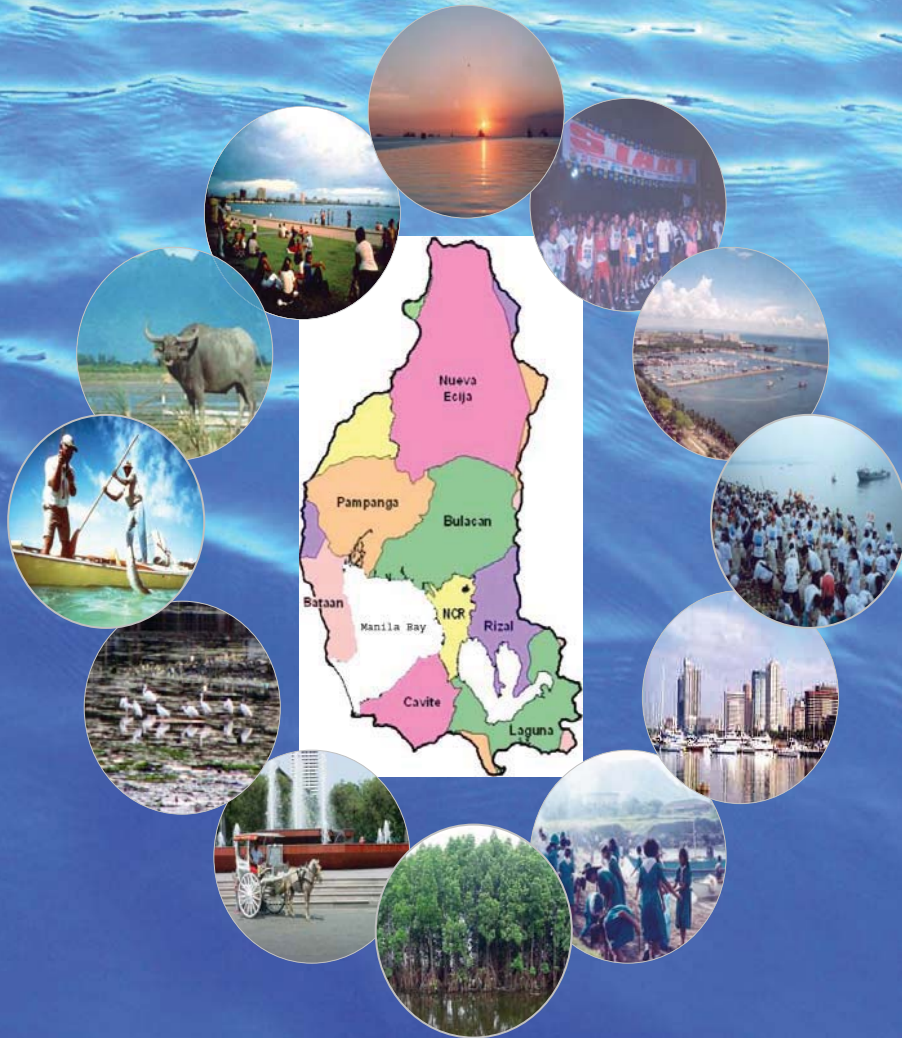


Operational Plan for the Manila Bay Coastal Strategy (OPMBCS)



Bahagi Ka sa Pagbuo ng Obra Maestra!

December 2005



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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|-----------|--|
| ADCOM | Advocacy and Communication |
| AFMA | Agriculture and Fisheries Modernization Act |
| AO | Administrative Order |
| BFAR | Bureau of Fisheries and Aquatic Resources |
| BOI | Board of Investment |
| BOO | Build Operate Own |
| BOT | Build Operate Transfer |
| BSWM | Bureau of Soils and Water Management |
| CBFM | Community-based Forest Management |
| CHED | Commission on Higher Education |
| CLUPs | Comprehensive Land Use Plans |
| CMMD | Coastal and Marine Management Division |
| CMMO | Coastal and Marine Management Office |
| CMT | Civil Military Training |
| CPUE | Catch Per Unit Effort |
| CREBA | Chamber of Real Estate and Builders Association, Inc. |
| CSTF | Centralized Sewage Treatment Facilities |
| CWTP | Centralized Wastewater Treatment Plant |
| CWTS | Civic Welfare Training service |
| DA | Department of Agriculture |
| DAO | DENR Administrative Order |
| DENR | Department of Environment and Natural Resources |
| DepEd | Department of Education |
| DFA | Department of Foreign Affairs |
| DILG | Department of the Interior and Local Government |
| DLR | Department of Land Reform |
| DND | Department of National Defense |
| DOE | Department of Energy |
| DOH | Department of Health |
| DOJ | Department of Justice |
| DOJ-MOAC | Department of Justice-Maritime and Ocean Affairs Center |
| DOST | Department of Science and Technology |
| DOT | Department of Tourism |
| DOT-PTA | Department of Tourism-Philippine Tourism Authority |
| DOTC | Department of Transportation and Communication |
| DPWH | Department of Public Works and Highways |
| DSWD | Department of Social Welfare and Development |
| DTI | Department of Trade and Industry |
| ECC | Environmental Compliance Certificate |
| ECO-CORPS | Environmental Conservation through Citizen's Organized Participation and Support |
| EIS | Environmental Impact Statement |
| EMB | Environmental Management Bureau |
| EO | Executive Order |
| ERA | Environmental Risk Assessment |
| ESWM | Environmental Solid Waste Management |
| FAOs | Fisheries Administrative Orders |
| FARMCs | Fisheries and Aquatic Resources Management Councils |
| FGDs | Focus Groups Discussions |
| FMB | Forest Management Bureau |
| GAA | General Appropriation Act |
| GEF | Global Environment Facility |
| GOP | Government of the Philippines |
| HLURB | Housing and Land Use Regulatory Board |
| HUDCC | Housing and Urban Development Coordinating Council |
| IBP | Integrated Bar of the Philippines |
| ICM | Integrated Coastal Management |
| IEC | Information, Education and Communication |

OPERATIONAL PLAN FOR THE MANILA BAY COASTAL STRATEGY (OPMBCS)

| | |
|--------------|---|
| IEMP | Integrated Environmental Management Program |
| IFDMP | Integrated Forestry Development and Management Plan |
| IFMA | Integrated Forest Management Agreement |
| IIMS | Integrated Information Management System |
| IMO | International Maritime Organization |
| IPs | Indigenous People |
| IPRA | Indigenous People's Right Act |
| IRA | Internal Revenue Allocation |
| IRR | Implementing Rules and Regulations |
| JICA | Japan International Cooperation Agency |
| KBP | <i>Kapisanan ng mga Brodkaster sa Pilipinas</i> |
| LDPs | Local Development Plans |
| LGUs | Local Government Units |
| LLDA | Laguna Lake Development Authority |
| LUC | Land Use Committee |
| LWUA | Local Water Utilities Authority |
| M&E | Monitoring and Evaluation |
| MAO | Municipal Agriculture Office |
| MARINA | Maritime Industry Authority |
| MARPOL 73/78 | Marine Pollution-International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 |
| MBCS | Manila Bay Coastal Strategy |
| MBEMP | Manila Bay Environmental Management Project |
| MBIN | Manila Bay Information Network |
| MBOP | Manila Bay Operational Plan |
| MCD | Municipal Coastal Database |
| MENRO | Municipal Environment and Natural Resources Office |
| MEY | Maximum Economic Yield |
| MFARMCs | Municipal Fisheries and Aquatic Resources Management Councils |
| MGB | Mines and Geosciences Bureau |
| MHOs | Municipal Health Offices |
| MM | Metro Manila |
| MMDA | Metro Manila Development Authority |
| MOA | Memorandum of Agreement |
| MOAC | Maritime and Ocean Affairs Center |
| MOU | Memorandum of Understanding |
| MPDO | Municipal Planning Development Office |
| MRF | Materials Recovery Facility |
| MSY | Maximum Sustainable Yield |
| MTPDP | Medium Term of the Philippines Development Plan |
| MWSS | Manila Waterworks and Sewerage System |
| NAMRIA | National Mapping and Resource Information Authority |
| NAPC | National Anti Poverty Commission |
| NCAA | National Collegiate Athletic Association |
| NCCA | National Commission on Culture and Arts |
| NCIP | National Commission on Indigenous People |
| NCR | National Capitol Region |
| NDCC | National Disaster Coordinating Council |
| NEDA | National Economic Development Authority |
| NFARMC | National Fisheries and Aquatic Resources Management Council |
| NFRDI | National Fisheries Research and Development Institute |
| NGAs | National Government Agencies |
| NGOs | Non-government Organizations |
| NHI | National Historical Institute |
| NIA | National Irrigation Administration |
| NIPAS | National Integrated Protected Areas System |
| NMTT | Navotas-Malabon-Tullajan-Tinajeros River |
| NOCOP | National Operation Center on Oil Pollution |
| NPC | National Power Corporation |
| NSTP | National Service Training Program |

OPERATIONAL PLAN FOR THE MANILA BAY COASTAL STRATEGY (OPMBCS)

| | |
|------------|---|
| NSWMC | National Solid Waste Management Commission |
| NWIN | National Water Information Network |
| NWRB | National Water Resources Board |
| ODA | Official Development Assistance |
| OPMBCS | Operational Plan for the Manila Bay Coastal Strategy |
| OPRC | Oil Pollution Preparedness, Response and Cooperation |
| PAs | Protected Areas |
| PAGASA | Philippine Atmospheric, Geophysical and Astronomical Services Administration |
| PAMARISAN | Pasig–Marikina–San Juan River |
| PAO | Provincial Agriculture Office |
| PAR | Physical Accomplishment Report |
| PATLEPAM | Philippine Association of Tertiary Level Educational Institution in Environmental Protection and Management |
| PAWB | Protected Areas and Wildlife Bureau |
| PCAP, Inc. | Pollution Control Association of the Philippines, Inc. |
| PCC | Project Coordinating Committee |
| PCCI | Philippine Chambers of Commerce and Industry |
| PCG | Philippine Coast Guard |
| PCGA | Philippine Coast Guard Auxiliary |
| PCMARD | Philippine Council for Marine and Aquatic Resources Development |
| PCRA | Participatory Coastal Resource Assessment |
| PD | Presidential Decree |
| PDF | Provincial Development Fund |
| PENRO | Provincial Environment and Natural Resources Office |
| PEPP | Philippine Environmental Partnership Program |
| PEMSEA | Partnerships in Environmental Management for the Seas of East Asia |
| PEZA | Philippines Economic Zone Authority |
| PHIVOLCS | Philippine Institute of Volcanology and Seismology |
| PIA | Philippine Information Agency |
| PMES | Performance Monitoring and Evaluation System |
| PMO | Project Management Office |
| PMTDP | Philippine Medium Term Development Plan |
| PN | Philippine Navy |
| PNP | Philippine National Police |
| PNRI | Philippine Nuclear Research Institute |
| PPA | Philippine Ports Authority |
| PPA | Plans/Programs/Activity |
| PPDO | Provincial Planning and Development Office |
| PPFP | Provincial Physical Framework Plans |
| PPPs | Public-Private Partnerships |
| PRA | Philippine Reclamation Authority, formerly Public Estates Authority (PEA) |
| PRRC | Pasig River Rehabilitation Commission |
| RA | Republic Act |
| RDs | Regional Directors |
| RDC | Regional Development Council |
| REDs | Regional Executive Directors |
| RPPF | Regional Physical Framework Plan |
| RRA | Refined Risk Assessment |
| SB | <i>Sangguniang Bayan</i> |
| SDS-SEA | Sustainable Development Strategy for the Seas of East Asia |
| SIFMA | Socialized Industrial Forestry Management Agreements |
| SMOs | Site Management Offices |
| SP | <i>Sangguniang Panlalawigan</i> |
| STD | Storage, Treatment and Disposal |
| SW | Solid Waste |
| SWM | Solid Waste Management |
| TBT | Tributyltin |
| TDL | Total Discharge Loading |
| TESDA | Technical Education and Skills Development Authority |

| | |
|---------|---|
| THW | Toxic and Hazardous Waste |
| TLRC | Technology and Livelihood Resource Center |
| TWG | Technical Working Group |
| UN | United Nations |
| UNCLOS | United Nations Convention on the Law of the Sea |
| UNDP | United Nations Development Program |
| UP | University of the Philippines |
| UP-MSI | University of the Philippines-Marine Science Institute |
| UP-NHRC | University of the Philippines- National Hydrological Research Center |
| UP-NIGS | University of the Philippines-National Institute of Geological Sciences |
| UWM | Unit Work of Measurement |
| VTS | Vessel Traffic Separation |
| WWTF | Wastewater Treatment Facility |

DEFINITION OF TERMS**Information, Education and Communication (IEC) Framework**

Refers to the guiding mechanism to effectively communicate the Plan to the different stakeholders which requires different approaches focusing on environmental ethics, environmental literacy, and environmental advocacy

Manila Bay Region

Refers to the watershed areas covering the National Capital Region or Metro Manila, Central Luzon (Region III), and the Southern Tagalog Region (Region IV).

Plan

Refers to the Operational Plan for the Manila Bay Coastal Strategy

Refined Risk Assessment

Refers to the assessment used to determine the significance of risk posed by various factors emanating from human health and the ecosystem

Stakeholders

Refers to the key players in the implementation of the Plan, which include the government agencies, private sectors (industries), and the public (communities).

Strategy

Refers to the Manila Bay Coastal Strategy

1.0 INTRODUCTION

The development of the Operational Plan is a transformation of the identified strategies and action programs in the Manila Bay Coastal Strategy (MBCS) into action plans and programs with estimated budgets and timeframe. The MBCS is a product of a unified effort of the various stakeholders of the Manila Bay coastal and watershed areas covering the National Capital Region (NCR) or Metro Manila, Central Luzon (Region III), and the Southern Tagalog Region (Region IV). According to the Philippine Environment Monitor 2003, which focused on Water Quality, these three regions are considered critical and found to have an unsatisfactory (U) rating for water quality. The indiscriminate disposal of domestic wastewater is the highest contributor to the degradation of water quality in Manila Bay. Other point sources of pollution are industrial wastewater, and surface run-off from the upland and agricultural areas. Point sources emit harmful substances directly into a body of water. Non-point sources such as solid wastes are scattered and deliver pollutants indirectly. Adverse effects of these pollutants will not only affect human health through the spread of disease-causing agents but water pollution can also lead to economic losses. Improving the water quality results in improved health, agricultural productivity, and improved quality of life. Recognizing the need for a guiding document that clearly spells out the objectives and targets and the different action plans and programs needed to achieve the desired outcomes, the MBCS has to be translated into action plans and programs based on the identified priorities. The Operational Plan entails the integration of practical lessons learned in the course of the implementation of the Manila Bay Environmental Management Project (MBEMP) with the adoption of relevant national and local strategies and programs.

The Operational Plan for the Manila Bay Coastal Strategy (OPMBCS) is based on the following premises:

- The development of the Plan is a major component of the Manila Bay Environmental Management Project (MBEMP).
- The Plan is developed by transforming the identified strategies and action programs in the Manila Bay Coastal Strategy (MBCS) into action plans and programs for adoption and implementation by national and local levels of government, communities, NGOs, the private sector, scientific and research institutions and other stakeholders in the Manila Bay Region.
- The development of the plan used the Manila Bay Refined Risk Assessment Report as input.

The Operational Plan has set of objectives and action plans with measurable targets, timeframe, budgetary requirements, implementing arrangements – responsible agency/sector/partner, and enabling policies and laws. It also contains financing strategy, Information-Education-Communication Plan of Action, and monitoring and evaluation procedures.

The desired outcomes of the OPMBCS are the following;

- Endorsement of the Operational Plan by national and local levels of government, the private sector, civil society, donors, financial institutions, and international agencies and organizations;
- Adoption of the OPMBCS by the Regional Development Councils (RDCs) of Regions 3 and 4 and NCR, and National Economic Development Authority (NEDA), for incorporation into the Medium-Term Philippine Development Plan (MTPDP); and
- Mobilization of funds from national agencies and local government units, the private sector, NGOs, and external sources (e.g., donor agencies, international financing institutions, foundations, etc.).

2.0 OVER-ALL FRAMEWORK OF THE MANILA BAY COASTAL STRATEGY (MBCS) IN RELATION TO THE IDENTIFIED RISKS AND CHALLENGES IN THE REFINED RISK ASSESSMENT (RRA)

This operational plan puts into action the *Strategies* that will address the *Risks and Challenges* with the end-in-view of attaining the *Goals and Priorities*. The Overall Framework of the Manila Bay Coastal Strategy in relation to Refined Risk Assessment is summarized in Fig. 1.

This framework serves as the guiding principle in the development of the Plan. It starts with the *Goals and Priorities* at the top level. These *Goals and Priorities* were derived from the *Vision Statement* developed during the stakeholders' consultation. The physico-chemical properties of the water were the stakeholders' primary concern in order to conserve the bay's biological resources - its flora and fauna. With the foreseen ecological soundness of Manila Bay, they also need to have economic development within the area to uplift their present living conditions without sacrificing their social and cultural practices. Thus, development of partnership among themselves must be fostered.

