marine pollution from ship and port operations in Batangas Bay for the next five years.

Rationale:

The prevention and management of marine pollution in Batangas Bay has been recognized as an important objective requiring a focused effort by all sectors in the Region, both public and private. Because of limited institutional resources and capacities, and inadequate facilities and services for either the public or private sector, it is necessary to develop an approach for the effective and efficient use of available resources. An agreement between the various sectors on operational activities is designed to promote co-operation and collaboration in improving the situation, in the shortest possible time. The agreement will describe the reasonable expectations of each sector, and the respective responsibilities and

targets. The idea is to start off with limited targets and simplified procedures, recognizing the existing capabilities and capacities, but gradually expanding these over time.

Scope and Activities:

The scope and the target of agreements are determined by the respective capacities of the public and private sectors by matching the volume of work with the resources capability level. For example, small waste generators may be excluded from the initial focus of the program; transitional measures will be identified based upon practical, economically viable and environmentally beneficial options; and the capability of laboratories to analyze only a limited number of samples and parameters will dictate the type and extent of monitoring programs.

In summary, the voluntary agreement approach provides each sector the opportunity not only to develop and improve their capacity over time, but also, in combination with other elements of the marine pollution program in Batangas Bay, to gain a better understanding of the issues and their tendencies to impact on the marine environment.

To be successful, the voluntary agreement concept must have the support of decision-makers and top management in both the public and private sectors. Managers must understand the benefits of the arrangement and how it fits into the integrated waste management program of the Batangas Bay Region. They must also be committed:

- to assigning someone who will be responsible for developing and implementing the agreement package; and
- to providing time, staff and financial support to meeting the conditions of the agreement.

c) *Transitional Initiatives*

Transitional initiatives include a series of activities which are designed to provide improvements to the current method of administering, controlling and operating waste management systems in the Bay, while simultaneously developing local knowledge and experience that will allow for informed decisions concerning future or long-term waste management programs. The transitional initiatives are presented in the form of project proposals presented in *Annex 3*. The projects are grouped into four categories of activity, namely: preparation; mobilization; improvement; and development, as identified in *Figure 1*. *The proposals are further identified according to the sector or organization deemed appropriate for leading the undertaking, as follows:*

Phase 1: Preparation (regulations and sources of waste)

Lead Agency: PMAC

- Ship and Port Waste Generation and Management in the Batangas Bay Region

Lead Agency: ENRO

- Identification of Current National, Provincial and Local Requirements for Ship and Port Waste Management in Batangas Bay Region

Phase 2: Mobilization (Are improvements required?)

Lead Agency: PMAC

- Development of Ship and Port Waste Management Guidelines

Lead Agency: ENRO

- Assessment of Training Needs

Phase 3: Improvement

Lead Agency: PMAC

- Identification and Assessment of Technologies, Practices and Facilities for Collecting and Managing Ship and Port Waste in Batangas Bay

Lead Agency: PCG

- Development and Implementation of Oil and Chemical Spill Prevention, Preparedness and Response Measures

Phase 4: Development

Lead Agency: PPA

- Development and Implementation of Public Sector-Private Sector Partnerships in Port Reception, Treatment and Disposal Facilities

Lead Agency: PCG

- Development of a Vessel Traffic Control System in the Bay

d) Monitoring and Evaluation

In order to maintain awareness for the program's Action Plan and to ensure all parties are moving forward with the planned actions, it is important that a monitoring and evaluation component be built into the Action Plan. The activity will be co-ordinated with ENRO, in close co-operation with the PPA, PCG and MARINA.

Depending on the manner in which stakeholders in the Bay determine that their waste system is going to develop (e.g., fully privatized; partnerships with LGUs; etc.), training requirements will need to be assessed and appropriate skills developed to ensure adequate and competent monitoring and inspection capacities.

7.0 Municipal Sewage

7.1 Background

Municipal sewage management in the Batangas Bay Region is the responsibility of the individual cities and municipalities. Municipal ordinances govern the design and installation of sewage disposal systems for individual residences and commercial installations.

At present, the principal method of sewage disposal from individual residences and commercial installations is via septic tanks. The operation of a septic tank is quite simple and cost-effective. Domestic and commercial waste waters discharge into a concrete or steel vault. The solids settle to the bottom of the container and the liquid component discharges into a leaching pit. The leachate filters into the soil substrate where it is purified naturally through physical, chemical and biological processes.

Problems are beginning to emerge in the Batangas Bay Region regarding municipal sewage disposal. First, it is evident that not all residences and commercial installations have septic tank facilities or other acceptable means of waste water treatment and disposal. Sewage and process waste water are being discharged directly into rivers and coastal waters, stormwater drainage systems that lead to rivers and coastal waters, or directly onto land. Second, as population densities increase in urban areas, it is apparent that the septic tank/soil disposal technique for managing municipal sewage will no longer be appropriate in the Batangas Bay Region. Availability of sufficient land area, the saturation of soils with liquid effluents from septic tanks, breakthrough of leachates onto soil surfaces and the potential contamination of groundwater are among the problems that can be expected to occur.

The situation is serious, for the mismanagement of sewage effluents impacts directly on the health of the public, not to mention pollution of the environment. The recent outbreak of typhoid in the municipality of San Jose is an indication that the current "barriers" to public health protection and pollution of the environment in the Batangas Bay Region are indeed faulty. There is a need to rethink the approaches to sewage treatment and disposal in the Batangas Bay Region, with a view to identifying ways and means of strengthening capacities over time.

7.2 Long-Term Goals

The long-term goals of the municipal sewage action plan for the Batangas Bay Region are as follows:

- 7.2.1 To prepare and implement a municipal sewage master plan for the Batangas Bay Region for the period 2000 to 2020;
- 7.2.2 To eliminate all illegal disposal of untreated municipal sewage, septic tank liquid effluents and septic tank sludges by 1999; and
- 7.2.3 To explore and develop potential opportunities for joint ventures in centralized municipal sewage collection treatment and disposal facilities, within the Batangas Bay Region, by 1998.

7.3 Program Approach

There is little information on the current state of municipal sewage treatment and disposal in the Batangas Bay Region. A priority activity is to prepare a sound knowledge base upon which to develop a long-term program. The approach of the Action Plan entails three strategies, namely:

- 7.3.1 generate consensus among the LGUs that long-term municipal sewage treatment and disposal goals are practical and beneficial to the communities and the environment;
- 7.3.2 develop the necessary information base on the current state of sewage disposal, the potential health and environment implications of existing management processes, and the options for addressing the situation over the short- and long-term;
- 7.3.3 build capacity in the public sector to monitor and enforce existing and future regulations dealing with municipal sewage management; and
- 7.3.4 educate and inform the public of the importance of safe and proper municipal sewage treatment and disposal.

7.4 Short-Term Actions

a) *Consensus Building*

Consensus building in the municipal sewage action plan involves educating and informing the LGUs and the general public of the real and potential risks associated with sewage mismanagement in the Batangas Bay Region. First, there is a need to develop the facts on the current situation in the area, as well as to identify what plans are in place to improve or strengthen capacities in the short- and long-term. Finally, it is important to provide data to decision-makers and the

general public for their consideration and input on the need for improvements, through a well conceived information dissemination and consultation process.

b) Transitional Initiatives

Transitional initiatives include a series of interrelated actions which are designed to provide improvements to the current method of administering, controlling and operating sewage management systems across the Region. The transitional initiatives are presented in the form of project proposals included in Annex 4. The projects are grouped into four categories or phases, namely: preparation, mobilization, improvement, and development. *The proposals are further identified according to the sector or organization deemed appropriate for leading the undertaking, as follows:*

Phase 1: Preparation

The first step in the action plan on municipal sewage is to develop a sound knowledge base on the national, provincial and local regulations and requirements on the management and disposal of municipal sewage, and the state of the situation in the Batangas Bay Region.