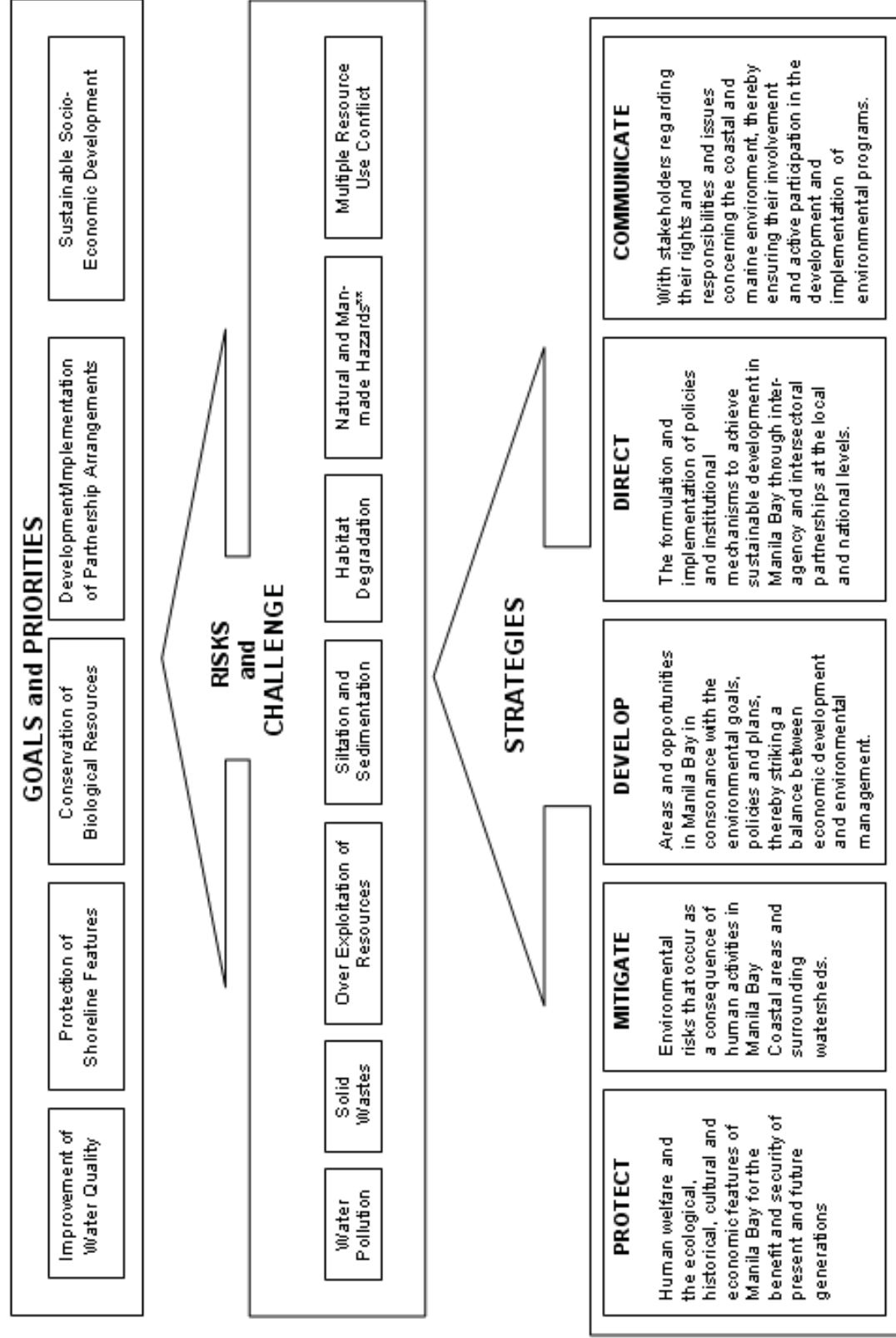
However, the attainment of these *Goals and Priorities* is threatened by *Risks and Challenges* of all sorts – both natural and man-made. These are in the second level of the framework. These *Risks and Challenges* pose danger to the existence of the bay. Water pollution and solid wastes degrade the physico-chemical properties of its waters affecting the biological resources of which the people depend upon for their livelihood. The growing population and the people's desire for immediate solution to their needs led to overexploitation of the resources and degradation of the habitats. Added to these are the natural hazards that endanger the people and the resources as well.

At the lowest level are the *Strategies* deemed necessary by the stakeholders to arrest the growing *Risks and Challenges*. These *Strategies* cut across all the *Risks and Challenges* and deemed to abate further degradation of an important resource that is the Manila Bay. Thus, there is a need to translate the various objectives and action programs of each strategy into activities that will provide direction to the implementation of the Manila Bay Environmental Management Project. This is the substance of the Operational Plan. The extent of implementation of the activities with measurable outputs and outcome indicators will determine the success in the attainment of the optimum goal.

In response to the Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia's (PEMSEA) goal of developing and implementing a Strategic Environmental Management Plan at each of the three (3) sub regional areas, the Manila Bay Environmental Project (MBEMP) was launched in 2000. The MBEMP aims to achieve an acceptable balance between economic development and environmental management of land-and sea-based practices and activities that threaten the life support of Manila Bay. The project consists of six (6) components, namely: Risk Assessment, Response, Compensation/Restoration, Environmental Monitoring, Capacity Building, and Institutional Arrangements.

The MBEMP developed the Manila Bay Coastal Strategy (MBCS) through consultations with various stakeholders from the three (3) regions surrounding the Bay: NCR, and Regions 3 and 4. The MBCS shows the social, economic and environmental aspects of Manila Bay in relation to people's values, and threats that damage those values. Likewise, the strategy provides a comprehensive environmental framework, targeted outcomes and a series of action programs involving the participation of both national and non-government sectors.

Figure 1. Overall Framework of the Manila Bay Coastal Strategy in Relation to Refined Risk Assessment



** Oil Spills, Sea-level, ballast Water, invasive species, Environmental protection emergencies

The vision crafted by various stakeholders is clearly stated as:

“ Manila Bay- reflective of God’s glory-is a clean, safe, wholesome and productive ecosystem, a center of socioeconomic development, and a natural heritage nurtured by genuine Filipino values with regard to better quality of life for the present and future generations”.¹

The shared vision represents a common understanding, views, and wishes of various stakeholders of Manila Bay areas. Achieving the vision will take time, strategies and resources to implement a set of action programs/activities.

The five (5) identified executing strategies to course actions towards realization of said vision are as follows:

- a) **Protect** human welfare and the ecological. Historical, cultural and economic features of Manila Bay
- b) **Mitigate** environmental risks that occur as a consequence of human activities in Manila Bay coastal areas and the surrounding watersheds
- c) **Develop** opportunity areas in Manila Bay in consonance with environmental goals, policies and plans, thereby striking a balance between economic development and environmental management
- d) **Communicate** with stakeholders regarding their rights and responsibilities, and issues concerning the coastal and the marine environment, thereby ensuring their involvement and active participation in the development and implementation of environmental management programs
- e) **Direct** the formulation and implementation of policies and institutional mechanisms to achieve sustainable development in Manila Bay through inter-agency and inter-sectoral partnerships at national and local levels.

Complementary to the MBCS is the Refined Risk Assessment (RRA), which was developed through a concerted effort of scientists, academicians, and government technocrats, comprised of a multi-disciplinary and inter-agency Technical Working Groups (TWG) created by PEMSEA. Environmental Risk Assessment (ERA) uses scientific and technical assessment of available information to determine the significance of risk posed by various factors emanating from human health and the ecosystem. The RRA’s objectives are as follows:

- To review the initial risk assessment of Manila Bay in order to determine if there are other new or additional data, which could be included and to examine the effect of such new or additional data on the conclusions and recommendations made during the initial risk assessment;
- To identify sources of activities that contribute to pollution in the bay;
- To evaluate the impacts of pollutants in Manila Bay on human and ecological targets and identify those pollutants that should be given priority in risk management or remediation programs;
- To recommend measures to reduce or eliminate identified risks of significance to the bay;
- To identify data gaps in the refined risk assessment of Manila Bay that need to be addressed and uncertainties that need to be verified through monitoring and research/studies that generate primary data; and

¹ Manila Bay Coastal Strategy. Project Management Office, Manila Bay Environmental Management Project, October 2001

- To strengthen local capability of and collaboration among agencies and institutions that can play significant roles in the long-term management of Manila Bay.

In preparation of the RRA, both the retrospective and prospective risk assessments were employed. Retrospective risk assessment determines the extent to which conditions are likely to have caused adverse effects observed in specific targets. Prospective risk assessment considers the extent to which current conditions, and/or those likely to pertain to the future due to new developments, would likely cause harm.

Both the MBCS and the RRA are major sources of information in coming up with the comprehensive “Operational Plan for the Manila Bay Coastal Strategy” The Plan, categorizing into a short-term, medium-term and long-term action programs/activities, has its own set of programs/actions/activities, budgets, implementing arrangements and financial mechanism for its sustainable implementation.

3.0 IDENTIFICATION OF ISSUES/AREAS OF CONCERN

Identification of issues was based on the findings of the Refined Risk Assessment (RRA) and in the identified areas of concern in the Manila Bay Coastal Strategy (MBCS) as shown in Table 1.

Table 1 PRIORITY ISSUES/AREAS OF CONCERN

| Issues/Areas of Concern | | <i>Reference</i> |
|---|--|------------------|
| PARTNERSHIPS AND GOVERNANCE | | |
| 1. Absence of integrated management framework | Multiple-use conflicts | MBCS, RRA |
| | Limited or sectoral planning | |
| | Fragmented or weak institutional arrangements | |
| | Lack of coordination among concerned agencies, and between the national and local governments | |
| | Absence of comprehensive mechanism to address the negative impacts of development within the bay region | |
| | Limited ICM replication program | |
| 2. Lack of awareness and capacity | Lack of sense of ownership | |
| | Lack of understanding of the values of the bay and its socioeconomic benefits | |
| | Unsustained IEC campaign | |
| | Limited environment and resource management courses within the formal education system | |
| | Viewed primarily as a government responsibility instead of stakeholders' responsibility | |
| | Lack of political will and commitment | |
| | Limited corporate environmental and social responsibility | |
| | Undocumented corporate initiatives | |
| | Inadequate application of skills acquired during training, workshops and seminars | |
| | Limited skilled human resources in ICM/CRM | |
| 3. Lack of resources | Limited public-private partnerships Limited private sector investments Limited stakeholders' involvement | |
| | Limited access/understanding of appropriate technologies/effective approaches for important interventions | |
| | Inefficient/unsustainable financing facilities & programs | |
| | Poor track record on private investment in environmental infrastructures and services | |
| | Unsustained government support | |
| WATER POLLUTION | | |
| 4. Water quality | | |
| a. Water column | Coliform | RRA, MBCS |
| | Nutrients (phosphate) | RRA, MBCS |
| | Pesticides | RRA, MBCS |
| | Oil and grease | RRA, MBCS |
| b. Sediment | Heavy metals: mercury and copper | RRA, MBCS |
| | Heavy metals: lead, zinc, cadmium, chromium | RRA, MBCS |
| | Total Polycyclic Aromatic Hydrocarbon | RRA |

| Issues/Areas of Concern | | <i>Reference</i> |
|---|---|------------------|
| 5. Harmful algal blooms | Red tide | RRA, MBCS |
| | Fish kills | RRA, MBCS |
| 6. Solid waste | <i>Sources:</i> | |
| | Domestic/household | MBCS |
| | Commercial and industrial | MBCS |
| | Agricultural (animal manure, leaves, hay, etc.) | MBCS, RRA |
| | Septage sludge | MBCS, RRA |
| | Dredged materials | MBCS, RRA |
| 7. Toxic and hazardous waste | Industrial waste | MBCS, RRA |
| | Hospitals and health-care related | MBCS, RRA |
| 8. Soil pollution | | BSWM |
| RESOURCES AND HABITATS | | |
| 9. Over-exploitation of resources | Fisheries, Shellfisheries | MBCS, RRA |
| | Groundwater | MBCS |
| | Biodiversity | MBCS |
| 10. Destruction/degradation of habitats and ecosystems | Mangroves | MBCS, RRA |
| | Mudflats | MBCS, RRA |
| | Coral reefs | MBCS, RRA |
| | Seagrass beds | MBCS, RRA |
| | Beaches/sandy shores | MBCS, RRA |
| | Forests and watershed areas | MBCS |
| | Other wetlands (e.g., swamps) | MBCS |
| | Rivers and lake | MBCS |
| 11. Coastal hazards (natural and man-made) | Flooding | MBCS, RRA |
| | Earthquakes | MBCS, RRA |
| | Accidental spills/land based | |
| | Typhoons | MBCS, RRA |
| | Environmental emergencies (terrorism) | |
| | Volcanic eruption | MBCS, RRA |
| | Shipping and port operations accidents | |
| 12. Sea-level rise | Flooding, sedimentation, climate change | RRA |
| 13. Changes in shoreline features | Uncontrolled development | MBCS, RRA |
| | Reclamation | MBCS, RRA |
| | Siltation/erosion | MBCS, RRA |
| 14. Destruction of historical, cultural, archaeological and unique geological sites | Uncontrolled development | MBCS |
| | Reclamation | MBCS |
| | Pollution (air and water) | MBCS |

4.0 LINKAGES OF ISSUES/ AREAS OF CONCERN WITH THE MANILA BAY COASTAL STRATEGY AND REFINED RISK ASSESSMENT

The identified issues/areas of concerns are matched with the formulated Manila Bay Coastal Strategy (MBCS), Objectives and Action Programs, and with the Refined Risk Assessment's (RRA) Action Plans as shown in Figure 2 and Table 2. Many of these key issues have multiple relationship/link to the five strategies. These issues are usually related to the resources and socioeconomic development concerns. However, there are identified specific issues that have corresponding specific strategies such as natural hazards and geological concerns.

Figure 2 MANILA BAY COASTAL STRATEGY AND RISK ASSESSMENT LINKAGES TOWARDS THE MANILA BAY OPERATIONAL PLAN PREPARATION

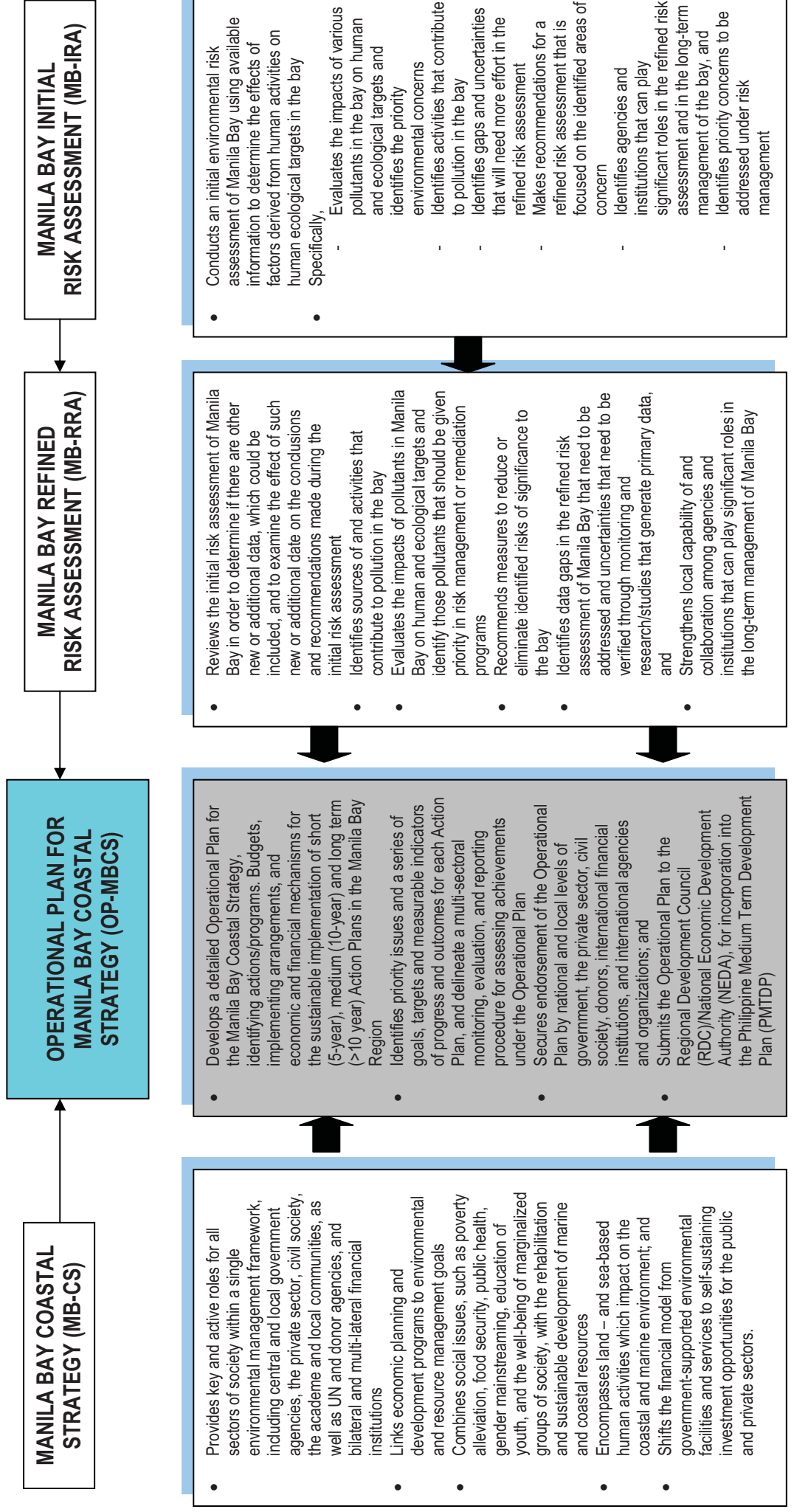






Table 2 LINKING THE ISSUES/AREAS OF CONCERN TO MBCS AND REFINED RISK ASSESSMENT

| MANILA BAY COASTAL STRATEGY | ISSUES/AREAS OF CONCERN | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|-------------------------|---|---|---|---|---|---|---|---|---|---|---|----------------------------|---|---|---|---|---|---|---|---|--|
| | WATER POLLUTION | | | | | | OVER-EXPLOITATION OF RESOURCES AND DEGRADATION OF HABITATS AND HISTORICAL, CULTURAL, RELIGIOUS, ARCHEOLOGICAL AND UNIQUE GEOLOGICAL SITES | | | | | | PARTNERSHIP AND GOVERNANCE | | | | | | | | | |
| | Objectives | | | | | | Objectives | | | | | | Objectives | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| PROTECT | | | | | | | | | | | | | | | | | | | | | | |
| Objective 1 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 2 | | | | | | | | | | | | | | | | | | | | | | |
| MITIGATE | | | | | | | | | | | | | | | | | | | | | | |
| Objective 1 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 2 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 3 | | | | | | | | | | | | | | | | | | | | | | |
| DEVELOP | | | | | | | | | | | | | | | | | | | | | | |
| Objective 1 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 2 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 3 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 4 | | | | | | | | | | | | | | | | | | | | | | |
| COMMUNICATE | | | | | | | | | | | | | | | | | | | | | | |
| Objective 1 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 2 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 3 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 4 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 5 | | | | | | | | | | | | | | | | | | | | | | |

LEGEND:  Direct Link  Indirect Link

LINKING THE ISSUES/AREAS OF CONCERN TO THE MANILA BAY COASTAL STRATEGY AND REFINED RISK ASSESSMENT

| MANILA BAY COASTAL STRATEGY | WATER POLLUTION | | | | | | ISSUES/AREAS OF CONCERN | | | | | | | | | | | | | | | |
|-----------------------------|-----------------|---|---|---|---|---|---|---|---|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| | WATER POLLUTION | | | | | | OVER-EXPLOITATION OF RESOURCES AND DEGRADATION OF HABITATS AND HISTORICAL, CULTURAL, RELIGIOUS, ARCHEOLOGICAL AND UNIQUE GEOLOGICAL SITES | | | PARTNERSHIP AND GOVERNANCE | | | | | | | | | | | | |
| | Objectives | | | | | | Objectives | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DIRECT | | | | | | | | | | | | | | | | | | | | | | |
| Objective 1 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 2 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 3 | | | | | | | | | | | | | | | | | | | | | | |
| Objective 4 | | | | | | | | | | | | | | | | | | | | | | |
| ON RESOURCES | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 1 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 2 | | | | | | | | | | | | | | | | | | | | | | |
| ON HABITATS | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 1 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 2 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 3 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 4 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 5 | | | | | | | | | | | | | | | | | | | | | | |
| ON SHORELINE CHANGES | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 1 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 2 | | | | | | | | | | | | | | | | | | | | | | |
| ON BOTTOM TOPOGRAPHY | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 1 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 2 | | | | | | | | | | | | | | | | | | | | | | |