The preparation of the knowledge base requires actions on the part of ENRO and the LGUs. The development of the knowledge base will require the following steps:

Lead Agency: ENRO

- Review and Compile Regulations, Requirements and Standards of the Different Agencies and Levels of Government concerning Municipal Sewage Disposal

Lead Agency: LGUs

- Municipal Sewage Generation and Management in the Batangas Bay Region

Phase 2: Mobilization

Lead Agency: ENRO

- Public Education and Awareness on Municipal Sewage Management
- Assessment of Training Needs

Phase 3: Improvement

Lead Agency: LGUs

- Preparation of a Master Plan for Municipal Sewage Treatment and Disposal

Lead Agency: ENRO

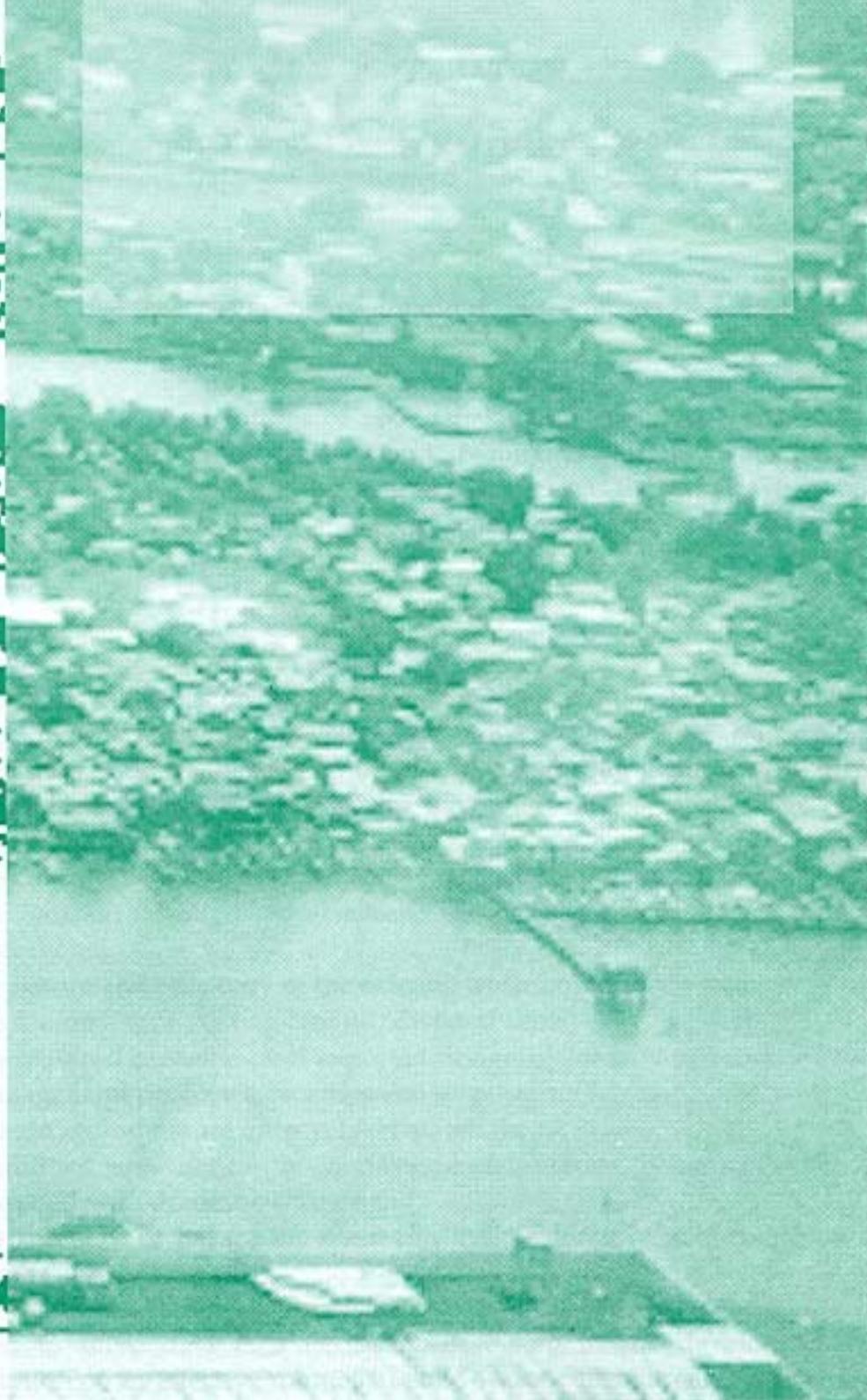
- Identification and Evaluation of Financial Mechanisms for Municipal Sewage Programs in the Batangas Bay

Phase 4: Development

Lead Agency: LGUs

- Implementation of the Municipal Sewage Master Plan for the Batangas Bay Region

Annexes



Annex 1: Municipal Solid Waste Action Plan Proposals

PHASE 1: PREPARATION

Proposal 1: Residential Waste Generation and Management in the Batangas Bay Region

Lead Agency: LGUs

Participating Bodies: ENRO; DENR; PENRO; barangays in the coastal area

Objective: To develop a sound knowledge of the types and quantities of residential waste generated in the coastal municipalities and barangays in the Batangas Bay Region, the manner in which the wastes are being disposed and to forecast waste generation towards the year 2020

Description:

The project will focus on the five municipalities and coastal communities in the Batangas Bay Region. The development of a knowledge base on residential waste generation and management in the Batangas Bay Region will furnish planners and decision-makers with information on:

- the volumes of waste material being collected and disposed;
- the location of all disposal sites, including legal and illegal dumping operations;
- the nature and efficiency of the existing waste collection systems;
- the usefulness of existing landfill/disposal sites;
- the required capacities and expected design life of new or proposed waste management processes, facilities and disposal sites;
- quantities and nature of recyclable materials;
- quantities and nature of non-residential wastes being collected and disposed with domestic wastes; and
- the presence of hazardous wastes in the residential waste collection and disposal system.

Access to these data is a necessary first step in the development and implementation of an effective municipal solid waste collection and management system. Some data are already available from municipalities; other data will need to be collected on-site.

The principal output from this preparatory project will be a clear indication of the current geographic coverage of existing waste management systems, the quantities of waste being collected, the locations and operating conditions of existing disposal sites, and an assessment of future waste management requirements for the Batangas Bay coastal municipalities.

The co-operation of the public work departments and collection crews in the coastal municipalities is essential to the success of this important activity.

Proposal 2: Management of Institutional and Commercial Waste in the Batangas Bay Region

Lead Agency: ENRO

Participating Bodies: LGUs; Department of Health; local hospitals, schools and clinics; commercial establishments; Chambers of Commerce

Objective: To identify the types and quantities of institutional and commercial wastes currently being generated and disposed in the Batangas Bay Region and to forecast waste generation to the year 2020

Description:

Information on the volume and nature of non-residential waste being disposed in municipal dump sites in the Batangas Bay area is important for a number of reasons, including:

- identification of non-residential customers and the collection/disposal service that is currently being provided;
- confirmation of the nature of wastes being disposed, including any potential sources of hazardous waste;
- determination of the potential for development of waste segregation programs—for example, separating hazardous and non-hazardous wastes or recyclable and non-recyclable wastes;
- development of more efficient or effective procedures for servicing institutional and commercial customers; and
- assessment of costs in providing services to non-residential customers.

The survey will require close co-operation with the LGUs in the coastal areas and the institutions themselves. As a starting point, it will be necessary to identify the various types of institutional and commercial operations in each municipality and the level of service currently being provided. Based on the outcome of this activity, and depending on the numbers involved, it may be necessary to select only a representative number of facilities in each center for follow-up interviews and survey. Extrapolations and conclusions will be prepared for each coastal municipality.

PHASE 2: MOBILIZATION

Proposal 3: A Model Ordinance Covering the Generation, Segregation, Collection, Handling, Processing and Disposal of Residential, Commercial, Industrial and Institutional Solid Wastes

Lead Agency: ENRO

Participating Bodies: LGUs; DENR; Presidential Task Force on Waste Management

Objective: To develop a model municipal ordinance on solid waste management as a guide for the coastal municipalities of the Batangas Bay Region

Description:

There are numerous activities underway in the Philippines and elsewhere in the East Asian region involving more efficient and effective approaches to managing municipal solid wastes. One key element of an effective waste management system is the availability and implementation of appropriate by-laws to control waste generators, and the wastes that are entering the municipal system.

The project will seek out and identify municipal programs which have been effective in establishing solid waste by-laws and controls for both residential and non-residential solid wastes. By-law components addressing such matters as incentives and disincentives to promote waste reduction, co-disposal of industrial waste, sludges, liquid waste, toxic and hazardous materials, etc. will be identified, as well as the various schemes that have been developed to implement municipal waste collection and disposal services on a cost recovery basis.

In addition, the project will identify the monitoring and enforcement programs being set up in selected municipalities in the East Asian region. Infrastructure that has developed, and the effectiveness of the enforcement mechanisms will be determined. The output from this component will be linked directly to the training needs of the LGUs and the formulation of training modules on management, monitoring and enforcement of municipal solid waste systems.

The outcome of the project will be a proposal for or framework of a model by-law for the municipalities of the Batangas Bay Region, in addition to pertinent information on ways and means of developing and implementing enforcement programs.

Proposal 4: **Development of Municipal Solid Waste Management Guidelines**

Lead Agency: ENRO

Participating Bodies: LGUs; DENR; Presidential Task Force on Waste Management

Objective: To identify and develop minimum standards and guidelines by which acceptable waste handling and disposal practices can be differentiated from environmentally unacceptable procedures and operations in the Batangas Bay Region

Description:

The intention of this project is to provide municipal authorities, consultants, private operators and permit holders with guidance and practical information that will assist them in complying with national, provincial and local policies, regulations and requirements concerning solid waste generation, handling and disposal.

Recognizing that practicality often dictates substantially less than ideal, the focus of this effort will be to provide an acceptable level of control to solve some of the immediate issues in the Region. The project will focus on:

- guidance for environmentally acceptable waste disposal systems for a spectrum of landfill sizes and types; and

- a framework of minimal waste disposal standards within which municipalities can work and upon which future improved systems can be built;

For example, some of the specific issues to be considered in the Batangas Bay Region are:

- closure or conversion of illegal dumping grounds;
- classification of landfills (e.g., small, medium and large) and the respective design and operating requirements;
- siting and development of new sanitary landfills;
- establishment of recycling centers or sorting facilities; and
- development of composting operations.

These issues need to be developed and implemented within a framework of technical guidelines and environmental objectives or standards. The outputs from this project will be directly applicable to the start-up of such facilities in the Batangas Bay Region

<u>Proposal 5:</u>	Assessment of Training Needs
Lead Agency:	ENRO
Participating Bodies:	LGUs; DENR; Local Government Academy; PENRO; etc.
Objective:	To identify the training needs of local government units to develop and improve municipal solid waste management capacities in the Batangas Bay Region
Description:	

The information gathering activities of the preparation phase of this action plan will identify the strengths and shortcomings of municipal solid waste management systems in the Region. Capacity building among managers and operators of the systems, both in the public and private sectors, is seen as one of the principal means of improving the situation.

The action will entail identifying the training needs in the Region, followed by verification of existing opportunities for providing such training. The Local Government Academy is one possible source of training support. In addition, regional and international training programs and facilities will be perused to

determine the possibilities of accessing training modules or trainers' training programs which can be brought to the Region.

Finally, if appropriate training programs cannot be found either nationally or internationally, an effort will be made to develop a training curriculum and appropriate training modules. The modules will be tested, refined and employed during the improvement phase of the Action Plan to build LGU capacity into self-reliant and sustainable waste management implementation and control program.

Proposal 6: Public Education and Awareness

Lead Agency: National NGO

Participating Bodies: LGUs; community organizations; ENRO; DENR; Presidential Task Force on Solid Waste Management

Objective: To build consensus and establish public confidence in the municipal solid waste management program

Description:

In order to build consensus and establish public confidence in the municipal solid waste management program, the public must be kept informed of proposed and ongoing activities, provided with information on the various options available and the associated implications of those options, and given the opportunity to participate in decisions concerning future developments.

This project will focus on informing and educating the public on the state of municipal solid waste management in the Batangas Bay Region, the types of problems that are occurring and/or likely to occur if positive actions are not taken, and the role to be played by the general public to assist with the evolution of an environmentally sound, socially acceptable waste management program.

The possible elements of a public information and education program need to be considered, with a view to the specific priorities of the Batangas Bay Region. For example, waste minimization targets for the Region will require the support and involvement of individual households, schools, institutions and commercial operations. In this regard, appropriate information will need to be disseminated in appropriate formats to these target audiences. Other possible aspects of the program include the development and approval of long-term waste management programs, anti-litter/civic pride campaigns, organization of clean-up campaigns of beaches and public areas, etc.

The theme of the program is to make the general public realize that they are part of the growing problem and, therefore, must take some of the responsibility for solving the matter. The campaign will also be organized to develop interest in and disseminate information on the demonstration project in Bauan. During the demonstration project, anti-dumping programs will be instituted, recycling programs started and improved handling practices developed. All of this information need to be delivered to the public to show that there are positive steps that can be taken to manage municipal solid waste in the short- and long- term.

PHASE 3: IMPROVEMENT

Proposal 7: Formulation and Implementation of a Demonstration Project in the Municipality of Bauan

Lead Agency: Municipal Government of Bauan

Participating Bodies: ENRO; DENR; NGOs; community organizations; private sector

Objective: To develop and demonstrate a progressive and environmentally acceptable municipal waste management program in a coastal municipality of the Batangas Bay Region

Description:

The rationale behind the demonstration project is to provide local experience and recognition that a municipality and the general public, in co-operation, can affect positive change to unacceptable solid waste handling and disposal practices.

The first stage of the demonstration project is the formulation of a practical and affordable program of activity. There are a number of elements to be considered in the project plan including:

- strengthening and extending waste collection services;
- conversion of an open dump to an approved disposal facility;
- closure/elimination of illegal, unapproved dumping grounds and practices;
- implementation of waste segregation/separation programs;
- implementation of enhanced recycling/reuse programs for marketable secondary products (e.g., paper; glass; plastics; used oils; batteries; used tires; construction materials);

- creation of a composting facility;
- implementation of anti-litter program;
- implementation of anti-dumping action campaign;
- improvements in street cleaning practices; and
- clean-up of beaches, coastlines and public areas.