LEGEND:  Direct Link  Indirect Link



LINKING THE ISSUES/AREAS OF CONCERN TO THE MANILA BAY COASTAL STRATEGY AND REFINED RISK ASSESSMENT

| MANILA BAY REFINED RISK ASSESSMENT | ISSUES/AREAS OF CONCERN | | | | | | | | | | | | | | | | | | | | |
|--|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|---|----------------------------|---|---|---|---|---|---|
| | WATER POLLUTION | | | | | | | OVER-EXPLOITATION OF RESOURCES AND DEGRADATION OF HABITATS AND HISTORICAL, CULTURAL, RELIGIOUS, ARCHEOLOGICAL AND UNIQUE GEOLOGICAL SITES | | | | | | | PARTNERSHIP AND GOVERNANCE | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| ON ECOLOGICAL RISKS | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 1 | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 2 | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 3 | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 4 | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 5 | | | | | | | | | | | | | | | | | | | | | |

LEGEND:  Direct Link  Indirect Link

LINKING THE ISSUES/AREAS OF CONCERN TO THE MANILA BAY COASTAL STRATEGY AND REFINED RISK ASSESSMENT

| MANILA BAY REFINED RISK ASSESSMENT | ISSUES/AREAS OF CONCERN | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|-------------------------|---|---|---|---|---|---|---|---|---|----------------------------|---|---|---|---|---|---|---|---|---|---|--|
| | WATER POLLUTION | | | | | OVER-EXPLOITATION OF RESOURCES AND DEGRADATION OF HABITATS AND HISTORICAL, CULTURAL, RELIGIOUS, ARCHEOLOGICAL AND UNIQUE GEOLOGICAL SITES | | | | | PARTNERSHIP AND GOVERNANCE | | | | | | | | | | | |
| | Objectives | | | | | Objectives | | | | | Objectives | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| ON HUMAN HEALTH RISKS | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 1 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 2 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 3 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 4 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 5 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 6 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 7 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 8 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 9 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 10 | | | | | | | | | | | | | | | | | | | | | | |
| ON HARMFUL ALGAL BLOOM | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 1 | | | | | | | | | | | | | | | | | | | | | | |
| Action Plan 2 | | | | | | | | | | | | | | | | | | | | | | |

LEGEND:  Direct Link  Indirect Link

5.0 THE OPERATIONAL PLAN FOR MANILA BAY COASTAL STRATEGY (OPMBCS)

In the preparation of the Operational Plan, the identified priority issues are classified under three major categories: Partnership and Governance; Water Pollution Issues; and, Over-Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archeological and Unique Geological Sites. Each issue has its own identified goals and specific objectives as summarized in Table 3.

Table 3 GOALS AND OBJECTIVES OF THE IDENTIFIED ISSUES/AREAS OF CONCERN

| Issues/Areas of Concern | Goals | Objectives |
|-----------------------------------|---|---|
| Partnership and Governance Issues | <i>Promote partnerships and ensure the implementation of good environmental governance as means to achieve the sustainable development of the Manila Bay Region</i> | <p>Objective 1: Develop, adopt and implement an integrated land use and sea use plan for the Manila Bay Region by 2012.</p> <p>Objective 2: Establish appropriate institutional arrangements to oversee, coordinate and guide the implementation of Manila Bay Coastal Strategy and Operational Plan by 2007.</p> <p>Objective 3: Develop, set-up and operationalize Integrated Coastal Area and River Basin Management system covering 100% of the Manila Bay Region by 2010.</p> <p>Objective 4: Create awareness, build capacity and mobilize at least 50% of the coastal communities to participate in activities related to the implementation of the MBCS by 2010.</p> <p>Objective 5: Increase to at least 75% the number of LGUs within the Manila Bay region implementing development and investment programs through private sector and public-private sector partnerships by 2010.</p> <p>Objective 6: Reduce by 25% the illegal settlers, establishments and structures along coast lines by 2010 and prevent future preoccupation of these shorelines.</p> <p>Objective 7: Develop and implement a Natural Hazards Contingency, Preparedness and Quick-Response System for the Manila Bay Region by 2008.</p> <p>Objective 8: Develop and institutionalize a performance monitoring and evaluation system for Manila Bay Region by 2007.</p> |

| Issues/Areas of Concern | Goals | Objectives |
|-------------------------|---|--|
| Water Pollution | <p><i>Protect the waters in Manila Bay and its tributaries (rivers and lake) and ensure that they are safe for various uses (e.g., recreation, source of potable water, transportation, irrigation, fisheries and other living resources)</i></p> | <p>Objective 1: Reduce by 50% the discharges of raw sewage, septage and untreated and inadequately treated wastewater (from commercial, industrial, agricultural, and fisheries/aquaculture) by 2015.</p> <p>Objective 2: Establish integrated solid waste management programs in all LGUs by 2007.</p> <p>Objective 3: Develop and implement toxic and hazardous waste management system by 2008.</p> <p>Objective 4: Stop sea-dumping of sewage, industrial sludge, solid waste, and contaminated dredged materials by 2006.</p> <p>Objective 5: Stop discharges of operational waste (oily bilge and ballast water) from ships and the use of anti-fouling paints with TBTs and other harmful compounds by 2006.</p> <p>Objective 6: Activate a bay-wide, multi-sectoral oil spill prevention and response program by 2006.</p> |

| Issues/Areas of Concern | Goals | Objectives |
|--|---|--|
| <p>Over-Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archeological and Unique Geological Sites</p> | <p><i>Ensure protection, restoration and sustainable development of resources, habitats, natural areas, and historical, cultural, religious and archeological sites that are essential in achieving the ecological, social, and economic well-being of communities and stakeholders in the Manila Bay Region.</i></p> | <p>Objective 1: Set-up sustainable institutional arrangements and management programs in all declared Protected Areas (PAs) and Critical Habitats in the Manila Bay Region by 2007.</p> <p>Objective 2: Implement a no net loss policy for existing mangroves, mudflats, beaches and sandy shores by 2010.</p> <p>Objective 3: Increase by “80%” the forest cover in the entire Manila Bay watershed area by 2015.</p> <p>Objective 4: Formulate and implement a restoration and maintenance program for important cultural, historical, religious and architectural landmarks and archeological and unique geological sites within the Manila Bay Region by 2010.</p> <p>Objective 5: Increase the productivity of fishery resources within the Manila Bay Region to attain the maximum sustainable yield (MSY) by 2020.</p> <p>Objective 6: Achieve sustainable and ecologically-sound aquaculture and mariculture production in Manila Bay by 2015.</p> <p>Objective 7: Increase coverage of water supply distribution system by 50% in areas with unsustainable groundwater extraction to protect aquifers from contamination and salt-water intrusion by 2015.</p> |

The Operational Plan for Manila Bay Coastal Strategy highlighting the specific plans of activities for each identified issues and objectives is presented in Tables 4.3 (Page 5-7 Partnerships and Governance; 5.3 (Page 5-38 Water Pollution) and 6.3 (Page 5-54 Over Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archeological and Unique Geological Sites

PARTNERSHIP AND GOVERNANCE

| <p>Table 4.1 Strategies and Action Programs to Address Issue of Partnerships and Governance in the Manila Bay Coastal Strategy</p> | |
|---|---|
| <p>Quality of life</p> <ul style="list-style-type: none"> - health - food security | <p>Strategy: Protect</p> <p><i>Objective 1:</i> Upgrade and maintain the quality of health among the users and beneficiaries of Manila Bay by providing food security among coastal communities by:</p> <p><i>Action Programs:</i></p> <ul style="list-style-type: none"> • Employing the environmental risk assessment process to identify priorities and linkages between human activities and public health effects; • Improving the water quality of Manila Bay to a Class SA (shellfisheries, tourism, marine parks and reserves) water body; • Providing adequate and safe water supply to urban and rural communities |
| <p>Integrated management and systematic, holistic approach</p> | <p>Strategy: Develop</p> <p><i>Objective 1:</i> A well-defined planning, approval and consultation process for development of coastal and watershed areas of Manila Bay</p> <p><i>Action Program:</i> 1</p> <p>Strategy: Direct</p> <p><i>Objective 1:</i> Appropriate institutional mechanisms and arrangements in-place allowing multisectoral stakeholders to contribute to environmental goals within a strategic framework</p> <p><i>Action Programs:</i> 1 and 2</p> <p><i>Objective 2:</i> National government effects the implementation of relevant policies, controls and incentives</p> <p><i>Action Program:</i> 1</p> <p><i>Objective 3:</i> Local governments effectively managing marine and coastal resources within their administrative jurisdictions</p> <p><i>Action Programs:</i> 1 and 2</p> <p><i>Objective 4:</i> Partnership arrangements serving as the foundation for sustainable development in Manila Bay</p> <p><i>Action Programs:</i> 1, 2, 3 and 4</p> |

| Strategies and Action Programs to Address Issue of Partnerships and Governance in the Manila Bay Coastal Strategy | |
|--|--|
| Public awareness and capacity | <p>Strategy: Communicate</p> <p><i>Objective 1:</i> Awareness and understanding of stakeholders of their rights and responsibilities, and priority issues concerning coastal and marine environment of Manila Bay</p> <p><i>Action Programs:</i> 1, 2, 3 and 4</p> <p><i>Objective 2:</i> Public access to available data/information, including results of research and development activities, environmental monitoring, and other studies and projects relevant to the development of Manila Bay</p> <p><i>Action Programs:</i> 1 and 2</p> <p><i>Objective 3:</i> Multisectoral stakeholders as partners in the planning and management of Manila Bay coastal and watershed areas</p> <p><i>Action Programs:</i> 1, 2 and 3</p> <p><i>Objective 4:</i> Effective coordination and networking among stakeholders</p> <p><i>Action Programs:</i> 1, 2, 3 and 4</p> <p><i>Objective 5:</i> Stakeholders advocating environmental management in Manila Bay</p> <p><i>Action Programs:</i> 1, 2, 3 and 4</p> |
| Shoreline changes (due to siltation and sedimentation) | <p>Strategy: Protect</p> <ul style="list-style-type: none"> Institute policies and programs to curb uncontrolled developments, which affect ecosystems, such as, enforcing guidelines and regulations for road construction, construction sites and forestry to minimize erosion and sediment input. |
| Natural Hazards | <p>Strategy: Protect</p> <ul style="list-style-type: none"> Minimize impacts of natural hazards by formulating a disaster plan, and building local capacity to deal with contingencies for natural disasters |

| Strategies and Action Programs to Address Issue of Partnerships and Governance in the Manila Bay Coastal Strategy | |
|--|--|
| Multiple and Conflicting uses | <p>Strategy: Develop</p> <ul style="list-style-type: none"> • Implement integrated socio-economic development and environmental management master plan, detailing an integrated and land and sea-use zoning scheme for existing and future developments in the bay area. |
| | <p>Strategy: Mitigate</p> <ul style="list-style-type: none"> • Prevent illegal intrusion/encroachment and human settlements along waterways by: <ol style="list-style-type: none"> a) relocating informal settlers to less critical upland and lowland sites; b) providing alternative livelihood opportunities (e.g., tourism and recreation projects; resource management) for upland and coastal dwellers; c) formulating, adopting and implementing comprehensive land-and-sea-use plans; and d) strictly implementing and enforcing policies, laws and regulations pertaining to squatting and trespassing, and maintenance of ecologically sensitive areas, waterways and critical habitats. |

| Table 4.2 Priority Areas of Concern and Risks in the Initial and Refined Risk Assessments for Manila Bay | |
|---|--|
| Multiple and Conflicting uses | <ul style="list-style-type: none"> • conflicting land and sea-use plan • reclamation activities along the shorelines • uncontrolled development |
| Other issues | <ul style="list-style-type: none"> • absence of integrated management framework • lack of awareness and capacity • lack of resources |

Table 4.3 Action Plan for Partnerships and Governance

Goal: Promote partnerships and ensure the implementation of good environmental governance as means to achieve the sustainable development of the Manila Bay Region

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|--|--|----------------|---|--|---|
| Objective 1: Develop, adopt and implement an Integrated Land and Sea-use Zoning Plan for the Manila Bay Area by 2012 | | | | | |
| 1. Review and consolidate pertinent information on: <ul style="list-style-type: none"> - Corals, mangroves, seagrass beds, mudflats, swamps, avifauna, Fisheries, shellfishes, seaweeds, Benthos, phytoplanktons, zooplanktons, beaches/sandy shores, foreshore areas, built-up areas, bedrocks | Consolidated information (See Issue 2: Profile of each ecosystem/ habitat, resource/species, and built-up areas in the marine, foreshore, coastal and watershed areas, maps and charts, and Issue 3- Obj. 3 – institutionalized IIMS) | 2006 - 2007 | P3 | Lead Agency : DENR Cooperating Agency: NEDA, LLDA, PAWB, NAMRIA, DILG, LGUs, MMDA, HLURB, PRA, DA, DOT, MBEMP, TWG-IEMP, BFAR, AFP (Phil. Navy), PCG, NGOs, PG- ENRO, UP-MSI, NCIP, DFA-MOAC | <ul style="list-style-type: none"> - RA 8550: Fisheries Code - Public Land Law - PD 1067: Water Code - RA 7586: NIPAS Act - PD 705: Forestry Code - Wildlife Act - RA 7160: Local Government Code - Local Ordinances - RA 8371 (IPRA Law) - DA-BFAR DAO 01 series of 2004 (DAO 17 as amended) DAO 2004-24 on |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|---|--|
| <p>2. Assess and align existing land-use plans (RPFs, PPFs, CLUPs), various development plans, programs & projects and related CRM/ICM efforts at different levels of government</p> <p>Note: Use the following as reference. RPFs – Regional Physical Framework plans PPFs – Provincial PPFs</p> | <p>Assessment report for the national and local levels Assessment report of existing CLUPs</p> <p>List of national and local efforts and/or development plans, programs and projects</p> <p>Stakeholders' consultations/workshops</p> <p>ICM activities/projects integrated into LDPs (local development plans) and MTDP (Medium-Term Development Plan) conducted</p> | <p>2007</p> | <p>P2.5</p> | <p>Lead Agency : LGUs PPDOs (Provincial Planning and Development Office)</p> <p>Cooperating Agency: DENR , DA-BFAR, DILG, HLURB, MMDA , NEDA and stakeholders</p> <p>DENR</p> <p>LGUs and NGAs</p> <p>DENR, LLDA, NEDA (RDS*, LUCs), LGUs, DILG, MMDA DA, HLURB, PEA, PPA, DOT, PRRC, DLR, other concerned NGAs, NAMRIA</p> | <p>foreshore land management EO 648 - UNCLOS</p> |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|--|--|---------------|---|--|--|
| 3. Amend CLUP guidelines to include sea/water use and foreshore uses | Amended CLUP guidelines | 2006 | P5 | Lead Agency : MBEMP, HLURB, NEDA, LGUs, Cooperating Agency: DENR other concerned NGAs, Private Sectors | |
| 4. Delineate water boundaries of coastal municipalities and cities | Delineation of boundaries of municipal/city waters processed and validated by NAMRIA LGUs' certification on delineation of water boundaries LGUs' municipal/city resolution/ordinance passed | 2006- 2008 | P0.05 per LGU | Lead Agency : DA- BFAR & LGUs Cooperating Agency: DENR-NAMRIA DENR-NAMRIA DILG/LGUs DFA-MOAC | - RA 8550: Fisheries Code RA 7586: NIPAS Act - Public Land Code - PD 1067: Phil. Water Code - RA 8371 (IPRA Law) -DA-BFAR DAO 1 series 2004 (DAO 17 as amended); its IRR is under process - UNCLOS |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|--|---|------------------|---|---|---------------------------|
| <p>5. Develop the integrated land and sea-use zoning plan for Manila Bay Area</p> <p>Include:</p> <ul style="list-style-type: none"> - Protected Area Zones <ul style="list-style-type: none"> o National Parks o NIPAS Zone o Sanctuaries o Ancestral Domain - Rehabilitation/Buffer Zones - Sustainable Fisheries Use Zone - Coastal Tourism, other eco-tourism zones - Port and shipping zones - Human settlement areas (residential and commercial) - Agricultural and institutional zones - Industrial zones - Waste management zone (sanitary landfill, wastewater and sewerage treatment facilities, etc.) - Forest zone (production and protection) | <p>Series of stakeholders' consultations/ workshops conducted</p> <p>Proceedings/reports on consultations and workshops</p> <p>Manila Bay Comprehensive Plan and guidelines on integrated land and sea-use zoning (including user's fee system, detailed activities for each of the zones, and list and roles of concerned agencies/sector/stakeholders) developed</p> <p>Corresponding institutional arrangement necessary to implement the integrated land and sea-use plan</p> | <p>2006-2007</p> | <p>P7 (and other sources)</p> | <p>Lead Agency: DENR & LGUs</p> <p>DENR, Professional group</p> <p>LUC (DA, DLR, DOJ, DOTC, DILG, DENR, DTI, DPWH, DOST, DOT, HUDCC, NEDA), Phil. Navy, PCG, MARINA, PRA, PPA, HLURB, NAMRIA, NCIP, PRRC, Academe, LLDA, LGUs, MMDA</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|--|---|--------------------------|---|--|--|
| <p>6. Harmonize the land use plans (RPPFs, PPFs and CLUPs) of the municipalities and cities in the Manila Bay Region to make them consistent with the Integrated Land- and Sea Use Plan.</p> | <p>Revised RPPFs, PPFs and CLUPs Integrated CLUP and land and sea-use plans Stakeholders Consultation Resolution adopting and approving the plans Ordinances adopting the zoning plan, including incentive-based instruments</p> | <p>2008- onwards</p> | <p>P0.15 per LGU</p> | <p>RPPFs – RDCs for approval PPFs – HLURB for approval CLUPs – LGUs, Sangguniang Bayan and Sangguniang Panlalawigan for approval DENR-MBEMP, LGU LGUs, RDC & HLURB (adopting) LGUs (adopting)</p> | <p>RA 7160 RA 8550 Land Use Code</p> |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|---|---|------------------|---|---|---|
| 7. Implement Manila Bay Area's integrated land and sea-use plan | Work and financial plan Monitoring and evaluation system Institutional arrangements, including list of agencies and concerned sectors, and the roles and responsibilities of each agency/sector | 2007- onwards | P5 (for M&E) | Lead Agency: MBEMP/PCC Cooperating Agency: DENR, EMB, LLDA, MGB, NWRB, NAMRIA, LGUs, DILG,HLURB, HUDCC, NHA, NEDA, DA, BFAR DOST, PHIVOLCS, PCWARD, PAGASA DOTC, PCG, PPA, MARINA, DPWH Civil society groups Private sector, Academe, FARMCs, DFA-MOAC and concerned financing institutions | - RA 8850: Fisheries Code - RA 7586: NIPAS Act - Land Use Code - Public Land Code - PD 1067: Water Code |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|--|---|---------------|---|---|---|
| Objective 2: <i>Establish appropriate institutional arrangements to oversee, coordinate and guide the implementation of Manila Bay Coastal Strategy and Operational Plan by 2007.</i> | | | | | |
| 1. Study/assess existing policies, legislations and administrative arrangements, review needs and objectives, and conduct social/stakeholder analysis to identify options on institutional arrangements for the management of the Manila Bay Region. | Report on institutional arrangement, which includes: analyses of policy, legal, regulations and organizational, stakeholders and social aspects Recommendations on appropriate institutional arrangement and supporting legal and financing mechanisms | 2005 | P2.5 | Lead Agency : DENR Cooperating Agency: LLDA, PRRC, EMB, MGB, NWRB, PAWB, LGUs, DILG, DA, DOTC, PCG, PPA, DPWH, DOST, DOT, PRA, NHA, HLURB, HUDCC, NHI, NCCA, NEDA, DFA-MOAC, DOH | Sustainable Development for the Seas of East Asia (SDS-SEA) |
| 2. Strengthen Project Coordinating Committee (PCC) as interim body to coordinate the implementation of the Manila Bay Coastal Strategy and its Operational Plan until the Manila Bay Sustainable Development Council is established. | Revised DAO (Amending DAO 2002-33) | 2005 | P0.15 | Lead Agency: DENR - MBEMP and PCC Cooperating Agency/Institution Concerned Funding Institutions | |
| 3. Formulate and adopt a policy framework declaring Manila Bay as "Water Quality Management Area" with a governing board (in accordance with the provisions of the Clean Water Act). | Policy Framework | 1st Qtr 2006 | P0.25 | Lead Agency: DENR - MBEMP and PCC | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY /INSTITUTION | ENABLING POLICIES/LAWS |
|--|--|-------------------------------------|---|--|---------------------------|
| 4. Draft appropriate institutional arrangements and legal mechanism. | Draft EO/AO/RA | 1st Qtr 2006 | | Lead Agency : DENR, MBEMP PCC, Cooperating Agency: other concerned stakeholders | |
| 5. Lobby for the approval of the proposed institutional arrangements | Approved EO/AO/RA | 2nd Qtr 2006- 4th Qtr 2006 | | Lead Agency : BEMP PCC | |
| 6. Operationalize/implement the approved/appropriate institutional arrangement (staffing, budgeting) | Functional Institutional Arrangement implemented (office, staff, budget) | 2007- onwards | | Lead Agency : DENR Cooperating Agency: DBM, Congress, other concerned agencies and funding institutions | |

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| Objective 3: Develop, set-up and operationalize Integrated Coastal Area and River Basin Management system covering 100% of the Manila Bay Region by 2010. | | | | | |
| <p>1. Develop, implement and promote the Manila Bay-Pasig River-Laguna de Bay as a model of integrated coastal area and river basin management, using ecosystem-based management approach (including classification of Manila Bay and Pasig River).</p> | <p>Integrated Coastal and River Basin Management Model with strategic management framework, with institutional arrangement, workplan and information management and network system (IMS, Manila Bay Information Network or MBIN)</p> <p>No. of LGUs adopting the model</p> <p>Manila Bay and Pasig River classification</p> | <p>2006 onwards</p> | <p>P275</p> | <p>Lead Agency : DENR & MBEMP</p> <p>Cooperating Agency: LLDA, PRRC, LGUs, DPWH, DILG, MMDA, NWRB, NIA, DFA-MOAC and concerned funding institutions</p> | <p>- RA 9275: Clean Water Act</p> <p>- PD 984: Pollution Control Law</p> <p>- Sustainable Forest Management (EO 318)</p> <p>- LLDA Law</p> <p>- RAMSAR Convention</p> <p>- RA 7160 (Local Gov't. Code</p> <p>- RA 8550 (Fisheries Code</p> |

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|--|---|--------------------|---|---|---------------------------|
| <p>2. Conduct the following activities:</p> <ul style="list-style-type: none"> - rapid appraisal - consultations - identification of key areas of concern - classification/re-classification of each river system, and - develop/formulate a criteria for prioritization <p>for the enumerated major river systems:</p> <ul style="list-style-type: none"> a. Pampanga River b. NCR Rivers (Parañaque, Las Piñas, Zapote rivers) c. Navotas-Malabon-Tulahan-Tenejeros d. Maragondon River (Cavite) e. Talisay River (Bataan) f. Angat Watershed and tributaries/major rivers g. Pasig-Marikina-San Juan (PAMARISAN) River h. Pasag River (Sasmuan, Masantol, Macabebe Pampanga) i. Pasig-Potrero River (Pampanga) j. Porac-Gurmain River (Pampanga) k. Imus River (Cavite) | <ul style="list-style-type: none"> o Rapid appraisal reports o Criteria for prioritization for rehabilitation and sustainable development o Directives (DAO) for the classification/ re-classification of rivers, Laguna de Bay & Manila Bay, and corresponding standards and criteria | <p>2006 – 2008</p> | <p>P10</p> | <p>Lead Agency : DENR (NCR, R3, R4),</p> <p>Cooperating Agency: FMB, DPWH, NWRB, LLDA, LGUs, MWSS and concessionaires, NIA, NPC, DA, MMDA, DILG, LWUA, NEDA, RDCs, PRRC</p> | |

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|---|---|---------------------------|---|---|--|
| <p>3. Develop the integrated coastal area and river basin management plan and include required institutional arrangements and information network for the river systems identified in Activity 2.</p> | <ul style="list-style-type: none"> o Integrated land and sea-use plan o Strategic management framework and plan, with institutional arrangement, programs and workplan for each river system developed o Updated Upper Pampanga River Basin and Angat watershed management plan: integration of downstream rivers/tributaries into Angat Watershed program developed o IIMS institutionalized and MBIN in place | <p>2006 - 2007</p> | <p>P12</p> | <p>Lead Agency : DENR (NCR, R3, R4) Cooperating Agency LGUs, FMB, DPWH, NWRB, LLDA, MWSS and concessionaires, NIA, NPC, DA, MMDA, DILG, LWUA, NEDA, RDCs, PRRC</p> | |
| <p>4. Implement the integrated coastal area and river basin management plan of each river system Include: - IIMS and Information Network - restoration/rehabilitation of habitats and resources - integrated land- and sea-use zoning - marine sanctuaries, riverside parks - investment opportunities in environmental facilities and services - existing projects</p> | <p>No. of river systems with Institutional arrangements in place (e.g., MOA, MOU, etc.) No. of LGUs implementing the integrated coastal area and river basin management plan Operational IIMS and MBIN</p> | <p>2007 - onwards</p> | <p>(refer to activities of other issues)</p> | <p>Lead Agency : DENR (NCR, R3, R4), Cooperating Agency: FMB, DPWH, LGUs, NWRB, LLDA, MWSS, concessionaires, NIA, NPC, DA, MMDA, DILG, LWUA, NEDA, RDCs (R4, R3, NCR), PRRC, EMB, DFA- MOAC and concerned funding institutions</p> | <p>- RA 9275: Clean Water Act - PD 984: Pollution Control Law - Sustainable Forest Management (EO 318) - LLDA Law - Ramsar Convention - UNCLOS</p> |

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| <p>5. Set-up and implement ICM in each coastal province, city and municipal government around the Bay area</p> | <p>ICM integrated into the local development plans and programs and annual workplan and budget</p> <p>EO designating an office [Project Management Office (PMO)] as ICM implementing unit, including staff and budget</p> <p>ICM Work and Financial Plan</p> <p>% or amount of LGU budget allotted to ICM implementation</p> <p>ICM Council established in each LGU</p> | <p>2006 onwards</p> | <p>At Least 2% of the 20% Development Fund, specifically for ICM, and other funding sources</p> | <p>Lead Agency : LGUs Environmental Office</p> <p>Cooperating Agency: DENR, DA-BFAR and DILG</p> | <p>- RA 9275: Clean Water Act</p> <p>- PD 984: Pollution Control Law</p> <p>- Sustainable Forest Management (EO 318)</p> <p>- LLDA Law</p> <p>- Ramsar Convention</p> <p>- RA 8550:</p> |

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| 6. Replicate best ICM practices | <p>Number of ICM programs replicated and implemented in partnership among LGUs, private sector, civil society groups and communities</p> <p>Number of LGUs with integrated waste management implemented in partnership with other sectors</p> <p>Number of LGUs with habitat/resource restoration and conservation projects</p> <p>Number of sanctuaries established</p> <p>Number of industries with voluntary agreements to reduce pollution discharges</p> <p>Number of industries with environmentally and socially responsible projects</p> <p>Length of coastlines with sustainable beach management program</p> | 2006-onwards | P2.5/LGU/year | <p>Lead Agency : LGUs, communities, private sector, civil society , concerned groups,</p> <p>Cooperating Agency: DENR, DILG, DA-BFAR and concerned funding institutions</p> | <p>- RA 7160: Local Government Code</p> <p>DAO on PEPP</p> |

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| Objective 4: <i>Create awareness, build capacity and mobilize at least 50% of the coastal communities to participate in activities related to the implementation of the MBCS by 2010.</i> | | | | | |
| 1. Conduct stakeholder analysis and awareness assessment of different stakeholders (local community, school children, local and national political leaders and functionaries, civil society, private) consistent with the Advocacy and Communications Plan of MBEMP. | Awareness assessment report prepared | 2005-2006 | P1.5 | Lead Agency: DENR, MBEMP PMO, SMOs, Cooperating Agency : Member Agencies, LGUs, DepEd | |
| 2. Update communication plan for the Manila Bay Coastal Strategy and its Operations Plan <ul style="list-style-type: none"> a. Target audience b. Strategy c. Programs d. Milestones e. Responsible offices f. Budgetary requirements | Updated Communication Plan | 2005-2006 | P1 | Lead Agency: DENR, MBEMP TWG Cooperating Agency: Member Agencies, KBP, PIA, LGUs | |
| 3. Integrate lessons on pollution prevention, waste management as well as the protection of important natural and unique geological areas, historical, cultural, religious and architectural landmarks in the curriculum of primary, secondary and tertiary schools (focus on Manila Bay), and environmental activities in the NSTP/CWTS. NSTP – National Service Training Program CWTS – Civic Welfare Training Service | Special Lessons/Modules on Manila Bay in: <ul style="list-style-type: none"> - ENR Modules (ECO-CORPS and Dalaw Turo) - Primary and secondary school curriculum DAO MOA among DepEd, CHED, TESDA, DENR and schools | 2005 - onwards | P0.15/year | Lead Agency : Department of Education (DepEd) & DENR Cooperating Agency : NCCA, LGUs, Academe, DFA-MOAC | |

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|--|--|---------------------------|---|---|---------------------------|
| <p>4. Organize and implement activities for school children/youth, e.g., ecological camps, youth fora, essay writing, drawing/painting contest, tree planting, coastal and river clean up, slogan and poster contest to build awareness and mobilize participation for the long-term management of pollution and the natural/ecological, economic and social values of Manila Bay region</p> | <p>Number of events organized Number of participants</p> | <p>2006 - onwards</p> | <p>P3/year</p> | <p>Lead Agency: DepEd & DENR Cooperating Agency : Public and private schools within the Manila Bay Region Parents- Teachers Associations Boy Scouts of the Phil. And the Girl Scouts of the Phil. Private foundations and donors</p> | |

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| <p>5. Conduct Information, Education, and Communication (IEC) and advocacy program for national and local legislators, policy-makers, educators, industries, civil society groups, and other stakeholders</p> <ul style="list-style-type: none"> • <i>Conduct of Manila Bay Summit</i> • <i>Disseminate policy briefs, case studies, and other IEC on:</i> <ul style="list-style-type: none"> - pollution prevention and waste management (solid waste, sewage and industrial wastewater, toxic and hazardous waste) - restoration/rehabilitation, protection/conservation and management of habitats, natural values, historical, cultural, religious and architectural landmarks, and archaeological and unique geological sites in Manila Bay region - aquaculture zones, quota system and appropriate aquaculture methods and practices and their benefits - environmental impacts of unregulated application of feeds (inappropriate type of feeds, over-use of feeds) - impacts of illegal logging and deforestation and measures to restore forests and mangroves - impacts of illegal, destructive and unregulated fishing, and measures to address sustainable fisheries in Manila Bay region - tree planting and coastal and river clean-up activities among schoolchildren, youth, communities, civic and non-government organizations, private sector and LGUs - impacts of over-extraction of groundwater - water recycling and water use reduction - international conventions, national laws and regulations related to protection and management of the environment, natural resources and historical and cultural sites | <p>Number and percent of District Representatives, Local Chief Executives and Sanggunian members oriented on the Manila Bay Coastal Strategy and related other Plans</p> <p>Number of publications and IEC materials</p> <p>LGUs Speakers Bureau/Pool organized and trained</p> | <p>2005 - onwards</p> | <p>P0.5/year</p> | <p>Lead Agency : MBEMP, DENR, LGUs, PIA, KBP</p> <p>Cooperating Agency: concerned agencies, media, Private Sector, Civil Society groups, MWSS</p> | |

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| <p>- the contents of the CLUP, especially among those involved in processing building permits, housing permits, business permits, ECCs, etc., as well as the various enforcement groups (e.g., Bantay Dagat groups, etc.)</p> | | | | | |
| <p>6. Organize and implement community activities (civil society, industries, and other stakeholders) e.g., ecological camps, fora, essay writing, drawing/painting contest, tree planting, coastal and river clean up, bird watching, slogan and poster contest to build awareness and mobilize participation for the long-term management of pollution and the natural/ecological, economic and social values of Manila Bay region</p> | <p>Number of events organized</p> <p>Number of participants</p> <ul style="list-style-type: none"> - LGUs - Civil society - Industries - Other stakeholders <p>Number of bills / local resolutions and ordinances passed that are consistent with the Manila Bay Coastal Strategy</p> <p>Amount of Provincial Development Fund (PDF) allocated for coastal and watershed management project in Manila Bay Region</p> | <p>2006 - onwards</p> | <p>P0.30/year/LGU</p> | <p>Lead Agency :DepEd, DENR, & LGUs</p> <p>Cooperating Agency: Public and private schools within the Manila Bay Region</p> <p>Parents-Teachers Associations, Boy Scouts of the Phil. And the Girl Scouts of the Phil.</p> <p>Private foundations and donors</p> <p>LGUs, Industries</p> | |

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|--|---|---------------------------|---|--|---------------------------|
| <p>7. Conduct capacity-building activities, including training workshops and pilot programs on alternative livelihood, for fisherfolks, aquaculture owners and operators, farmers, livestock growers, upland dwellers, informal settlers, industries, government employees, civil society groups, pollution officers, etc. on environmentally-sound practices, alternative livelihood programs, environmental monitoring, environmental management, and monitoring and evaluation programs</p> | <p>Number of training workshops Number of trainees Number of pilot program conducted</p> | <p>2006 – onwards</p> | <p>P3/year</p> | <p>Lead Agency: DENR Cooperating Agency: Concerned NGAs, LGUs, NGOs and other civil society groups, private sector, Bantay Dagat, FARMCs & PCAPI</p> | |
| <p>8. Promote corporate environmental and social responsibility in the private sector</p> | <p>Number of companies with CSR programs/projects Number of companies assisting in the advocacy of ICM and integrated river basin management programs and activities</p> | <p>2006 - onwards</p> | <p>P0.5/year</p> | <p>Lead Agency : DENR, Cooperating Agency: Concerned NGAs, LGUs, NGOs and other civil society groups, private sector, resort owners and developers, PCAPI & PCCI*</p> | |

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| Objective 5: <i>Increase to at least 75% the number of LGUs within the Manila Bay region implementing development and investment programs through Public - Private Partnerships (PPP) by 2010.</i> | | | | | |
| 1. Identify, document and disseminate to local officials, legislators, key NGAs, GFIs, and other stakeholders best practices involving partnership arrangements and experiences (within the Manila Bay Region and outside) | Documentation on Lessons Learned and Best Management Practices | 2006 | P0.5 | Lead Agency : MBEMP, DENR Cooperating Agency: LGUs, DILG, DTI, NGOs/civil society groups, NEDA, DOF, financing institutions | - RA 7160: Local Government Code - BOT Law - RA 9275: Clean Water Act - RA 9003: Ecological Solid Waste Management Act - AFMA - RA 6969: Toxic Substances and Haz Waste Control Act - DENR AO 2003-14: Creation of the Philippine Environment Partnership Program (PEPP) |
| 2. Develop guidelines on alternative partnership arrangements applicable to the Manila Bay Region for the implementation of environmental investment projects | PPP guidelines developed | 2006 | P0.25 | Lead Agency : DENR Cooperating Agency : DILG, DOF, DTI, financing institutions, NEDA (NCR, Region 3 and Region 4A) | |
| 3. Implement capacity-building programs for national government, LGUs and financing institutions to engage in PPPs and enhance private sector investments in pollution reduction and resource conservation projects | Number of LGUs trained/ assisted Action plans developed and implemented Number of community beneficiaries capacitated | 2006 – Onwards | P0.3/LGU | Lead Agency : DTI Cooperating Agency: NEDA, DILG, DENR, DOF, and LGUs | |

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|---|---|---------------------|---|---|---------------------------|
| <p>4. Identify environmental investment opportunities and develop environmental investment packages/project proposals, and incentives (including appropriate guarantees, user-fee system and other cost-recovery scheme) to allow private investor participation</p> | <p>Investment Opportunities identified Project proposals prepared</p> | <p>2006</p> | <p>P1</p> | <p>Lead Agency : DENR, NEDA, DOF, DBM, GIFs, and key GOCCs Cooperating Agency: DTI-BOI, LGUs, DILG</p> | |
| <p>5. Conduct pre-feasibility studies, willingness-to-pay surveys and stakeholder consultations to assess viability and include the viable projects in the LGUs' Local Development Plan of the projects for private sector participation.</p> | <p>Pre-feasibility studies developed Willingness-to-pay surveys and stakeholder consultation workshops conducted</p> | <p>2006 onwards</p> | <p>P2/project</p> | <p>Lead Agency: DENR & LGUs Cooperating Agency: NEDA, DTI, and other concerned agencies</p> | |
| <p>6. Negotiate and enter into agreements (with supporting resolutions and ordinances) with potential partners (local private partners, foreign donors, etc.) as well as financing institutions to develop, finance and implement the environmental investment projects</p> | <p>Investors Roundtable (or similar event to call for Expression of Interest and Partnership Proposals) conducted Partnership Proposals package (from the private sector) Public hearings conducted MOAs/MOUs forged Joint-venture agreements/joint-venture companies established</p> | <p>2006 onwards</p> | <p>P0.15/year</p> | <p>Lead Agency: LGUs, NEDA and DENR Cooperating Agency: private sector, communities, civil society groups, financing institutions, donor agencies, MWSS</p> | |