Obviously, the nature and extent of the demonstration project will need to be carefully formulated, with due consideration of the priorities in Bauan, financial requirements, public support and the available timeframe. It is also recognized that the public information and education program will be closely linked to the demonstration project, both in promoting the activities and disseminating pertinent information on the results.

Implementation of the demonstration project will be phased into operation as funding and technical support are secured for the individual activities. The implementation of activities will require a combined effort of agencies, organizations and individuals from both the public and private sectors, in order to affect a successful community-wide demonstration project.

Proposal 8: Identification and Evaluation of Appropriate Market-Based Policy Instruments for Municipal Solid Waste Management Programs in the Batangas Bay Region

Lead Agency: ENRO

Participating Bodies: NEDA; DENR; BOT Center/Co-ordinating Committee for Programs and Projects; etc.

Objective: To identify and evaluate financial mechanisms and instruments that may be employed by the municipalities in the Batangas Bay Region for the development, construction, operation and control of municipal solid waste management facilities and practices, on a long-term and self-reliant basis

Description:

Two types of financing need to be considered in the development of a municipal solid waste management system, namely:

- the initial capital investment for property, new equipment, facilities and technologies; and

- the costs associated with the day-to-day operation of the facility, including salaries, maintenance, insurance, energy, interest on mortgages, etc.

At the present time, the only financial mechanisms that are being employed by municipalities for solid waste management in the Batangas Bay Region are user fees and taxes. The user fees are charged to households receiving waste collection services. The amount of the fee varies among the municipalities and with the size of the household, but is within the general range of 10 to 15 Pesos per month. Users fees for commercial clients are negotiated on a case-to-case basis.

Because user fees do not cover the total cost of municipal solid waste collection and management in any of the municipalities, the balance of funding must come from the central budget of municipalities which is provided through taxes.

This project will investigate opportunities for innovative financing approaches to municipal solid waste management. There are two mechanisms being developed in the East Asian region that warrant consideration as part of the Batangas Bay municipal solid waste action plan. The two approaches are public sector-private sector partnerships and privatization.

Public sector-private sector partnership is an alternative to the traditional approach that views local government as solely responsible for the administration and control of waste facilities and services. One key goal of the partnership is to distribute the costs for planning, development and start-up of facilities among concerned parties in both sectors. As the program gets established, the financial burden shifts to the direct users and beneficiaries. The nature of the partnerships can vary from bilateral agreements to shared ownership between the public and private sectors.

The privatization mechanism confers total responsibility for the provision of required facilities and services on the private sector. The local government's role is principally that of regulator to ensure that the facilities and services comply with the existing standards or contract requirements. This mechanism takes advantage of the private sector's capacity and expertise to provide services in a more efficient and effective manner than government is able to achieve.

Whatever approach is considered appropriate, the bottom line is that adjustments are required in the manner by which municipalities manage solid waste services and the methods of financing such services. The output from this project will provide local governments with an appreciation of the advantages and disadvantages of these innovative approaches, and a knowledge base upon which to make future decisions on financing of waste management services.

PHASE 4: DEVELOPMENT

Proposal 9: Development of a Sanitary Landfill Facility in the Batangas Bay Region

Lead Agency: LGU

Participating Bodies: ENRO; DENR; NEDA; private sector; BCRMF; people's organizations; other appropriate government agencies

Objective: To develop and implement a plan for the selection, design, approval and financing of a municipal sanitary landfill facility

Description:

Several of the coastal municipalities in the Batangas Bay Region are facing the urgent requirement to site new disposal areas for municipal solid wastes. There are at least three major considerations that municipalities will need to make before proceeding with the development of the new sites, namely:

- affordability;
- government approval and certification of acceptance; and
- public acceptance.

The project will focus on the development and implementation of strategies in the Batangas Bay Region to address these three issues. In addition to the selection and approval of a suitable site (or sites) for a landfill, work will be required to assess the economic implications associated with site approvals, design, development, construction, operation and, eventually, closure. A complete financial analysis assessing the affordability of the operation as a municipal or regional (two or more municipalities sharing a common site) disposal site will be required. Public sector-private sector partnerships, BOT schemes and other financial instruments will be part of the assessment. Decisions concerning these important issues will be required early in the planning stage in order to involve potential partners, investors and private sector interests in the development process. Another important aspect of the project will be the public consultation process that is followed in order to gain public acceptance of the selected site and operation.

The project will extend to the final decision/approval stage. The process and the lessons learned from the action will be packaged and transferred to other municipalities in the Batangas Bay Region and elsewhere in the East Asian region.

ANNEX 2: Industrial Hazardous Waste Action Plan Proposals

PHASE 1: PREPARATION

Proposal 1: Inventory of Hazardous Waste Generators, Transporters, Storage, Treatment, Recycling and Disposal Facilities in the Batangas Bay Region

Lead Agency: BCRMF

Participating Bodies: EMB/DENR; industry; commercial enterprises; public and private institutions

Objective: To complete an inventory of all generators and handlers of hazardous waste in the Region

Description:

To develop an integrated approach to the management of hazardous wastes in the Region, it is essential to identify sources and characteristics of waste. At present, under DAO 29, industry is required to register the type and quantity of hazardous waste generated on their premises. However, it is recognized that the generation of hazardous waste is not an exclusive activity of the industrial sector. Port and harbor operations, commercial enterprises, public and private institutions, agricultural operations and domestic activities also produce hazardous by-products.

In addition to sources of hazardous waste, it is important to understand how existing wastes are being handled and disposed. The inventory will therefore include a list of existing waste processing and disposal sites, the quantities of waste being handled and the processes involved.

Technical support will be sought from EMB/DENR and the Regional office of DENR.

Proposal 2: Identification of Current National, Provincial and Local Requirements for Industrial Hazardous Waste Management

Lead Agency: ENRO

Participating Bodies: EMB/DENR, LGUs

Objective: To identify all pertinent legislation, regulations and ordinances pertaining to industrial hazardous waste management, including national, provincial and local authorizations for the implementation and enforcement of such control instruments

Description:

The project entails the preparation of an overview document on existing control instruments and their application as regards to industrial hazardous waste management. The review will include the delegations of authority to provincial and municipal levels of government, inspection and reporting of responsibilities and details on discharge and emission requirements. The purpose of the review is to determine the full scope of existing hazardous waste regulations, for the development of voluntary agreements and associated action plans for industry in the Batangas Bay Region.

PHASE 2: MOBILIZATION

Proposal 3: Development of a Pool of Expertise among Industry in the Batangas Bay Region

Lead Agency: BCRMF

Participating Bodies: DENR/IEMP; ENRO; professional associations; academe

Objective: To establish a pool of expertise in industrial and hazardous waste management for small- and medium-sized industry in the Batangas Bay Region

Description:

In the Batangas Bay Region, efforts are underway within the industrial sector to develop and implement responsible programs to achieve and sustain economic development while protecting the environment and avoiding economic, social and ecological impact on future generations. However, small- and medium-sized industry often lack the available capacity and financial and human resources to manage environmental programs in accordance with the ideals of sustainable development.