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| 7. Monitor and evaluate compliance to partnership commitments | Monitoring and Evaluation (M&E) Report prepared | 2006 onwards | P0.1/project | Lead Agency: Concerned implementors Cooperating Agency : Financing institutions, NEDA, & DTI | |

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| Objective 6: Reduce by 25% the illegal settlements, establishments and structures along coastlines, riverbanks and waterways by 2010 and prevent future reoccupation of these areas. | | | | | |
| 1. Conduct inventory and assessment of structures, establishments and illegal settlements along coastlines, riverbanks and waterways. | Inventory and assessment report prepared | 2006 | P0.5 | Lead Agency: LGUs Cooperating Agency ; DENR, DILG, LLDA, PCG, PPA, DA, DOE, DOT, DPWH, NGOs, NHA | - Public Land Code - Land Use Code - PD 1067: Water Code - RA 8974: Right-of-Way Act |

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|--|--|---------------|--|--|---------------------------|
| 2. Develop investment/financial plan on the: <ul style="list-style-type: none"> a. removal/relocation of structures and settlers (legal and illegal) b. development of relocation of sites and livelihood programs for relocated settlers, and c. rehabilitation and protection of important natural, social and cultural sites along the coastlines, riverbanks and waterways. | Investment and financial plan developed | 2006 | P1 | Lead Agency: HLURB, GFIs, DTI & LGUs Cooperating Agency: DENR, LLDA, DA, DOT, DILG, NCCA, NHA, DSWD, DPWH and concerned funding institutions | |
| 3. Implement a program for the relocation of informal settlers living along the coastlines and waterways to meet the allowable TDLs/reduction targets. | Number of informal settlers relocated Number of kilometers of coastlines and waterways cleared of informal settlers | 2006 – 2010 | P5/LGU/year (excluding cost of land acquisition for resettlement site) | Lead Agency: LGUs Cooperating Agency: NHA and PAG-IBIG, PNP, DILG, MMDA, DENR, HLURB, DSWD | |
| 4. Develop and issue regulations, standards and guidelines concerning buffer setback zoning in beach areas, and allocation of areas for public recreational use, and building of tourism and port facilities. | Administrative Order Standards and guidelines Resolutions and ordinances Maps on setback zones Stakeholder consultations | 2006-2007 | P0.5 | Lead Agency: LGUs, DENR Cooperating Agency: DILG, HLURB, DOT, DOTC, PPA, PRA, NCCA | |

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|---|--|---------------|---|--|---------------------------|
| <p>5. Implement buffer and setback zones along the beach/shores in accordance with the Integrated Kand and Sea Use Plan</p> <p>This includes the:</p> <ul style="list-style-type: none"> • adoption of the action plan and zoning scheme for the beach areas and foreshore areas • removal/relocation of structures in the zoned area • setting up of protected areas/ sanctuaries for shorebirds and nesting sites of marine turtles • setting of appropriate berthing areas for artisanal fishing boats and jetties for coastal tourism establishments and industries | <p>Resolutions/ordinances</p> <p>Annual work and financial plan</p> <p>Monitoring and evaluation system</p> <p>Buffer/setback zone established</p> | 2007 onwards | P0.5/year | <p>Lead Agency: LGUs</p> <p>Cooperating Agency: DILG, NHA, HUDCC, HLURB, DENR, DOT, DA, DOTC, PPA, PRA, NCCA, PNP, POs</p> | |

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| Objective 7: Develop and implement a Natural Hazards Contingency, Preparedness and Quick-Response System for the Manila Bay Region by 2008. | | | | | |
| <p>1. Develop natural hazards map and identify risk and hazard-prone areas (flooding, land subsidence, earthquake, faultlines, volcanic eruption, lahar flow, flash flood and landslides, forest fires, tsunamis, red tide, fish kill)</p> | <p>Natural hazards map developed</p> <p>Note: As per MMDA, natural hazards map for Metro Manila is already available</p> | 2006 | P1.5 | <p>Lead Agency: DENR/MGB, NAMRIA, & PHILVOLCS</p> <p>Cooperating Agency: EMB,</p> | <p>NDCC (1974) and local disaster coordinating council</p> <p>Local ordinances</p> <p>RA 7160 (Local Govt</p> |

| | | | | | |
|---|---|------------------|--------------|---|--------------|
| <p>2. Review the National Disaster Coordination Plan, and assess in relation with the needs of the Manila Bay Region</p> | <p>Assessment Report (with recommendations) prepared</p> | <p>2006</p> | <p>P0.25</p> | <p>PAGASA, LLDA, DOST, MMDA, BFAR, NCCA, National Museum, NDCC, MARINA, LGUs, DILG, PNP, DSWD, DOTC, PCG, Academe, DFA-MOAC</p> | <p>Code)</p> |
| <p>3. Develop a Natural Hazard Contingency Plan and Response System with concerned agencies and sectors</p> <ul style="list-style-type: none"> a. Identify the ecosystems, human settlements, and historical, cultural, religious, architectural, archeological and unique geological sites that are at risk or in hazard-prone areas b. Identify and develop mitigation measures c. Develop response system | <p>Hazard Contingency Plan, Preparedness and Quick-Response System developed</p> | <p>2006</p> | <p>P2.5</p> | <p>Lead Agency: LGUs</p> <p>Cooperating Agency: DENR, MGB, EMB, LLDA, DOST, PAGASA & other concerned agencies</p> | |
| <p>4. Adopt and implement the contingency plan and response system.</p> | <p>Contingency Plan and Response System adopted and implemented Executive Order/Administrative Order issued No. of MOA among concerned agencies and sectors adopted Resolutions and ordinances passed</p> | <p>2006-2007</p> | <p>P5</p> | | |

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| Objective 8: Develop and institutionalize a performance monitoring and evaluation system for Manila Bay Region by 2007. | | | | | |
| 1. Develop appropriate monitoring and evaluation system for the Manila Bay Region <ol style="list-style-type: none"> a. Review and assess existing monitoring and evaluation (M&E) programs b. Incorporate the output of the Pilot Integrated Environmental Monitoring Program (IEMP) and Risk Assessment including performance indicators/standards c. Delineate and clearly define roles and responsibilities of LGUs, NGAs, private sectors, communities in the monitoring and evaluation of programs/projects/activities in Manila Bay | Assessment Report prepared M&E System developed Performance M&E System Manual developed | 2006-2007 | P1 | Lead Agency: MBEMP Cooperating Agency: PCC members | |
| 2. Institutionalize the M&E system developed. | No. of MOAs created and signed among agencies/ institutions adopting the M&E system developed Resolutions and ordinances passed | 2006 onwards | P0.5 | Lead Agency: MBEMP Cooperating Agency: PCC members | |
| 3. Institutionalize the IIMS and MBIN | Accessible and functional IIMS and MBIN <ul style="list-style-type: none"> - Hardware purchased - Manpower - Database updated | 2005- onwards | P0.5/year Note: Provision of budget/ counterpart funds to all agencies involved | Lead Agency : All MBIN member agencies Cooperating Agency : PCC members | |

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|--|---|------------------|---|--|---------------------------|
| 4. Conduct training on capacity-building of stakeholders (LGUs, communities, national government agencies, etc.) on M&E; IIMS | Number of stakeholders capacitated No. of Stakeholders' training on M&E and IIMS conducted | 2006- onwards | P0.05/training | Lead agency: MBEMP Cooperating Agency: PCC members | |
| 5. Mobilize communities (including indigenous peoples, women, and other vulnerable sectors) and other stakeholders for data generation, monitoring, law enforcement, etc. | No. of communities mobilized | 2006- onwards | P0.15/LGU | Lead Agency: LGUs & NGOs Cooperating Agency: LGUs,,PCC members | |
| 6. Develop voluntary agreements (e.g., self-regulation, disclosure, etc.) with industries, hospitals, commercial and tourism enterprises operating in the Manila Bay area | No. of adopted/created/signed MOAs | 2006- onwards | P0.15/year | Lead Agency: LGUs Cooperating Agency: PCCI, private sector, DOH, DTI, DENR, DOT | |
| 7. Assist industries towards implementation of Environmental Management System (EMS) and pollution prevention programs through Phil Environment Partnership Program (PEPP) | No. of industries assisted with EMS and pollution prevention programs | 2006 onwards | P0.15/year | Lead Agency: DENR Cooperating Agencies: LGUs, PCC members, PCCI, MAP, private sector | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|---------------------|---|--|---------------------------|
| <p>8. Implement the <i>Eco-watch</i> and <i>Baywatch</i> programs as monitoring and incentives programs (including regular fora, web-based and public consultations)</p> | <p>Number of ecowatch and baywatch ratings issued No. of electronic-group organized (ex. Yahoo groups) No. of Public fora conducted Round table/square table discussion etc. conducted Manila Bay "tool box" installed in the webpage</p> | <p>2005 onwards</p> | <p>P0.5/year</p> | <p>Lead Agency : Concerned implementers Cooperating Agency: LGUs, PCC members, DOT, PCG, MARINA</p> | |

WATER POLLUTION

| <p>Table 5.1 Strategies and Action Programs to Address Water Pollution in the Manila Bay Coastal Strategy</p> | |
|---|---|
| <p>Issues/Areas of Concern</p> <p><i>Quality of life</i></p> <ul style="list-style-type: none"> - <i>health</i> - <i>food security</i> | <p>Strategy: Protect</p> <p><i>Objective 1:</i> Upgrade and maintain the quality of health among the users and beneficiaries of Manila Bay by providing food security among coastal communities by:</p> <p><i>Action Programs:</i></p> <ol style="list-style-type: none"> 1. Employing the environmental risk assessment process to identify priorities and linkages between human activities and public health effects; 2. Improving the water quality of Manila Bay to a Class SA (shellfisheries, tourism, marine parks and reserves) water body; and, 3. Providing adequate and safe water supply to urban and rural communities. |
| <p><i>Sea-based sources of pollution</i></p> | <p>Strategy: Mitigate</p> <p><i>Objective 1:</i> Management of sea-based activities that cause damage to the marine environment</p> <p><i>Action Programs:</i></p> <ol style="list-style-type: none"> 1. Prevent operational and accidental pollution from shipping and port activities in Manila Bay by: <ul style="list-style-type: none"> • Instituting a navigational safety and traffic management system; • Integrating coastal navigational routes into land-and-sea-use zonation plans; • Requiring the use of environment-friendly anti-fouling compounds on ship hulls and marine equipment, and monitoring the tributyltin content of anti-foulants; • Establishing oil and chemical response systems, and strengthening cooperative arrangements with the private industries and communities for monitoring and controlling extensive damage to coastal and marine resources resulting from operational and accidental spills and discharges; • Establishing shore reception facilities, and ensuring appropriate equipment are in place on vessels and in terminals and ports; • Formulating and implementing guidelines and auditing systems for port and terminal operations; and • Applying appropriate technologies and processes to prevent and monitor the intrusion of all forms of alien and invading species via ballast water. |

Table 5.1 Strategies and Action Programs to Address Water Pollution in the Manila Bay Coastal Strategy

| Issues/Areas of Concern | |
|---|--|
| <p><i>Land-based sources of pollution</i></p> | <p>2. Manage dredging and reclamation activities by:</p> <ul style="list-style-type: none"> • Formulating guidelines and means of enforcing rules for dredging and reclamation operations, with consideration to the impacts on resource values, human health and the land-and-sea-use zoning system; and • Assessing environmental risks of dredging and land reclamation within the context of ecosystem management and public benefit. <p>3. Control ocean dumping by:</p> <ul style="list-style-type: none"> • Defining the carrying capacity of Manila Bay as a potential site for ocean dumping of wastes and other matter, in accordance with the London Convention; and • Formulating implementing rules and monitoring and enforcement mechanisms to prevent uncontrolled ocean dumping of wastes and other matter in Manila Bay, in accordance with the London Convention. <p>4. Counter improper aquaculture practices by:</p> <ul style="list-style-type: none"> • Identifying areas for near- and off-shore aquaculture and mariculture activities, and integrating these areas into land-and-sea-use plans; and • Formulating regulatory and economic instruments to ensure appropriate aquaculture and mariculture production in relation to sustainability, carrying capacity of Manila Bay, and tradeoffs with other uses of the Bay. <p>Strategy: Mitigate <i>Objective 2: Reduction of adverse impacts from land-based activities</i> Action Programs:</p> <ol style="list-style-type: none"> 1. Mitigate and manage direct and indirect discharges of contaminants to water, air and land by: <ul style="list-style-type: none"> • Setting agreed targets for the reduction of: <ul style="list-style-type: none"> - Emissions of major air pollutants; - Wastewater discharges and contaminant loadings (pathogens, sediment, nutrients, pesticides, persistent organic pollutants, oil and grease, heavy metals, and other toxic and hazardous materials); and, - Solid waste generation . • Formulating and implementing comprehensive waste management programs, including provisions (regulations and economic instruments) for the development of facilities for the collection, recycling, processing and safe disposal of: |

Table 5.1 Strategies and Action Programs to Address Water Pollution in the Manila Bay Coastal Strategy

| Issues/Areas of Concern | |
|---------------------------------|---|
| <p><i>Lack of awareness</i></p> | <ul style="list-style-type: none"> - Wastewater from industrial and municipal sources; - Solid waste; - Toxic and hazardous waste; and, - Agricultural (e.g., poultry and livestock) wastes. <ul style="list-style-type: none"> • Setting up an integrated system to address stormwater and runoff from urban, industrial and agricultural areas and rivers; and • Controlling harmful air emissions from mobile and stationary sources. <p>2. Control the indiscriminate use of pesticides, fertilizers and other chemicals by:</p> <ul style="list-style-type: none"> • Enforcing the Toxic and Hazardous Waste Act (RA 6969) and formulating policies on pesticides, herbicide and fertilizer use, including the setting of targets to reduce and ultimately phase-out the use of these chemicals; • Implementing the integrated pest management approach in agricultural production, and adopting alternative technologies like organic farming and planting of insect repellent trees; and • Building understanding and capacity in the proper application and management of pesticides, including the management of used packaging and containers and residual pesticides. <p>Strategy: Communicate Objectives: (with specific action programs)</p> <ol style="list-style-type: none"> 1. Awareness and understanding of stakeholders of their rights and responsibilities, and priority issues concerning coastal and marine environment of Manila Bay 2. Public access to available information, including results of research and development activities, environmental monitoring, and other studies and projects relevant to the development of Manila Bay 3. Multisectoral stakeholders as partners in the planning and management of Manila Bay coastal and watershed areas 4. Effective coordination and networking among stakeholders 5. Stakeholders advocating environmental management in Manila Bay <p><i>Action Programs:</i> Institutionalize IEC campaigns, such as: <i>Kontra Kalat sa Dagat</i> (Bataan); <i>Bawas Basura</i> Project and <i>Kalingain, Sagipin at Linisin ang Ilog at Kapaligiran Natin</i> (Malabon); and Clean and Green</p> |

Table 5.2 Priority Risks and Areas of Concern of Water Pollution in the Initial and Refined Risk Assessments for Manila Bay

| <i>Water column</i> | <ul style="list-style-type: none"> • Coliforms • Nutrients (phosphates) • Pesticides (e.g., heptachlor) • Oil and grease |
|------------------------------------|--|
| <i>Sediments</i> | <ul style="list-style-type: none"> • Heavy metals (Mercury, Copper) • Pesticides • Polyaromatic Hydrocarbons (PAHs) |
| <i>Tissue (fish and shellfish)</i> | <ul style="list-style-type: none"> • Coliforms • Heavy metals • Pesticides • Toxic algal blooms |

Table 5.3 Action Plan for the Water Pollution

GOAL: Protect the waters in Manila Bay and its tributaries (rivers and lakes) and ensure that they are safe for various uses (e.g., recreation, irrigation, transportation, fisheries and other living resources, source of potable water).