The project will explore the concept of an outreach program, whereby young professionals are provided with the opportunity to train and develop skills in hazardous and industrial waste management, while working in small- and

medium-sized industrial facilities in the Batangas Bay Region. Under the scheme, recent graduates and professionals with limited experience, including engineers and physical scientists, will be recruited to work in the Batangas Bay Region. The BCRMF, in conjunction with DENR/IEEMP, and academic and professional associations (e.g., Philippines Association of Chemical Engineers) will set up a training program to prepare the individuals for assignments in the Region, including an in-depth review of waste management regulations and control requirements, pollution management appraisal (PMA) process and waste minimization programs, hazardous and non-hazardous waste handling technologies and practices, etc. Upon completion of the training session, the recruits will be assigned to a specific industry in the Region for an agreed period of time, but for no less than 12 months.

To assist small- and medium-sized enterprises to take advantage of the outreach program, the BCRMF will pay 50% of the salary of recruits that are placed with local industry. The balance of the salary will be the responsibility of the recruiting industry. At the end of the contract period, the firm will have the option of extending the contract but, at that stage, will be required to assume full salary costs. Otherwise, the recruit may be reassigned to another industry or leave the program. Over time, the outreach program will build a pool of expertise in the Batangas Bay Region—a pool comprised of young professionals with sound knowledge on legal and technical requirements for hazardous waste management and an appreciation of the goals and objectives of the BCRMF.

Proposal 4: Guideline on the Accreditation of Laboratories for Testing and Analysis of Hazardous and Toxic Wastes

Lead Agency: DENR

Participating Bodies: ENRO; academe; public and private institutions; professional associations; international bodies (e.g., UNEP)

Objective: To establish a recognized framework and process for accrediting chemical and biological laboratories in the Philippines for testing and analysis of hazardous waste

Description:

Suspected hazardous waste can only be effectively classified—for the purpose of safe handling, transport and disposal—if its composition, concentration and quantity are known. Accurate and meaningful analysis is therefore a crucial step in the management of waste.

Under RA 6969, waste generators are responsible for determining whether or not the material that they are discarding is defined as hazardous. In addition, wastes may be delisted as hazardous, subject to pre-treatment and/or immobilization of wastes—the proof of which presumably will require chemical and/or toxicity testing. The burden of proof is on the generator, as is the responsibility for handling and ultimate disposal of the waste.

At present, there are no laboratories in the Philippines that have been designated by DENR as accredited for the purpose of conducting a required battery of tests for hazardous waste identification. The purpose of this project is to identify the facility requirements and process that a laboratory must comply with in order to receive accreditation.

As a minimum, issues to be addressed during the project will include:

- identification of the battery of analytical tests to be conducted;
- established analytical procedures to be used, applicable to the sample type;
- documentation requirements (sample collection; preparation; calibration of equipment; quality control procedures; calculation of results);
- data recording and reporting procedures;
- qualifications of laboratory personnel; and
- equipment requirements.

The approval process for gaining an accreditation from the competent national authority will be identified.

Proposal 5:	Hazardous Waste Management Guidelines for Use by Generators, Handlers, Transporters, Processors and Disposal Operations
Lead Agency:	DENR
Participating Bodies:	ENRO; BCRMF; academe; public and private institutions; professional associations; international bodies (e.g., UNEP; OECD)
Objective:	To provide generators and handlers of hazardous waste with essential technical support and guidance for implementing RA 6969

A number of organizations and programs in the national and international community have been working on clean production and waste minimization initiatives over the past few years. Research has progressed worldwide on the recycling and recovery of waste materials.

The strategy for this activity is three-fold. First, there is a need to identify the type of wastes that are being generated by industry in the Batangas Bay Region. Second, through a network of national and international contacts, one may identify potential markets for the products. Third, it will be necessary to seek out those markets in the Philippines or to formulate a plan for creating such markets.

Technical support will be sought from NEDA and PBE in the development and implementation of this activity.

Proposal 7: **Assessment of Financial Mechanisms to Support Hazardous Waste Management Services and Facilities in the Batangas Bay Region**

Lead Agency: ENRO

Participating Bodies: LGUs; BCRMF; NEDA; DENR

Objectives: To identify and analyze existing and potential financial mechanisms for supporting the development and operation of a privatized hazardous waste management system for the Batangas Bay Region

Description:

As part of the Action Plan, the possibility of establishing a joint venture between the public and private sectors to develop and operate a hazardous waste management system for Batangas Bay Region will be under investigation. In order to judge the acceptability of a joint venture, each sector will need to identify the financial commitments that are necessary, the economic risk associated with the options being considered and the financial mechanisms that will be employed to sustain the operation.

The project will involve a complete economic analysis of a public/private sector joint venture, including the various scenarios being considered in the related investigation. As part of the analysis, the project will identify opportunities for investment by LGUs, industry, private sector, foreign companies, etc., and the utilization of national and local incentive programs for infrastructure projects of this nature.

Of equal importance is the sustainable operation of the system. Operating costs and revenue generating mechanisms will be explored under each scenario, forecasting the amount of waste, the associated processing and disposal costs, and the required revenues for the life of the facility.

The final product will be a financial plan for each scenario—for presentation to stakeholders in the public and private sectors.

PHASE 3: IMPROVEMENT

Proposal 8: Implementation of an Industrial Hazardous Waste Minimization Program

Lead Agency: BCRMF

Participating Bodies: Industry; IEMP/DENR

Objective: To identify and to set in motion waste minimization opportunities and practices in industrial facilities in the Batangas Bay Region

Description:

The days of limited environmental regulation in the Philippines are rapidly disappearing. In addition to strengthened legislation governing waste disposal, escalating production costs and liability for waste management are but three important incentives for industry to cut down on waste production. Other motivating considerations include: reduced raw material consumption; reduced waste treatment costs; improved public relations; augmented worker safety/working conditions; and enhanced process efficiency, resulting in improved company profits.

The waste minimization initiative for Batangas Bay will be linked to the Industrial Environmental Management Project (IEMP) of DENR, and the associated pollution management appraisal (PMA) process. The PMA process is a multi-phased, systematic procedure for identifying, selecting and implementing waste minimization options and improved waste management in an industrial facility. The PMA consists of a careful review of plant operations and waste streams, and the selection of specific areas to assess. Options are identified and analyzed, and the most promising are selected for implementation.

In order for waste minimization to work, three essential ingredients are required, i.e., top management support; clear scope and objectives; and employee

involvement. The first step in this project will therefore involve a briefing of CEOs and plant managers in the Region and explaining the objectives, procedures and resource commitments that are required in order to build an effective waste minimization program. The second step will include a four-day training workshop for designated company representatives to learn techniques for conducting a PMA and for proceeding toward implementation of waste minimization programs. The third step is to undertake the PMA of the facilities.

The IEMP will provide the PMA training team, and the experts to collaborate with participants in the project and to assist with the identification of pollution reduction and cost saving opportunities. Industry will provide the commitment to implement the PMA process and recommendations.

Proposal 9: Identification and Evaluation of Transitional Technologies, Practices and Facilities for Off-Site Hazardous Waste Processing and Disposal in the Batangas Bay Region—A Technical and Economic Assessment

Lead Agency: BCRMF

Participating Bodies: LGUs; ENRO; DENR; private sector

Objective: To develop a series of practical options which may be implemented as interim measures for off-site processing and disposal of hazardous waste in the Batangas Bay Region

Description:

Basic facilities and services for collection, processing and disposal of hazardous wastes are unavailable in the Batangas Region at present, particularly for small- and medium-sized industry. It is not possible to enforce or comply with regulations and controls without facilities and services that allow compliance. National programs are being developed but in the interim, waste generators and LGUs in the Batangas Bay area are faced with the immediate problem of finding acceptable methods of treating and disposing these wastes.

The project will identify and evaluate the potential for immediate relief to hazardous waste disposal problems through interim arrangements for treatment and disposal. Such arrangements will focus on the avoidance and reduction of immediate risks to human health and the environment in the Region.

The methodology will include: (i) identification of priority wastes; (ii) assessment of available options for reduction/elimination of risks; including safe storage, solidification, chemical treatment, co-incineration, co-disposal with municipal waste, export to approved overseas facilities, and concrete entombment; (iii) selection of appropriate options for identified wastes; and (iv) development of guidelines on the utilization of interim solutions, including the length of time that the arrangement will continue, measure to develop permanent solutions, and operational control requirements.

The project will require the co-operation of industry, LGUs and environmental agencies in the Batangas Bay Region.

Proposal 10: Preparation of a Proposal Concerning a Hazardous Waste Storage, Treatment and Disposal Facility for the Batangas Bay Region

Lead Agency: BCRMF

Participating Bodies: LGUs; ENRO; DENR; NEDA

Objective: To submit a proposal to national authorities for the establishment of a hazardous waste management facility in the Batangas Bay Region financed under a private investor scheme

Description:

Republic Act No. 7718, approved on 5 May 1994, mandates: (i) the Investment Co-ordination Committee (ICC) of the NEDA Board to approve lists of national Build-Operate-Transfer (BOT) projects costing below Pesos 300 million; and (ii) the NEDA Board to approve lists of national projects costing above 300 million Pesos. The approval of a project by NEDA signifies government approval on the appropriateness of private sector financing for an infrastructure project, as opposed to the regular financing mode via the public purse. It is the first step in the approval process for a privatized hazardous waste management facility.

The scope of the project proposal will include the following activities: inclusion of the project in the development program of a concerned LGU; economic viability assessment; financial/business plan development; risk/sensitivity analysis; environmental implications analysis; public acceptability assessment; and development of proposed contractual arrangements with the private sector.

The project marks the entry into government approval and certification process of the Batangas Bay Region proposal to build and operate a centralised hazardous waste management facility.

Proposal 11: Development of a Hazardous Waste Management Database and Technical Information System for the Batangas Bay Region

Lead Agency: DENR

Participating Bodies: ENRO; LGUs

Objective: To develop and operationalize a computer automated system to collate, maintain and update information on hazardous waste generation and management in the Batangas Bay Region

Description:

The collection of information, either through a regulated registration process or a voluntary inventory process, can serve a number of purposes including: to keep waste generators aware of their wastes; to inform the public of program needs and advancements; to provide decision-makers with an acceptable level of knowledge to facilitate informed decisions; etc. However, in order to achieve these desired goals, the collected information needs to be collated, packaged and distributed in a format that is appreciated and accepted by the target audience.

The purpose of this project is to develop or adopt an automated system for collating and managing hazardous waste inventory data that is collected in the Batangas Bay Region. It is evident that such databases have been developed by other agencies in the country and elsewhere. The activity will therefore involve identification of an appropriate system and adaptation of that system to the needs of ENRO and LGUs. Collected inventory information will be encoded into the adapted system and the results analyzed and distributed to all participants in both electronic format and hard copy.

Proposal 12: A Hazardous Waste Management Plan for the Batangas Bay Region, 1998-2023

Lead Agency: DENR

Participating Bodies: ENRO; other government agencies; LGUs; BCRMF; industry sector; commercial sector; public and private institutions; community groups; private citizens

Objective: To prepare a comprehensive plan for the management of hazardous waste in the Batangas Bay Region, including hazardous wastes from industrial, commercial, institutional and domestic sources

Description:

To avoid backlash and general resistance to hazardous waste management initiatives in Batangas Bay, the public must be given the opportunity to participate in the formulation of a "Batangas Bay Hazardous Waste Management Plan." The project will develop a draft management plan and implement a public consultation process, leading to the adoption of an official hazardous waste management program for Batangas Bay.

Data concerning various sources, types and characteristics of waste will be acquired as part of ongoing activities in Batangas Bay. In addition, details concerning the preferred options for managing such waste will be developed and, in some cases, technologies, practices and disposal alternatives will be demonstrated. The result will be an extensive knowledge base on hazardous waste management in the Batangas Bay Region for use in public awareness campaigns and decision-making.

The development and adoption of a practical and saleable hazardous waste management plan will incorporate this knowledge and experience. The plan, including a vision of how the program will evolve over a 25-year period, will be distributed to concerned special interest groups and the general public. A consultative process be initiated, commencing with the advertisement of scheduled meetings at the community level, to review and comment on the proposed plan. Upon completion of the consultative process, collected comments will be collated and incorporated into a final document. The final document, a report on the consultative process and the collated comments will be distributed to all participants in the process.

The final document will be submitted to the appropriate provincial authority for adoption as the official hazardous waste management plan for Batangas Bay.

PHASE 4: DEVELOPMENT

Proposal 13: Joint Venture for Hazardous Waste Facilities and Services in the Batangas Bay Region

Lead Agency: BCRMF

Participating Bodies: LGUs; ENRO; DENR; private sector

Objective: To formulate a joint venture among waste generators, LGUs and the private sector to develop and implement a centralised hazardous waste treatment facility to serve industrial and commercial interests in the Batangas Bay Region

Description:

There are a number of examples in the East Asian region of joint ventures between government and the private sector in the development and operation of hazardous waste processing and disposal operations. For example, Thailand has operated such a facility since 1989 and Indonesia, since 1994. Malaysia is presently developing a facility.

The purpose of this project is to introduce and develop the concept of a joint venture in hazardous waste management between industry and LGUs in the Batangas Bay Region. The project will include field visits to selected operations in Indonesia and Thailand to talk to the co-operating partners and users of the facilities. Out of these interactions, scenarios will be identified for the local situation, and profiles of possible partnership and potential funding sources and sustainable financing mechanisms determined.

The final product will be a proposal to industry and LGUs, concerning the formation of a joint venture to develop and commission the operation of a hazardous waste management facility in the Batangas Bay Region.

Annex 3: Ship and Port Waste Action Plan Proposals

PHASE 1: PREPARATION

Proposal 1: Ship and Port Waste Generation and Management in the Batangas Bay Region

Lead Agency: PMAC

Participating Bodies: PPA; PCG; MARINA; ENRO; shipping companies; etc.

Objective: To develop a sound knowledge base on the types and quantities of ship and port waste generated in Batangas Bay, the manner in which the wastes are being collected and disposed, and to forecast waste generation to the year 2020

Description:

The project will focus on the collection of information on the types and quantities of waste which are received from ships and generated in port areas of Batangas Bay. The development of the knowledge base will furnish planners and decision-makers with the following information on ship and port waste:

- location of ports, berths and equipment in public and private ports and terminals in the Bay;
- commodity and passenger flows;
- information on the companies and other organizations which generate, receive, process or handle wastes, such as garbage collection companies, oil refineries, terminals, ship repair yards, etc.;
- ship and vessel characteristics;
- waste characteristics; and
- port waste handling systems.

Access to these data is essential to the development of a course of action to address the problem on a Bay-wide basis. The principal output will be a clear indication of the current sources of waste, estimates/information on the quantities being generated and collected, the manner in which the wastes are being collected, the destinations of wastes removed from ships and from the port areas, and an assessment of future loadings.

The co-operation of the LGUs, shipping companies and port operators is essential to the success of this important activity.