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITUTION | ENABLING POLICIES/LAWS |
|--|--|---------------|---|--|---|
| Objective 1: Reduce by 50% the discharges of raw sewage, septage and untreated and inadequately treated wastewater (i.e. commercial, industrial, agricultural, and fisheries/aquaculture) by 2015. | | | | | |
| 1. Conduct study to (a) identify point sources and determine total discharge loading (TDL) of raw sewage and other key parameters from domestic sources; (b) determine pollution loadings from fisheries and aquaculture and from farmlands & livestock industries; and, (c) determine pollution loadings from manufacturing industries and commercial establishments, into the following river systems: a. Pampanga River b. NCR Rivers (Parañaque, Las Piñas, Zapote rivers) c. Navotas-Malabon-Tullahan-Tenejeros d. Maragondon River (Cavite) e. Talisay River (Bataan) f. Angat Watershed and tributaries/major rivers g. Pasig-Marikina-San Juan (PAMARISAN) River h. Pasag River (Sasmuan, Masantol, Macabebe Pampanga) i. Pasig-Potrero River (Pampanga) j. Porac-Gumain River (Pampanga) k. Imus River (Cavite) | Study on point sources, and pollution loadings Updated Database/Integrated Information Management System (IIMS) | 2006-2007 | P2.5 per LGU / P7M for MM | Lead Agency : DENR - EMB (wastewater) Cooperating Agency : LGUs, DA, BFAR, PRRC, MWSS* (domestic source), concessionaires LLDA, DOH, DOST, PCAP, Inc. MMDA, DFA-MOAC, LWUA and Water Districts (WDs) | - RA 9275 : Clean Water Act - PD 984: Pollution Control Law - PD 856: Sanitation Code of the Phil. - RA 6541: Building Code - PD 1586 : EIS System - RA 6969: Toxic Substances and Hazardous Waste Control Act - MMDA Ordinance - RA 7279: Devt and Housing Act - PD 1067: Water Code of the Phils - Municipal/City Ordinances - RA 4850 - EO 927 - UNCLOS - PD 198 (Provincial Water Utilities Act of 1973) |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITUTION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|---|---|
| 2. Establish time-bound pollution-reduction targets for identified major point sources in the identified river systems. | Report with the targets for each identified major point source | 2006-2007 | | Lead Agency : DENR- EMB Cooperating Agency: LGUs, DA, BFAR, PRRC, MWSS and concessionaires, LLDA, DOH, DOST | - RA 9275 :Clean Water Act - PD 984: Pollution Control Law - PD 856: Sanitation Code of the Phil. - RA 6541: Building Code - PD 1586 : EIS System - RA 6969: Toxic Substances and Hazardous Waste Control Act - MMDA Ordinance - RA 7279: Development and Housing Act - PD 1067: Water Code of the Phils - Municipal/City Ordinances - RA 4850 - EO 927 - UNCLOS - PD 198 (Provincial Water Utilities Act of 1973) |
| 3. Enforce the ordinances on the installation and maintenance of adequate septic tanks on target households along the major river systems and all other areas directly or indirectly draining sewage to Manila Bay. | Adequate septic tanks installed and maintained by target households | 2006-2007 | P 0.5 | Lead Agency: LGUs, City and Municipal Engineering Office, Cooperating Agency: MWSS and concessionaires, DENR, EMB, DOH, Homeowners, Municipal Health Offices (MHOs) | |
| 4. Implement a pilot project on sewerage system in the Parañaque, Las Piñas and Zapote river system. | Sewerage system installed | 2006 – 2007 | P500 | Lead Agency : MWSS, Maynilad, Cooperating Agency: DENR, LLDA, LGUs, MMDA, DPWH | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITUTION | ENABLING POLICIES/LAWS |
|---|---|-------------------------|---|--|---|
| <p>5. (a) Prepare/update/implement investment plan/master plan for the establishment of sewerage systems/sewerage treatment plants (STPs) for the priority point sources in the other major rivers to meet the allowable TDL/reduction targets by 2015</p> <p>(b) prepare & implement Investment Plan for common waste water treatment facilities (WWTF) in key industrial areas and economic zones</p> | <p>Investment Plan; Updated strategy/ master plan (for MWSS-covered areas); Action Plan</p> | <p>2006</p> <p>2006</p> | <p>P5 per LGU</p> | <p>Lead agency : LGUs, MWSS, LWUA & WDs</p> <p>Cooperating Agency : DENR, EMB, DA, HUDCC/HLURB, PEZA, LGUs, MMDA</p> | |
| <p>6. Construct sewerage systems and centralized sewage treatment facilities (CSTF) in priority areas, including subdivisions and housing projects, based on the reduction targets and investment plan</p> <ul style="list-style-type: none"> - monitor the implementation of MWSS programs/ concessionaire projects; and - Leverage LGUs, private sector investment, national government and local and external financing sources and/or access to Manila Bay Fund | <p>Operating sewerage system and CSTF</p> | <p>2006 – 2015</p> | <p>P500 per target area</p> | <p>Lead Agency :LGUs, LWUA & WDs</p> <p>Cooperating Agency: DENR, EMB, LLDA, MWSS and Concessionaires, DOH, Land developers, CREBA</p> | <p>PD 198 (Provincial Water Utilities Act of 1973)</p> |
| <p>7. Develop guidelines, criteria, and standards for collection, treatment, recycling, and disposal of agricultural and aquaculture wastes</p> | <p>A.O. on targets, guidelines, criteria, standards</p> | <p>2006</p> | <p>P0.5</p> | <p>Lead Agency : DA- BFAR</p> <p>Cooperating Agency: DENR, EMB, LGUs</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|--|---|---------------|---|---|--|
| Objective 2: Establish integrated solid waste management plans and programs in all LGUs by 2007. | | | | | |
| 1. Reconstitute, strengthen and build capacity of functional solid waste management (SWM) Boards and Brgy. Solid Waste Committees to prepare 10-year SWM Plan | Reconstituted and/or strengthened functional SWM Boards/Committees 10-Year SWM Plans | 2006 | P3 P30 | Lead Agency: LGUs Cooperating Agency: DENR-EMB, DILG, NSWMC | - RA 9003 : Ecological Solid Waste Management Act - RA 6969 : Toxic and Hazardous Waste Management Act - RA 7160 : Local Govt Code - PD 1586 : EIS System |
| 2. Develop a Waste Management Plan for Manila Bay Region and Investment Plan for SWM systems (collection, transport, disposal, segregation, recycling, and composting) in major LGUs (cities and municipalities) - at least 1 per city/cluster of municipalities for each province - get support of key NGAs, GFIs, IFIs, and other donor agencies | Investment plan and action/workplan | 2006 | P10 | Lead Agency : LGUs & NSWMC Cooperating Agency: MMDA, DILG, DENR, EMB, NGOs, DOH, BOI, NEDA, DepEd | |
| 3. Convert existing open dumpsites into "controlled dumpsites" | Controlled dumpsites established | 2006 | P10 per site | Lead Agency: LGUs Cooperating Agency: DENR, EMB, DILG, NSWMC, DOH | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|--|---|---------------|---|--|------------------------|
| 4. Implement the 10-year SWM Plan 4.a. Establish and implement waste reduction, storage, collection, transport, disposal and treatment system for SW from household, commercial and industrial establishments | Integrated Solid waste management system established | 2006 onwards | P50 per site (for initial implementation) | Lead Agency : LGUs Cooperating Agency: EMB, DENR, MGB, DILG, NSWMMC, DOH | |
| 4.b. Construct MRFs (for sorting and recycling) and composting facilities based on Investment Plan | Operating Materials Recovery Facilities and composting facilities | 2006 onwards | P 1.5 per MRF per site | Lead Agency : LGUs Cooperating Agency: EMB, DENR, MGB, DILG, NSWMMC | |
| 4.c. Construct sanitary landfill for the disposal of residual waste. | Operating sanitary landfill | 2007 onwards | P 75 per hectare (including land) | Lead Agency : LGUs Cooperating Agency: EMB, DENR, MGB, NSWMMC | |
| 4.d Develop strategic partnership and leverage LGUs, private sector investment, national government and local external financing sources and/or access to Manila Bay Fund | Strategic partnership developed | | | Lead Agency LGUs Cooperating Agency: EMB, DENR, DILG, NSWMMC, and funding sources | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|---|------------------------|
| 5. Prohibit the operation of open dumpsites | Cases filed and resolved | 2006 | P0.5 | Lead Agency: LGUs Cooperating Agency: DENR, EMB*, MGB, DILG, NSWMMC, DOJ, IBP | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|--|--|---------------|---|---|--|
| Objective 3: Develop and implement toxic and hazardous waste management system by 2008. | | | | | |
| 1. Mandatory registration of: a. all hazardous waste generators b. importation and use of new chemicals, and update database on sources, volume of waste generated by type | Updated registration database/IIMS | 2006 onwards | P1.0 | Lead Agency EMB - DENR Cooperating Agency: LGUs, PEZA, THW generators, chemical industries, Inter-agency Technical Advisory Council, DOH, PNRI, DFA-MOAC, DOF-Bureau of Customs | - RA 6969: Toxic Substances and Hazardous Waste Management Act - Basel Convention - DENR DAO 01-2004 (?) - UNCLOS |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|--|------------------------|
| 2. Update the existing feasibility studies and implement investment plan for an integrated toxic and hazardous waste (THW) management system (collection, transport, recycling, and treatment of hazardous waste and proper disposal of treated hazardous wastes). - in special economic zones - in key industrial areas - healthcare wastes | Investment Plan for an integrated toxic and hazardous waste management system | 2006 | P10 | Lead Agency: EMB - DENR Cooperating Agency: LGUs, PEZA, Inter-agency Technical Advisory Council, NSWMC, DOH, DFA-MOAC | |
| 3. Implement the integrated storage, treatment, and disposal (STD) plan 3.a. Construct and operate a THW management facility (including collection, transport, recycling, treatment and proper disposal) | Operating Integrated STD system | 2006 onwards | P2,300 | Lead Agency : EMB - DENR Cooperating Agency :LGUs, PEZA, DOST, DOH, NSWMC | |
| 3.b. Require all generators to use the THW management facilities (integrated STD) – part of Environment Compliance Certificate (ECC) 3.c. Require all importers/exporters of THW to secure permit/clearance from EMB | Compliance to ECC Monitoring system for ECC compliance | 2006 onwards | | Lead Agency: EMB - DENR Cooperating Agency : PNRI, DOST LGUs, PEZA, THW generators | |
| 4. Implement segregation of healthcare/hospital/toxic/hazardous wastes and prevent mixing with municipal solid waste. | Number of hospital and medical institutions, and other T&H waste generators with compliance Cases filed and resolved | 2006 onwards | P 0.5 per year per LGU | Lead Agency: DOH, DENR NSWMC, Cooperating Agency: LGUs, EMB, DENR, MGB, DILG, DOH, DOJ, IBP | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|---|--|
| Objective 4: Stop sea-dumping of sewage, industrial sludge, solid waste, and contaminated dredged materials in Manila Bay by 2006. | | | | | |
| 1. Identify sea dumping activities (e.g. dredged materials, septage sludge, solid waste, toxic & hazardous waste, etc.). | Report (list, analysis) | 2006 | P0.5 | Lead Agency: PCG Cooperating Agency: MARINA, DFA-MOAC | -London Convention (LC72) - PD 979: Marine Pollution Decree (revising PD 600) - UNCLOS |
| 2. Identify companies with dumping permits. | List | 2006 | | Lead Agency : PCG Cooperating Agency : MARINA | |
| 3. Identify, develop and implement guidelines on alternative land-based disposal sites, treatment and disposal methods. | Report Guidelines | 2006 | P1.5 | Lead Agency: DENR-EMB Cooperating Agency : PCG, MARINA | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|--|------------------------|
| 4. Issue and enforce moratorium on sea dumping and prohibit future dumping - formulate implementing rules and regulation (IRR) - draft and issue A.O. | Administrative Order (A.O.) | Dec 2005 | P2.5 | Lead Agency : PCG Cooperating Agency : EMB, DPWH, MWSS, MMDA, LLDA, BFAR, DFA- MOAC | |
| 5. Revoke licenses and permits for sea dumping of sewage, industrial sludge, solid waste and contaminated dredged materials | List of revoked licenses and permits | 2006 | | Lead Agency: PCG | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|---|--|
| Objective 5: Stop discharges of operational waste (e.g., oily bilge and ballast water) from ships (cargo, passenger, tankers, fishing boats/ships, etc.) and the use of anti-fouling paints with TBTs and other harmful compounds by 2006. | | | | | |
| 1. Estimate the volume of discharges by type of waste and source | Inventory: waste – volume, type and source Database/IIMS | 2005- 2006 | P2.5 | Lead Agency : PPA Cooperating Agency : MARINA, DENR, EMB, Shipping Industry Associations, PCG, PCGA, Phil. Fisheries Development Authority, DFA- MOAC | - PD 979 (Marine Pollution Decree (revising PD 600) - RA 6969 : Toxic Substances and Hazardous Waste Management Act - MARPOL Convention (73/78) - BASEL Convention - Shipping Standards (to be researched for complete title) - UNCLOS |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU TION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|---|------------------------|
| 2. Construct/install shore reception facilities in major ports (e.g., PPA ports, Navotas fish port, Cavite ports, Bataan ports, public private ports) as part of the masterplan | Operating shore reception facilities | 2006 onwards | P25/port | Lead Agency: PPA Cooperating Agency: MARINA, BFAR, NEDA, Phil. Fisheries Dev't Authority | |
| 3. Identify environment-friendly paints and anti-fouling chemicals for all ships and boats | List of environment-friendly paints and acceptable anti-fouling chemicals | 2005-2006 | | Lead Agency: DENR/EMB Cooperating Agency: PPA, PCG, MARINA*, DOST, Phil. Fisheries Development Authority, DFA-MOAC | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENTS (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|---|--|---------------|--|--|---|
| 4. Implement guidelines on the following: (a) discharges of operational waste from ships (b) use of harmful paints and anti-fouling chemicals | A.O. and guidelines | 2005- 2006 | P0.5 | Lead Agency : PCG & MARINA Cooperating Agency : PPA, DENR, EMB, Phil. Fisheries Dev't Authority, DFA-MOAC | - PD 979 (Marine Pollution Decree (revising PD 600)) - RA 6969 : Toxic Substances and Hazardous Waste Management Act - MARPOL Convention (73/78) - BASEL Convention - Shipping Standards (to be researched for complete title) - UNCLOS |
| 5. Develop and implement "Port Safety and Environmental Management System" | Manual Implementing guidelines | 2005- 2006 | P1.5 | Lead Agency : PPA & PCG Cooperating Agency: MARINA, Fish Port Authority, Phil. Fisheries Dev't Authority, DFA-MOAC | ISPS Code Int'l Safety Management Code Nat'l Safety Management Code Fisheries Code - Standard for Training Certification and Watchkeeping (check with IMO) |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENTS (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|---|--|---------------|--|--|---|
| Objective 6: Activate a bay-wide, multi-sectoral oil spill prevention and response program by 2006. | | | | | |
| 1. Finalize and adopt the "Manila Bay Oil Spill Contingency Plan" | Manila Bay Oil Spill Contingency Plan MOA | 2005 | P0.7 | Lead Agency: DOTC, PCG Cooperating Agency : PPA, MARINA, DENR, EMB, DND, other agencies represented by TWG, petroleum companies, DFA-MOAC | -Marine Pollution Law (MARPOL) -OPRC'90 (Oil Pollution Preparedness, Response and Cooperation) to be ratified - PD 602: Creation of National Operations Center for Oil Pollution (NOCOP) -UNCLOS |
| 2. Implement the 'Masterplan for Maritime Safety' and put in place navigational aids and vessel traffic separation (VTS) scheme | navigational aids and vessel traffic separation (VTS) scheme | 2005 | P2.5 | Lead Agency : PCG Cooperating Agency : DOTC, DENR, PPA, DFA-MOAC | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENTS (In Million Pesos) | CONCERNED AGENCY/INSTITU -TION | ENABLING POLICIES/LAWS |
|--|--|---------------|--|---|------------------------|
| 3. Pilot test Manila Bay Oil Spill Contingency Plan | Oil spill emergency drills | 2006 | P0.5 | Lead Agency : PCG Cooperating Agency : DENR, EMB, DOTC, LGUs, shipping companies, petroleum companies, DND, other signatories of the MOA, DFA-MOAC | |
| 4. Promote ratification of the Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) | OPRC ratified (Senate/House bills) | 2006 | P2.5 | Lead Agency : DOTC, PCG Cooperating Agency : DENR, DFA-MOAC | |

OVER-EXPLOITATION OF RESOURCES AND DEGRADATION OF HABITATS AND HISTORICAL, CULTURAL, RELIGIOUS, ARCHEOLOGICAL AND UNIQUE GEOLOGICAL SITES

Table 6.1 Strategies and Action Programs to Address the Issue of Over-Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archaeological and Unique Geological Sites in the Manila Bay Coastal Strategy

| Issues/Areas of Concern | |
|---|--|
| Overexploitation of Resources | <p>Strategy: Protect</p> <ul style="list-style-type: none"> • Implement holistic resource management to address over-extraction of resources and destruction and conversion of habitats by applying an ecosystem management approach to all development projects • Upgrade and maintain the quality of health among the users and beneficiaries of Manila Bay by providing food security among coastal communities through fair and equitable access to adequate and safe supply of fish and seafood. |
| Habitat degradation <ul style="list-style-type: none"> • Mangroves • Mudflats • Soft bottoms • Coral reefs • Seagrass beds | <p>Strategy: Protect</p> <ul style="list-style-type: none"> • Protect and conserve biological diversity by establishing protected areas for critical habitats, and providing buffer zones around these areas and organizing community-based management of coastal habitats of Bay-wide significance <p>Strategy: Mitigate</p> <ul style="list-style-type: none"> • Manage dredging and reclamation activities by (a) formulating guidelines and means of enforcing rules for dredging and reclamation activities, with consideration to the impacts on resource values, human health and the land-and-sea-use zoning system; and (b) assessing environmental risks of dredging and land reclamation within the context of ecosystem management and public benefit. |
| Invading species | <p>Strategy: Mitigate</p> <ul style="list-style-type: none"> • Apply appropriate technologies and processes to prevent and monitor the intrusion of all forms of alien and invading species via ballast water. |
| Multiple and Conflicting uses | <p>Strategy: Mitigate</p> <ul style="list-style-type: none"> • Prevent illegal intrusion/encroachment and human settlements along waterways by providing tenurial and resource-use instruments to primary users (i.e., upland communities in watershed areas; coastal communities in coastal and marine areas), in order to sustain productivity of critical resources, and prevent destructive, illegal and conflicting use of resources |

| Table 6.1 Strategies and Action Programs to Address the Issue of Over-Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archaeological and Unique Geological Sites in the Manila Bay Coastal Strategy | |
|---|---|
| Shoreline changes | <ul style="list-style-type: none"> • degradation of shoreline areas caused primarily by reclamation activities, continuous conversion and sedimentation • shallowing of the Bay • sea level rise due to land subsidence caused by over-extraction of groundwater • salt water intrusion due to over-extraction of groundwater |
| Shoreline changes and sea level rise (due to over-extraction of groundwater) | <p>Strategy: Mitigate</p> <ul style="list-style-type: none"> • Manage dredging and reclamation activities |
| Shoreline changes (due to siltation and sedimentation) | <p>Strategy: Protect</p> <p>Provide adequate and safe water supply to urban and rural communities</p> <p>Strategy: Protect</p> <p>Institute polices and programs to curb uncontrolled developments, which affect ecosystems, such as, enforcing guidelines and regulations for road construction, construction sites and forestry to minimize erosion and sediment input.</p> |

| Table 6.2 Priority Areas of Concern and Risks in the Initial and Refined Risk Assessments for Manila Bay | |
|---|---|
| Habitats | <ul style="list-style-type: none"> • mangroves • corals • seagrass beds • benthic |
| Resources | <ul style="list-style-type: none"> • over-fishing • change in dominant composition • disappearance of the windowpane oyster • contaminated fish and shellfish (with coliform, heavy metals and pesticides) • algal biotoxins |

Table 6.3 Action Plan for the Over-Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archeological and Unique Geological Sites

Goal: Ensure protection, restoration and sustainable development of resources, habitats, natural areas, and historical, cultural, religious and archeological sites that are essential in achieving the ecological, social, and economic well-being of communities and stakeholders in the Manila Bay region.