Proposal 2: Identification of Current National, Provincial and Local Requirements for Ship and Port Waste Management in the Batangas Bay Region

Lead Agency: ENRO

Participating Bodies: MARINA; PCG; PPA; DENR

Objective: To identify all pertinent legislation, regulations and ordinances pertaining to ship and port waste, including national, provincial and local authorizations for implementation and enforcement of such control instruments

Description:

The project entails the preparation of an overview document on existing control instruments and their application regarding ship and port waste management in Batangas Bay. The review will include identification of authority to be delegated to the PPA, PCG, MARINA, provincial and local governments, inspection and reporting responsibilities, and details on monitoring and control of vessels in ports areas and in transit.

In addition to wastes generated on ships and in the port areas, the review will also include an examination of national and local obligations with respect to oil spill and chemical spill contingency plans, and requirements concerning dredging in Batangas Bay and the disposal of dredged material.

The purpose of the review is to determine the full scope of existing ship and port waste regulations and obligations, for development of voluntary agreements between the various stakeholders operating in Batangas Bay.

PHASE 2: MOBILIZATION

Proposal 3: Development of Ship and Port Waste Management Guidelines

Lead Agency: PMAC

Participating Agencies: PCG; PPA; MARINA; LGUs; shipping companies; port users; IMO

Objective: To develop operating procedures and guidelines by which acceptable waste handling and disposal practices can be implemented on ships and vessels and in the ports operating in Batangas Bay

Description:

The purpose of this project is to provide shipping companies, ship owners, the PPA, port operators, LGUs and other enterprises operating in the ports of Batangas Bay with guidance and practical information that will assist them in complying with national and local policies and regulations concerning waste collection, handling and disposal. For example, guidance will be provided on:

- minimization of ship-generated waste;
- handling and transferring ship-generated wastes to shore-based reception facilities;
- shore reception, handling and management of ship-generated wastes;
- environmentally acceptable waste disposal systems for the type of waste being generated or off-loaded in port areas;
- waste segregation and waste recycling opportunities with ship and port wastes;
- dredging and dredged material disposal; and
- oil and chemical spill prevention, preparedness and response.

The guidelines and technical information will be directly applicable to the start-up and operation of waste management actions of stakeholders in Batangas Bay.

Proposal 4: Assessment of Training Needs

Lead Agency: ENRO

Participating Bodies: PMAC; LGUs; PCG; PPA

Objective: To identify the training needs of stakeholders to develop necessary capacities for improving ship and port waste management in Batangas Bay

Description:

The information gathering activities of the preparation phase of this action plan will identify the strengths and shortcomings of ship and port waste

management systems in Batangas Bay. Capacity building among port managers, ship operators and private companies and government agencies operating in the Bay is seen as one of the principal means of improving the situation.

This action will entail identifying the training needs of stakeholders, followed by verification of existing opportunities for providing such training. In addition to national training institutions and programs, international training opportunities through the International Maritime Organization (IMO) will also be assessed. If appropriate training programs cannot be found to address the specific needs of the Batangas Bay stakeholders, a training curriculum will be developed and appropriate training modules will be prepared. The modules will be tested and refined during the improvement phase of the action plan to build local capacity for a self-reliant and sustainable waste management implementation and control program.

PHASE 3: IMPROVEMENT

Proposal 5: Identification and Assessment of Technologies, Practices and Facilities for Collecting and Managing Ship and Port Waste in Batangas Bay

Lead Agency: PMAC

Participating Bodies: PPA; PCG; MARINA; ENRO; LGUs

Objective: To identify and assess both waste management options for the specific port areas and the feasibility of an overall inter-port waste management system for Batangas Bay

Description:

The study of options for waste management in the port areas of Batangas Bay very much depends on the quantity and nature of wastes that are currently being off-loaded or generated, or likely to be generated in the future. The study will consider a number of factors including:

- the necessity for improved land-based facilities and programs, according to type and quantities of ship-generated wastes which are being transferred from vessels to shore facilities, or currently being dumped into the marine environment of the Bay;
- existing possibilities for receiving/collecting ship and port wastes;

- identification of single port and/or inter-port options for collecting and managing wastes;
- approximate investment and operating costs of options;
- a financial analysis to determine what revenue is needed for different traffic levels in order to support the cost of the facilities and services;
- other considerations, such as adequacy and capacity of LGUs and the private sector to manage identified wastes; and
- the environmental impact of the available options.

It is envisaged that the outputs from this project will provide stakeholders with sufficient information for sound decision-making regarding where and how to proceed. The selection of a cost-effective, environmentally sound approach to ship and port waste management is the ultimate objective of the project.

Proposal 6: Development and Implementation of Oil and Chemical Spill Prevention, Preparedness and Response Measures

Lead Agency: PCG

Participating Bodies: MARINA; PPA; private port operators; shipping companies; IMO

Objective: To implement a Bay-wide oil and chemical spill prevention, preparedness and response program

Description:

The volume of petroleum and chemical products being transported into the port areas of Batangas Bay is expected to increase in the future as the Region becomes more industrialized and the base port expands. To ensure that adequate provisions are made to accommodate the handling of these dangerous materials, the project will include the development of an appropriate management framework for oil and chemical spill prevention and response in the Bay.

The framework will be developed based upon existing and proposed traffic of materials being handled, as well as the results of an audit of existing stakeholders to determine strengths and weaknesses of prevention and response systems. The IMO Recommendations on the Safe Transport of Dangerous Cargoes and Related Activities in Port Areas will be employed as a guide in assessing existing conditions and practices within the port areas. The results will be analyzed and presented during a stakeholder workshop to formulate an approach that will enhance prevention and response capacities to oil and chemical spills in the Bay.

PHASE 4: DEVELOPMENT

Proposal 7: Development and Implementation of Public Sector-Private Sector Partnerships in Port Reception, Treatment and Disposal Facilities

Lead Agency: PPA

Participating Bodies: PMAC; NEDA; ENRO

Objective: To promote the development of private sector investment in the construction, operation and maintenance of shore reception facilities and waste management programs in the Base Port of Batangas Bay

Description:

Batangas Bay Base Port is being developed into an international deepwater port and over the next few years, it is expected that there will be substantial increases in vessel traffic. The increases in vessel traffic suggest that there will be a corresponding increase in ship-generated waste and waste from associated port activities and operations.

The PPA is looking into options to address this growing problem, including possible partnerships with the private sector to develop and implement a shore reception and waste management system for the Base Port.

The project will address the situation by looking at two types of approaches, namely, public sector-private sector partnerships and privatization.

Public sector-private sector partnership is an alternative to the traditional approach that views the public sector as solely responsible for the administration and control of shore reception facilities and related services. One key goal of the partnership is to distribute the costs for planning, development and start-up of programs among concerned parties in both sectors. As the program gets established, the financial burden shifts to the direct users and beneficiaries. The nature of the partnerships can vary from bilateral agreements to shared ownership between the public and private sectors.

The privatization mechanism confers total responsibility for the provision of required facilities and services on the private sector. The public sector's role is principally regulatory, to ensure that the facilities and services comply with the existing standards or contract requirements. This mechanism takes advantage of

the private sector's capacity and expertise to provide services in a more efficient and effective manner than government is able to achieve.

The output from this project will provide the PPA with an appreciation of the advantages and disadvantages of these innovative approaches, and a knowledge base upon which to make future decisions on financing of shore reception and waste management services.

Proposal 8: **Development of a Vessel Traffic Control System for Batangas Bay**

Lead Agency: PCG

Participating Bodies: PPA; MARINA

Objective: To develop and implement a vessel traffic control system for Batangas Bay

Description:

With the increasing volume of vessel traffic in the Bay, concerns have been expressed by government and local industry about the risk of ship collisions, and resulting spills and discharges of petroleum and chemical products.

One preventive measure that may be feasible is the development and implementation of a vessel traffic control system. The project will analyze traffic volumes and movements in the Bay, both existing and future, to determine the need for timing and manner of implementing a control system. In addition to traffic conditions, the study will assess operating conditions within the Bay, (e.g., weather and tidal conditions), areas slated for future development, and potential high risk sections of the Bay (e.g., LPG terminals).

The output will be an assessment report to senior officials in the national maritime authorities on the development and implementation of a vessel traffic control system for Batangas Bay.

Annex 4: Municipal Sewage Action Plan Proposals

PHASE 1: PREPARATION

Proposal 1: Review and Compilation of Regulations, Requirements and Standards of the Different Agencies and Levels of Government concerning Municipal Sewage Disposal

Lead Agency: ENRO

Participating Bodies: LGUs, DENR

Objective: To identify all pertinent legislation, regulations, guidelines and ordinances pertaining to the disposal of domestic sewage and sewage sludge, including national, provincial and local authorizations for implementation and enforcement of such control instruments

Description:

The project entails the preparation of an overview document on existing control instruments and their application regarding domestic sewage and sewage sludge in the Batangas Bay Region. The review will include identification of regulations and guidelines concerning on-site household systems, communal sewage treatment facilities, sewage sludge collection and disposal requirements, authorities of national, provincial and local government agencies, inspection and reporting responsibilities, and details on monitoring and control of operations.

In addition, the review will include controls covering discharges of on-site domestic sewage systems into municipal drainage works, onto land or subsoil leaching systems or directly into surface waters.

The purpose of the review is to determine the full scope of existing controls and the roles and responsibilities of the various authorities in the enforcement of sewage disposal obligations.

Proposal 2: Municipal Sewage Generation and Management in the Batangas Bay Region

Lead Agency: LGUs

Participating Bodies: ENRO; DENR

Objective: To develop a sound knowledge base on the source and quantity of municipal sewage generated in Batangas Bay, the manner in which sewage and sewage sludges are being collected and disposed, and to forecast waste generation to the year 2020

Description:

The project will focus on the collection of information on the source and quantities of domestic sewage which are being generated in residential, commercial and industrial areas of Batangas Bay. The development of the knowledge base will furnish planners and decision-makers with the following information on municipal sewage and sewage sludges:

- sources;
- quantities;
- non-residential sources;
- on-site sewage disposal systems and their operation;
- communal treatment and disposal systems and their operation;
- sewage discharges to surface lands and waters and surface and sub-surface drainage systems;
- sewage sludge collection and disposal services;
- permitting and inspection activities;
- existing problems (identified and/or perceived); and
- proposed developments.

Access to these data is essential to the development of a course of action to address municipal sewage on a Bay-wide basis. The principal output will be a clear indication of the current sources of waste, estimates/information on the quantities being generated and collected, the manner in which the wastes are being collected, the destinations of sludges removed from on-site and communal systems, and an estimation of future loadings.

PHASE 2: MOBILIZATION

Proposal 3: Public Education and Awareness in Municipal Sewage Management

Lead Agency: ENRO

Participating Bodies: LGUs, DENR, national/regional NGO, community-based organizations

Objective: To build consensus and establish public confidence in the municipal sewage management program

Description:

In order to build consensus and establish public confidence in the municipal sewage management program, the public must be kept informed of proposed and ongoing activities, provided with information on the various options available and the associated implications of those options and given the opportunity to participate in decisions concerning future developments.

This project will focus on informing and educating the public on the state of municipal sewage management in the Batangas Bay Region, the types of human health hazards and environmental problems that are occurring and/or likely to occur if positive actions are not taken, and the role to be played by the general public.

The theme of the program is to make the general public realize that they are part of the growing problem and that solutions are available requiring individual, community and regional co-operation.

PHASE 3: IMPROVEMENT

Proposal 4: Preparation of a Master Plan for Municipal Sewage Treatment and Disposal

Lead Agency: LGUs

Participating Bodies: ENRO; DENR

Objective: To prepare a comprehensive plan for the management of municipal sewage in the Batangas Bay to the year 2020

Description:

The project involves the development of a sewage management master plan and public consultation process, leading to the adoption of an official municipal sewage management program for Batangas Bay Region.

Data concerning various sources, quantities and characteristics of municipal sewage will be acquired as part of ongoing activities in Batangas Bay. In addition, details concerning the preferred options for managing such waste will be developed, and technologies, practices and disposal alternatives will be

demonstrated. The result will be an extensive knowledge base on municipal sewage management in the Batangas Bay Region for use in decision-making and public awareness campaigns.

The development and adoption of a practical and saleable municipal sewage management plan will incorporate this knowledge and experience. The plan, including a vision of how the program will evolve over a 25-year period, will be distributed to concerned special interest groups and the general public. A consultative process will be initiated, commencing with the advertisement of scheduled meetings at the community level, to review and comment on the proposed plan. Upon completion of the consultative process, accumulated comments will be collated and incorporated into a final document. The final document, a report on the consultative process and the collated comments, will be distributed to all participants of the process.

The final document will be submitted to the appropriate provincial authority for adoption as the official municipal sewage management plan for Batangas Bay.

Proposal 5: Identification and Evaluation of Financial Mechanisms for Municipal Sewage Programs in Batangas Bay

Lead Agency: ENRO

Participating Bodies: LGUs; NEDA; BOT Center/Co-ordinating Committee for Programs and Projects; etc.

Objective: To identify and evaluate financial mechanisms and instruments that may be employed by the municipalities in the Batangas Bay Region for the development, construction, operation and control of municipal sewage collection, treatment and disposal facilities, on a long-term and self-reliant basis

Description:

Two types of financing need to be considered in the development of municipal sewage systems, namely:

- the initial capital investment for property, equipment, facilities and technologies; and
- the costs associated with the day-to-day operation of the system, including salaries, maintenance, insurance, energy, interest on mortgages, etc.

At present, the only financial mechanisms being employed by municipalities for waste management in the Batangas Bay Region are user fees and taxes. This project will investigate opportunities for innovative financing approaches to municipal sewage management. There are two mechanisms being developed in the East Asian region that warrant consideration as part of the Batangas Bay Action Plan. The two approaches are public sector-private sector partnerships, and privatization.

Public sector-private sector partnership is an alternative to the traditional approach that views local government solely responsible for the administration and control of waste facilities and services. One key goal of the partnership is to distribute the costs for planning, development and start-up of facilities among concerned parties in both sectors. As the program gets established, the financial burden shifts to the direct users and beneficiaries. The nature of the partnerships can vary from bilateral agreements to shared ownership between the public and private sectors.

The privatization mechanism confers total responsibility for the provision of required facilities and services on the private sector. The local government's role is principally that of regulator to ensure that the facilities and services comply with the existing standards or contract requirements. This mechanism takes advantage of the private sector's capacity and expertise to provide services in a more efficient and effective manner than government is able to achieve.

Whatever approach is considered appropriate, the bottom line is that adjustments are required in the manner which municipalities manage waste services and the methods of financing such services. The output from this project will provide local governments with an appreciation of the advantages and disadvantages of these innovative approaches, and a knowledge base upon which to make future decisions on financing of sewerage services.