| ACTIVITY | OUTPUT INDICATOR/ UNIT WORK OF MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|--|---|
| Objective 1: Set-up sustainable institutional arrangements and management programs in all declared Protected Areas (PAs) and Critical Habitats in the Manila Bay Region by 2007. | | | | | |
| 1. Identify and assess existing and proposed Protected Areas (PAs) and critical habitats in the Manila Bay region and key habitats and resources to be designated as Protected Areas and critical habitats, including those declared and proposed by LGUs | Assessment report of existing PAs and critical habitats, and the establishment of new PAs in the Manila Bay region List of the proposed PAs and critical habitats Consultations with LGUs and concerned stakeholders | 2005-2007 | P2.5 | Lead Agency : DENR- PAWB Cooperating Agency: NAMRIA, LGUs, DILG, DA-BFAR, NGOs, POs, Civic organizations, Academe, Communities affected, PRRC | - RA 7586: National Integrated Protected Areas System (NIPAS) Act - RA 8550: Fisheries Decree - PD 1219: Exploration and Conservation of Coral Resources - PD 1067: Water Resources Code - FAOs - Wildlife Act - EO 648 (Mandates and Functions of HLURB) - EO 111 (Guidelines in Establishing Ecotourism Development Areas) EO 64, 65 – creation of PRRC |

| ACTIVITY | OUTPUT INDICATOR/ UNIT WORK OF MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITUTION | ENABLING POLICIES/LAWS |
|---|--|------------------|--|--|--|
| <p>2. Prepare detailed Protected Area and Critical Habitat Management Plan in the Manila Bay region based on the approved integrated land and sea-use zoning plans to include but not limited to :</p> <ul style="list-style-type: none"> • Plan for the protection and restoration/rehabilitation of the following habitats: (Including guidelines, criteria and procedures) <ul style="list-style-type: none"> - coral reefs, - seagrass beds, - mangroves, mudflats - swamps (e.g., Candaba Swamps), - inland and other wetlands, and, - forests • Designation/delineation of: <ul style="list-style-type: none"> - fishing area and fish sanctuaries - mangrove and mudflat sanctuaries - sanctuaries for rare and endangered species (turtles, birds, other wildlife) - buffer zones - setback zones for beach areas - river easements - eco-tourism sites - national parks • Guidelines and criteria • Consultations with concerned government units/agencies, LGUs, NGOs, informal settlers, and other stakeholders for the finalization of the PA Management Plan and capacity building for implementation of the PA Mgt. Plan • Roles and responsibilities of each agency/sector involved in the implementation • Monitoring and evaluation system • Management of invasive species | <p>Detailed Protected Area (PA) and Critical Habitat Management Plan approved and adopted, for non-existing, and corresponding revisions for existing Plans</p> <p>Project documentations</p> <p>Revised and updated Comprehensive Land Use Plan (CLUP)</p> <p>Revised Municipal and City Plans</p> <p>Inventory of invasive species</p> | <p>2005-2007</p> | <p>P5</p> | <p>Lead Agency : DENR- PAWB</p> <p>Cooperating Agency :NAMRIA, LLDA, LGUs, DILG, HLURB, DOT, DA, PCG, DFA-MOAC (Maritime and Ocean Affairs Center), FARMCs</p> | <p>- RA 7586: NIPAS Act</p> <p>- RA 8550: Fisheries Decree</p> <p>- PD 1219: Exploration and Conservation of Coral Resources</p> <p>-PD 1067: Water Resources Code</p> <p>- FAOs</p> <p>- PD 1152 Phil. Environment Code</p> <p>- Municipal Ordinances</p> <p>- UNCLOS</p> |

| ACTIVITY | OUTPUT INDICATOR/UNIT WORK OF MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (in Million Pesos) | CONCERNED AGENCY/INSTITUTION | ENABLING POLICIES/LAWS |
|--|--|---------------------|--|---|--|
| <p>3. Establish/restore and manage designated Protected Areas and critical habitats together with LGUs, concerned NGAs, academe, private sector, donor agencies, and other stakeholders in accordance with PA Mgt. Plan</p> <p>3.1. Establish and manage sanctuaries/protected areas (e.g., fish, mangroves and mudflats, forests, swamps, birds/turtles/wildlife, etc.)</p> <p>3.2. Establish the Candaba Swamps as bird sanctuary and national park, in view of being declared as a Ramsar site</p> <p>3.3. Maintain existing national parks in each province/municipality/city, including adoption of users fee system and community-based resource management programs</p> | <p>Number and area (ha) of Protected Areas and critical habitats established</p> <p>Number and area (ha) of existing national parks maintained</p> <p>MOAs/MOUs signed by concerned stakeholders and other partners (i.e. tenurial instruments)</p> <p>Detailed annual work & financial plans for each declared protected area with corresponding physical targets for each habitats/ resources</p> <p>Resolution and ordinance adopting the PA management plan</p> <p>Annual monitoring and evaluation report</p> | <p>2006 onwards</p> | <p>P2.5/year</p> | <p>Lead Agency : DENR, PAWB & LGUs</p> <p>Cooperating Agency : DILG HLURB, DA, DOT, PTA</p> | <p>- RA 7586: NIPAS Act</p> <p>- RA 8550: Fisheries Decree</p> <p>- PD 1219: Exploration and Conservation of Coral Resources</p> <p>-PD 1067: Water Resources Code</p> <p>- FAOs</p> <p>- PD 1152 Phil. Environment Code</p> <p>- Municipal Ordinances</p> |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|---|---|
| Objective 2: <i>Implement a no net loss policy for existing mangroves, mudflats, shorelines, beaches and sandy shores by 2010.</i> | | | | | |
| 1. Review results of Integrated Environmental Monitoring Program (IEMP) and assess the condition of the existing mangrove areas and mudflats. | Assessment Report - IEMP Report - Ground truthing report - Maps - Level of rehabilitation requirements - Updated IIMS | 2005 | P1.5 | Lead Agency : DENR Cooperating Agency : DA-BFAR, DA-BSWM, NGOs, POs | - PD 705 (Phil. Forest Code) - RA 8850 (Fisheries Code) - RA 8435: Agriculture and Fisheries Modernization Act - RA 7161: Banning of Mangrove cutting - RA 7881: Coverage of Fishponds - PD 1084: reclamation projects - IPRA Law |
| 2. Prepare detailed rehabilitation and management plan for mangrove and mudflat areas Include: <ul style="list-style-type: none"> - Mangrove reforestation under the Community-based Forest Management Framework - Revert back abandoned fishponds into mangrove areas - Measures/actions to prohibit further decrease of mangrove and mudflat areas due to conversion into aquaculture and salt beds, land reclamation for human settlement, industrial development, removal for fuel wood, pollution and sedimentation as a result of upland and upstream activities, pest infestation, among others - Mobilize/strengthen community organization/associations - Monitoring and evaluation system, including list of indicators to determine whether or not objectives of the plan are achieved - Inventory of titled mangrove areas | Rehabilitation plan for - Mangrove - Mudflats Number of hectares of mangroves and mudflats covered by the plan Work and financial plan Number of hectares of titled mangrove areas inventoried | 2006 | P1 | Lead Agency : DENR Cooperating Agency: FMB, LLDA DA, BFAR, DOST-PCMARD, LGUs, DILG, PRA, PAWB, DOT-PTA, NCIP | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|--|--|
| <p>3. Conduct consultations with LGUs, NGO, IP and community stakeholders, and prepare Action Plan for the rehabilitation and sustainable development of mangroves and mudflats</p> | <p>Agreements and Action Plan prepared Report on the consultations and agreements prepared</p> | <p>2006</p> | <p>P0.5</p> | <p>Lead Agency: DENR Cooperating Agency : FMB, DA-BFAR, PNP, LGUs, DILG, PRA, NCIP</p> | <p>- PD 705 (Phil. Forest Code) - RA 8850 (Fisheries Code) - PD 704: Fisheries Decree - RA 8435: Agriculture and Fisheries Modernization Act - RA 7161: Banning of Mangrove cutting - RA 6657: Comprehensive Agrarian Reform Law - RA 7881: Coverage of Fishponds - PD 1084: reclamation projects - IPRA law</p> |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|------------------|---|---|---|
| <p>4. Implement Action Plan for rehabilitation and maintenance of mangroves and mudflats</p> <p>4.1. Organize and mobilize community organizations, associations, NGOs and private sector for the mangrove reforestation</p> <p>4.2. Restore/revert back into mangroves all abandoned fishponds</p> <p>4.3. Reforest mangrove areas through community-based management approach</p> <p>4.4. Provide livelihood programs for communities managing and protecting the mangrove and mudflat areas</p> <p>4.5. Establish Mangrove and Bird Sanctuary in the Reclamation Area (as model for eco-tourism in mangrove areas)</p> <p>4.6. Promote regular clean-up activities in the mudflat areas with the communities and LGUs</p> | <p>Number of community beneficiaries organized and mobilized</p> <p>Areas (ha) of abandoned fishponds and mudflats reverted and restored to mangroves</p> <p>Area (ha) reforested and managed through community-based approach</p> <p>Number of livelihood programs provided</p> <p>Model Mangrove and Bird Sanctuary established</p> <p>Regular clean-up activities facilitated/maintained</p> | <p>2006-2010</p> | <p>P5/year</p> | <p>Lead Agency : DENR - FMB & PAWB</p> <p>Cooperating Agency: DA-BFAR, LGUs, DILG, PRA, NGOs, POs, private sector, communities affected, civic organizations, DTI, cooperatives, TLRC, DepEd (Alternative Learning System), rural banks, DOT, PTA, NCIP</p> | <p>- PD 705 (Phil. Forest Code) - RA 8850 (Fisheries Code) - PD 704: Fisheries Decree - RA 8435: Agriculture and Fisheries Modernization Act - RA 7161 : Banning of Mangrove cutting - RA 6657: Comprehensive Agrarian Reform Law - RA 7881 : Coverage of Fishponds - PD 1084: reclamation projects - RA 9003</p> |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|---------------------|---|---|---|
| <p>5.a. Review and reconcile existing laws and ordinances on the following:</p> <ul style="list-style-type: none"> - conversion of mangroves and mudflats into fishponds and shrimp ponds - reclamation, dredging and dumping activities in mangrove and mudflat areas - cutting of mangroves and filling in of mudflat areas for resettlement, tourism, industrial and commercial areas - unify all municipal fisheries ordinances <p>5.b. Enforce the laws and ordinances.</p> | <p>Moratorium and Administrative Order issued</p> <p>Resolutions and ordinances passed</p> <p>Cases filed and prosecuted</p> | <p>2005 onwards</p> | <p>P0.25/year</p> | <p>Lead Agency: DENR</p> <p>Cooperating Agency : GUs, FMB</p> <p>DA-BFAR, DILG, DPWH, PRA, PPA, DOT</p> | <ul style="list-style-type: none"> - RA 8550 sec. 94 - RA 9003 - PD 705 (Phil. Forest Code) - RA 8850 (Fisheries Code) - PD 704: Fisheries Decree - RA 8435: Agriculture and Fisheries Modernization Act - RA 7161: Banning of Mangrove cutting - RA 6657: Comprehensive Agrarian Reform Law - RA 7881: Coverage of Fishponds - PD 1084: reclamation projects |
| <p>6. Monitor progress of the Action Plan for mangrove and mudflat rehabilitation and management</p> | <p>Monitoring and evaluation system established</p> <p>Progress/Status report on areas (ha) of mangroves and mudflats, including fishery resources (increase in catch per unit effort (CPUE) and improvement of quality, i.e., size and weight) prepared</p> <p>List of issues/concerns and recommendations</p> | <p>2006 onwards</p> | <p>P0.5/year</p> | <p>Lead Agency: DENR</p> <p>Cooperating Agency: PRA, NGOs, POs, LGU, PNP, DENR-CMMO, DA-BFAR</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|--|-----------------------|---|--|---|
| <p>7. Conduct rapid assessment of the entire stretch of shorelines along Manila Bay, and review current activities/structures, related policies, regulations and permitting system, and proposed plans, programs and projects to be implemented along the foreshore areas.</p> | <p>Rapid Assessment Report on policies, regulations, plans, program and projects</p> | <p>2006</p> | <p>P5</p> | <p>Lead Agency : DENR Cooperating Agency: LGUs, DILG, DENR, NAMRIA, MGB, Phil. Coast Guard, PRA, PPA, DOT-PTA, UP College of Engineering DPWH, NGOs, POs, PRA, Navy, DA- BFAR</p> | <p>- PD 1067: Water Code - RA 9275: Clean Water Act - RA 8550: Fisheries Code - Public Land Act, Local – - RA 7160: Government Code - PD 1067: Water Code</p> |
| <p>8. Prepare masterplan for the development of foreshore areas in accordance with the integrated land-and sea-use plan and the integrated watershed and coastal area management framework, including:</p> <ul style="list-style-type: none"> - appropriate methods for the restoration of damaged beaches/shores, and mitigation of coastal erosion; - rehabilitation and protection of mangroves, which serve as natural barriers to shoreline updrift and pro-gradation; and, - Action plan for the Manila Bay Region prepared by the stakeholders | <p>Masterplan prepared</p> | <p>2006- 2007</p> | <p>P5</p> | <p>Lead Agency: DENR Cooperating Agency: LGUs, DILG, DENR, NAMRIA, LLDA, MGB, Phil. Coast Guard, PPA, PRA, DOT-PTA, UP College of Engineering, DPWH HUDCC, HLURB, NGOs, POs, DA- BFAR, DA-BSWM, MMDA</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|--|---------------------|---|---|---|
| <p>9.a. Issue moratorium on:</p> <ul style="list-style-type: none"> - mining/quarrying of sand from rivers - reclamation of shallow coastal waters to build housing and tourist establishments <p>9.b. Enforce laws on:</p> <ul style="list-style-type: none"> - mining/quarrying of sand from beaches and PAs - dumping of garbage, sludge and dredged materials along beaches/shores | <p>Executive Order (on development of foreshore areas)</p> <p>Administrative Order</p> <p>Resolutions and ordinances</p> <p>Report submitted</p> | <p>2006</p> | <p>P0.25</p> | <p>Lead Agency : DENR - MGB, Prov'l Govt.</p> <p>Cooperating Agency: DPWH, DOTC, PRA, DILG, DOT, MMDA</p> | <p>- RA 9003</p> <p>- Mining Act 7942</p> <p>- PD 1067: Water Code</p> <p>- RA 9275: Clean Water Act</p> <p>- RA 8550: Fisheries Code</p> <p>- Public Land Act, Local –</p> <p>- RA 7160:</p> <p>Government Code</p> <p>- PD 1067: Water Code</p> |
| <p>10. Implement programs/projects on beach nourishment/stabilization and mitigation measures to address coastal erosion.</p> <p><i>(to be coordinated with implementation of the Integrated Forestry Development and Management Plan, the restoration and protection activities for mangroves and mudflats).</i></p> | <p>Beach nourishment/stabilization programs implemented</p> <p>Erosion mitigation projects implemented</p> | <p>2006 onwards</p> | <p>P2.5/year</p> | <p>Lead Agency: DENR</p> <p>Cooperating Agency: DPWH, DOT, DOTC, LGUs, NGOs, POs</p> | |
| <p>11. Implement the Eco-watch and Blue Flag system in the Manila Bay area to monitor beach and coastal water quality, and to provide incentives for beach protection.</p> | <p>Eco-watch/Blue Flag system in place</p> <p>MOA among key stakeholders (DENR, DOT, PCG, LGUs, hotel, resort and restaurant owners and operators, coastal industries, etc.)</p> | <p>2006 onwards</p> | <p>P2.5/year</p> | <p>Lead Agency : DENR & concerned stakeholders</p> <p>Cooperating Agency: DOT, PCG, DOE, NPC, LGUs, DILG, hotel, resort and restaurant owners and operators, coastal industries, NGOs, POs, DA-BFAR</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|---------------|---|--|---------------------------|
| 12. Develop and issue guidelines and standards for coastal road construction, and enhancement of scenic view along the coasts. | Guidelines and standards developed and issued | 2006 | P0.25 | Lead Agency: DPWH Cooperating Agency: DPWH, DOTC, LGUs, DILG, DOT, DENR | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|--|---------------|---|---|--|
| Objective 3: Increase by "80%" the forest cover in the entire Manila Bay watershed area by 2015. | | | | | |
| 1. Update maps on watershed boundaries/characteristics in Manila Bay region, and the Manila Bay IIMS | Updated maps of watershed boundaries Report on the land classification, use, and cover of the watershed (including profile of open areas, upland, grassland, grazing land, etc.) | 2006 | P1 | Lead Agency : DENR - NAMRIA Cooperating Agency : NWRB, LGUs, DA- BSWM, DPWH, MGB, PHIVOLCS, HLURB, DA | - PD 705: Industrial Tree Plantation; - EO 226: Omnibus Investments Code of 1987, as amended - Annual Investment Priorities Plan (IPP), which is being prepared by DTI-BOI |
| 2. Identify and assess the implementation of various national and local programs/projects/ activities related to forest management policies and forest restoration/rehabilitation programs | Status report of various forestry programs/projects by ecosystem (upland, grassland, grazing land, and other open areas) Matrix of issues and recommendations of various forestry programs/projects implementations | 2006 | P1 | Lead Agency : DENR Cooperating Agency: Academe | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITUTION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|--|---------------------------|
| 3. Develop Integrated Forestry Development and Management Plan (IFDMP) for the Manila Bay region | Integrated Forestry Development and Management Plan (IFDMP) | 2006-2007 | P1.5 | Lead Agency : DENR (NCR, Regions 3 & 4A) Cooperating Agency: LGUs, DILG, NEDA, DTI, Academe | |
| 4. Conduct consultation/ workshop on the finalization of Integrated Forestry Development and Management Plan (IFDMP) | Proceedings/attendance/list of agreements reached Approval/adoption of IFDMP | 2006-2007 | P0.5/year | Lead Agency : DENR (NCR, Regions 3 & 4A) Cooperating Agency: LGUs, DILG, Academe, NGOs, POs | |
| 5. Implement the IFDMP 5.1. Reforest open and denuded areas and protect forest resources through appropriate arrangements, e.g., Community-based Forest Management (CBFM), Industrial Forest Management Agreements (IFMA), Socialized Industrial Forest Management Agreements (SIFMA) 5.2. Undertake appropriate riverbank stabilization projects 5.3. Package investment opportunities for CBFM projects 5.4. Monitor and implement forest land use (mapping of forest and non-forest boundaries, ground survey, demarcation, etc.) 5.5. Grant appropriate security of tenure to upland | Work and financial plan Monitoring and evaluation system Open/denuded areas (ha) rehabilitated/reforested Kilometers of riverbanks stabilized and rehabilitated Investment opportunities, and number of CBFM projects Number of tenurial rights issued Technical and financial support provided for CBFM | 2007-onwards | P50/year | Lead Agency : DENR (NCR, Regions 3 & 4A) Cooperating Agency: LGUs, DILG, DTI, NAMRIA, DOT, DPWH, NIA, NGOs, Private Sectors, PNP, NCIP, Media | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITUTI- ON | ENABLING POLICIES/LAWS |
|---|--|---------------|---|---|---------------------------|
| dwellers 5.6. Provide technical assistance to the private sector and NGOs in the establishment of industrial forest plantations 5.7. Apply appropriate economic instruments to capture resource rents 5.8. Provide alternative livelihood programs/ projects 5.9. Establish eco-tourism programs 5.10. Undertake intensified forest protection campaign on forest fires and illegal logging. | projects Number of livelihood programs Number of community-beneficiaries Number and area of eco-tourism sites/projects | | | | |
| 6. Enforce laws, regulations, and ordinances on illegal logging within the Manila Bay region. | Illegal loggers apprehended Cases filed in court and resolved/decided Forest products confiscated Equipment and conveyances confiscated | 2006 onwards | P15/year | Lead Agency : DENR (NCR, Regions 3 & 4A Cooperating Agency: Office of the President, PNP, Judiciary, IBP-Environmental Ombudsman | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|--|--|
| Objective 4: Formulate and implement a restoration and maintenance program for important cultural, historical, religious and architectural landmarks and archeological and unique geological sites within the Manila Bay Region by 2010. | | | | | |
| 1. Conduct inventory and assessment of all cultural, historical, architectural, religious and archeological sites. | List of cultural, historical, architectural and religious sites assessed Assessment report on the conditions of the sites, including sites at risk and declared sites | 2006-2007 | P5 | Lead Agency: NCCA & NHI Cooperating Agency: DOT, LGUs, DENR, Academe, DOST | |
| 2. Conduct study on carrying capacities and appropriate management approaches for important cultural, historical, religious, archeological, architectural and unique geological sites, including criteria and guidelines for preservation/ rehabilitation/restoration | Approved criteria/guidelines Proceedings on the consultations/workshops on the draft criteria/guidelines Joint Memorandum Circular adopting the guidelines Carrying capacity report | 2006-2007 | P10 | Lead Agency: NCCA & NHI Cooperating Agency: DOT, DENR, Academe, National Museum, LGUs | RA 9072: National Cave and Caves Resources Management and Protection |
| 3. Develop management plan to restore and maintain important cultural, historical, religious, archeological and unique geological sites, including: - legal and financial mechanisms - monitoring and enforcement system | Management plan, incorporating legal and financial mechanisms, laws and ordinances Proceedings of public consultations/agreements reached | 2006-2007 | P1.5 | Lead Agency: NCCA & DOT Cooperating Agency: NHI, DENR, NEDA, LGUs, DILG, MMDA, NGOs, POs, National Museum | |
| 4. Restore/rehabilitate/preserve cultural, historical, religious, archeological, architectural, and unique geological sites, in accordance with the criteria and guidelines | Number of restored/rehabilitated/preserved sites | 2006-onwards | P50/year | Lead Agency: NCCA & DOT Cooperating Agency: NHI, LGUs, DILG, | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|-------------------|---|--|---------------------------|
| | Resolution/Ordinance Passed Monitoring and evaluation system Annual performance report Revenue generation mechanism, e.g., users fee | | | MMDA, DENR, NGOs, POs, National Museum | |
| 5. Include the criteria/guidelines for preservation/rehabilitation/ restoration of important cultural, historical, religious, archeological, architectural and unique geological sites in the Environmental Impact Assessment (EIA) criteria for evaluation of development projects | EIA guidelines updated | 2006 | P0.1 | Lead Agency :NCCA & DENR, EMB Cooperating Agency: LLDA, NHI, NCCA | - PD 1586 - RA 8550 |
| 6. Formulate and implement restoration and maintenance program to ensure the preservation of important cultural, historical, religious, archeological, architectural and unique geological sites, including the establishment of: <ul style="list-style-type: none"> - tourism guidelines using information on carrying capacities of prioritized sites - users fee schemes & enforcement system - standards and certification program | Guidelines Users fee system Standards and certification program Number of tourism programs Number of tours conducted and visitors/tourists | 2006- onwards | P2.5/year | Lead Agency : DOT Cooperating Agency : NCCA, NHI LGUs, DILG, MMDA DENR, Academe | |
| 7. Incorporate the zoning, protection, restoration/rehabilitation and maintenance of cultural, historical, religious and architectural landmarks and archeological and unique geological sites into local and national development plans, and land-use plans (CLUPs) | Revised CLUPs and Zoning Ordinances | 2006 - onwards | P0.1 | | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (in Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|---|--|
| Objective 5: Increase the productivity of fishery resources within the Manila Bay Region to attain the maximum sustainable yield (MSY) by 2020. | | | | | |
| <p>1.a. Conduct study on fish stock trends, diversity of pelagic, demersal and fresh water fish and other ecologically important species, and determine feasible, socially accepted resource management intervention</p> <p>1.b. Conduct study on maximum sustainable yield (MSY) and maximum economic yield (MEY) for pelagic, demersal and fresh water fish in Manila Bay Region, and the open and closed seasons and areas for harvesting commercially and ecologically important species</p> <p>1.c. Conduct study on the trends of fish kills due to red tide and determine bioaccumulation of sediments, fish and shellfishes</p> | <p>Report on:</p> <ul style="list-style-type: none"> - Fish stock trends - Diversity of pelagic, demersal and fresh water fishes, and other ecologically important species <p>Report on:</p> <ul style="list-style-type: none"> - the MSY and MEY for pelagic, demersal and fresh water fish - open and closed seasons and areas | 2006 | P1 | <p>Lead Agency: DA-BFAR</p> <p>Cooperating Agency: DOST-PCMARD, NFRDI, DENR, EMB, LLDA, NGOs, POs</p> | <ul style="list-style-type: none"> - RA 8850: Fisheries Code - RA 8550 :Fisheries Act - RA 8435:Fisheries Modernization Act |
| <p>2. Conduct socio-economic survey of the coastal population- including fisherfolk, current fish catch, fishing effort</p> | <p>Socio-Economic Profile</p> <p>Updated Socio-Economic Profile for coastal municipalities within the Manila Bay region</p> | 2006 | P1 | <p>Lead Agency: DA-BFAR</p> <p>Cooperating Agency: DOST-PCMARD, NFRDI, DENR, LGUs, NGOs</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|------------------|---|--|---|
| <p>3. Determine and evaluate appropriate regulatory/legal and economic instruments (moratorium on commercial fisheries, open/close season for fishing, licensing and permitting system) in Manila Bay Region</p> | <p>Assessment report on the appropriate regulatory/legal instruments Draft FAO/Policy/Local Ordinance</p> | <p>2006</p> | <p>P0.5</p> | <p>Lead Agency : DA-BFAR Cooperating Agency : DOST-PC/MARD, DENR, EMB, LLDA LGUs, FARMCs, NGOs, POs</p> | |
| <p>4. Develop integrated plan for sustainable fisheries in Manila Bay region, consistent with the Fisheries Code</p> <p>Include but not limited to:</p> <ul style="list-style-type: none"> - Integrated Coastal Management (ICM) program - sustainable fishing methods and practices - appropriate policy instruments - fishing areas/zones - fish sanctuaries; no-catch zones - open and closed seasons and areas for commercially and ecologically important species - alternative livelihood programs and support services - institutional arrangements - infrastructure system - detailed work and financial plan - non-intro of exotic, alien or destructive species - reduction of population of exotic species detrimental to indigenous aquatic species - monitoring of fishery resources and activities | <p>Integrated Plan for sustainable fisheries developed Stakeholders consultations and workshops conducted Stakeholders Consultations Report Ordinances adopting the plan for sustainable fisheries</p> | <p>2006-2007</p> | <p>P2</p> | <p>Lead Agency: DA-BFAR Cooperating Agency: DOST-PC/MARD, NFRDI, DENR, EMB, LLDA, LGUs, FARMCs, PPA, NGOs, POs</p> | <p>- RA 8850: Fisheries Code - RA 8550 :Fisheries Act - RA 8435:Fisheries Modernization Act - RA 7160</p> |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|---------------------|---|--|---|
| <p>5. Implement the integrated plan for sustainable fisheries (for entire bay and each region)</p> <p>5.1. Establish fishing areas and fish sanctuaries (in accordance with the integrated land- and sea-use plan/zoning scheme)</p> <p>5.2. Implement the designated closed season for harvesting commercially and ecologically important species and designated closed areas for identified migration routes of commercially and ecologically important fish species.</p> <p>5.3. Implement existing laws and policies on commercial fishing, trawling, and other illegal fishing methods in Manila Bay.</p> <p>5.4. Provide communities with appropriate alternative livelihood programs and support services (e.g., mussel culture, seaweeds farming, mudcrab fattening, microfinance, etc.).</p> <p>5.5. Construct/rehabilitate fish ports with fish storage and other necessary facilities and market road network.</p> <p>5.6. Allocate and construct berthing areas for artisanal fishers.</p> <p>5.7. Institutionalize the IEMP, specifically the monitoring system for fishery resources and fishing effort in the Manila Bay region.</p> <p>5.8. Implement Fishery Code RA 8850</p> | <p>Administrative Order, including guidelines and criteria issued</p> <p>Resolutions and ordinances passed (moratorium on commercial fisheries, illegal fishing gears, boats, and fish corral operations; designated open/close seasons; fish sanctuaries)</p> <p>Number of fish sanctuaries established</p> <p>Number of alternative livelihood programs and support services</p> <p>Number of community beneficiaries</p> <p>Number of violators apprehended/penalized</p> <p>Number of fish ports with fish storage and other necessary facilities constructed</p> <p>Kilometers of fish port/farm-to-market roads constructed/rehabilitated</p> <p>Number of berthing areas for artisanal fishers established</p> | <p>2008-onwards</p> | <p>P10/year (initial funding)</p> | <p>Lead Agency : DA-BFAR</p> <p>Cooperating Agency : DOST-PC/MARD, NFRDI, DENR, EMB, LLDA, LGUs, DILG, FARMCS, DPWH, PRA, PPA, NGOs, Pos, private sector</p> | <p>- RA 8850: Fisheries Code</p> <p>- RA 704: Fisheries Act</p> <p>- RA 8435: Fisheries Modernization Act</p> <p>- RA 7160</p> <p>- RA 4850</p> <p>- PD 829</p> |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|---------------|---|---|---------------------------|
| 6. Establish permitting and licensing system for municipal fishing in Manila Bay Region, and track the number of fisherfolks and fishing effort | Permitting and licensing system for municipal fishing Monitoring and evaluation system Ordinances passed | 2006- 2007 | P0.5 | Lead Agency : BFAR - LGUs , LLDA, Cooperating Agency PCG | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|---------------|---|--|---------------------------|
| Objective 6: Achieve sustainable and ecologically-sound aquaculture and mariculture production in Manila Bay Region by 2015. | | | | | |
| 1. Conduct study on carrying capacity for aquaculture and mariculture in Manila Bay region | Study on carrying capacity for aquaculture and mariculture in Manila Bay region | 2006- 2008 | P2.5 | Lead Agency : DA- BFAR Cooperating Agency: DOST-PCMARD, NFRDI, DENR, LLDA, Academe | |
| 2. Conduct inventory of owners and operators (both with permits and without permits) and assessment of the aquaculture and mariculture farms/industries in Manila Bay relative to its carrying capacity and net socioeconomic benefits | Inventory of aquaculture and mariculture farms, including owners and operators Assessment report | 2006- 2007 | P0.5 | Lead Agency : DA- BFAR & LGUs Cooperating Agency : LGUs, DILG, DOST- PCMARD, NFRDI DENR | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|------------------|---|--|---------------------------|
| <p>3. Review and assess appropriate policy instruments and develop guidelines, aquaculture and mariculture standards, and regulations concerning implementation, monitoring and enforcement of:</p> <ul style="list-style-type: none"> - users fee, quota system and other economic instruments - appropriate technology, methods, practices, feeds (type and application methods) and specifications for the pens/cages/ponds (e.g., size of mesh, distance of poles, etc.) | <p>Guidelines, aquaculture and mariculture standards, policies and regulations concerning implementation, monitoring and enforcement of:</p> <ul style="list-style-type: none"> - Administrative Order - Municipal ordinance - Appropriate technology - Specifications for the pens/cages/ponds - Appropriate types of feeds - Application of feeds | <p>2006-2008</p> | <p>P0.5</p> | <p>Lead Agency: DA-BFAR Cooperating Agency: LGUs, DILG, DOST-PCMARD, NFRDI, DENR</p> | |
| <p>4. Based on the integrated land- and sea-use plan, delineate areas for aquaculture and mariculture, and establish quota system in accordance with the carrying capacity</p> | <p>Appropriate policy instruments passed Zoning system for aquaculture and mariculture areas in place Quota system for aquaculture and mariculture production established MOAs forged and signed by aquaculture and mariculture owners and operators, concerned NGAs and LGUs</p> | <p>2007-2015</p> | <p>P1</p> | <p>Lead Agency DA-BFAR & LGUs Cooperating Agency: DILG, HLURB, DOST DENR, private sector</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|---|---------------------------|
| 5. Require owners and operators to apply appropriate aquaculture and mariculture methods and practices | Standards, criteria, regulations and economic instruments in place Number of aquaculture and mariculture farms and area covered Number of violators apprehended and penalized Ordinances/ resolutions passed | 2006 onwards | P0.25/year | Lead Agency : DA-BFAR Cooperating Agency: LGUs, DILG, DENR | |
| 6. Revoke permits of aquaculture and mariculture farms in areas that are not designated for aquaculture and mariculture production, and remove all illegal pens/cages/ponds in Manila Bay and Laguna de Bay | Number of violators apprehended and penalized Number of ordinances/ resolutions passed Number of illegal pens/cages/pond dismantled | 2006- onwards | | Lead Agency : LGUs, LLDA and BFAR Cooperating Agency: NGOs, POs | |
| 7. Restore production of windowpane oyster and seaweeds (as alternative livelihood) in appropriate sites with LGUs, POs, NGOs, academe, private sector and donor agencies | Number of windowpane oyster culture farms and area covered Number of seaweed farms and area covered | 2006- onwards | | Lead Agency : DA-BFAR & DOST - PCMARD Cooperating Agency : LGUs, DILG, DENR, NFRDI | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|--|------------------|---|---|---|
| Objective 7: Increase coverage of water supply distribution system by 50% in areas with unsustainable groundwater extraction to protect aquifers from contamination and salt-water intrusion by 2015. | | | | | |
| <p>1. Conduct study/collate/update information on:</p> <ul style="list-style-type: none"> a. the incidence of salt-water intrusion and land subsidence around Manila Bay b. extent of groundwater use (profile of users, volume and rate of extraction) c. current state of the aquifers d. existing water supply from surface water and groundwater e. current and projected water demand by sector and location f. potential surface water sources g. priority municipalities/cities h. contamination due to leachate from dumpsites, gasoline stations, etc. i. review of permitting system and fee system for groundwater users j. abandoned deepwells k. technologies related to recharging of aquifers | <p>Study/Report on water resources in the Manila Bay Region</p> <p>Updated IIMS and Manila Bay Atlas</p> | <p>2007-2008</p> | <p>P5</p> | <p>Lead Agency : NWRB & DENR</p> <p>Cooperating Agency: EMB, LLDA, DOST-PNRI, MGB,DA, NIA, DOE, NPC</p> <p>MWSS and concessionaires, LWUA and Water Districts, LGUs</p> | <ul style="list-style-type: none"> - PD 1067: Water Code - RA 9275: Clean Water Act - PD 984: Pollution Control Law - PD 856: Sanitation Code of the Phil. - RA 6541: Building Code of the Phils - PD 1586 (EIS System) - EO 226: Omnibus Investments Code of 1987, as amended |
| <p>2. Conduct feasibility studies and develop investment plan to expand coverage and supply of surface water to coastal areas, areas outside of the central distribution system of MWSS, and other water districts</p> | <p>Feasibility study</p> <p>Investment plan</p> | <p>2007-2008</p> | <p>P5</p> | <p>Lead Agency : NWRB & DENR</p> <p>Cooperating Agency : LLDA, DA, DOE, DTI-BOI, NPC, NIA, MWSS and Concessionaires, LWUA and Water Districts</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|--|---|---------------------|---|---|---|
| <p>3. Develop groundwater management plan, including the establishment of time-bound targets to reduce groundwater extraction and allow the recovery of aquifers, conservation (3Rs), and other demand-side mgt. measures</p> | <p>Groundwater management plan developed Targets for reduction of groundwater extraction rates</p> | <p>2006-2008</p> | <p>P2.5</p> | <p>Lead Agency : NWRB & DENR, Cooperating Agency: LLDA, EMB, MGB, DA, NIA, DOT, golf course owners, industries, DOH, LWUA & WDs</p> | <ul style="list-style-type: none"> - PD 1067: Water Code - RA 9275: Clean Water Act - PD 984: Pollution Control Law - PD 856: Sanitation Code of the Phil. - RA 6541: Building Code of the Phils - PD 1586 (EIS System) - PD 198 |
| <p>4. Construct water supply facilities (from surface water; Level III service) in coastal areas, areas outside of the central distribution system of MWSS, and other water districts with critical water requirements and salt-water intrusion problems</p> | <p>Water supply system established - location, number of households, industries and commercial establishments covered, vol. of water, km of pipes</p> | <p>2007 onwards</p> | <p>P5/year</p> | <p>Lead Agency : Concessionaires, and Water Districts Cooperating Agency: NWRB, DENR, LLDA, DPWH, MWSS, LWUA, and MMDA</p> | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|---|---------------|---|--|---------------------------|
| 5. Construct/rehabilitate irrigation systems and rehabilitate multi-purpose water reservoirs to increase water availability for agricultural and municipal use, including programs to mitigate erosion, siltation and sedimentation to prolong lifespan of water reservoirs | New irrigation systems (location, length, vol of water, number of beneficiaries) Rehabilitated irrigation systems (location, length, vol of water, number of beneficiaries) Rehabilitated water reservoirs Siltation/erosion mitigation projects | 2007 onwards | P5/year TWG: Remark "Get computation on per kilometer basis from NIA" | Lead Agency : NIA, NAPOCOR & DPWH Cooperating Agency: LLDA., DA, NWRB & DENR,DOE, DPWH, NPC, Prov'l Govt. ,concessionaires, and Water Districts, Cooperatives | |
| 6. Develop and issue guidelines and standards on water use reduction technologies and processes, water recycling, groundwater extraction, and post-closure of abandoned wells | Guidelines and standards developed and issued | 2006- onwards | P0.25 | Lead Agency : NWRB, DENR-EMB Cooperating Agencies: LLDA, DA, DOE, DPWH, NPC, and LWUAs, and Water Districts, Cooperatives | PD 198 |
| 7. Establish appropriate water pricing system to reflect full cost of groundwater use, surface water impoundment, treatment and distribution, and wastewater discharges | Water pricing system | 2006- onwards | P0.25 | Lead Agency: NWRB & DENR Cooperating Agency: Water Districts, DENR-EMB, LLDA, NGOs | |

| ACTIVITY | OUTPUT INDICATOR/ UNIT OF WORK MEASURE | TIME TABLE | ESTIMATED BUDGETARY REQUIREMENT (In Million Pesos) | CONCERNED AGENCY/INSTITU- TION | ENABLING POLICIES/LAWS |
|---|---|----------------|---|---|---|
| 8. Establish monitoring and evaluation system for groundwater extraction, salt-water intrusion, land subsidence, and contamination of groundwater - Collaboration with the National Water Information Network (NWIN) | Monitoring and evaluation system Annual report on the state of groundwater resources Updated IIMS | 2006 - 2008 | P0.25 | Lead Agency; NWRB Cooperating Agency; NWIN, DENR, DOH, LGUs, LWUA & WDs | - PD 1067: Water Code - RA 9275: Clean Water Act - PD 984: Pollution Control Law - PD 856: Sanitation Code of the Phil. - RA 6541: Building Code of the Phils - PD 1586 (EIS System) - PD 198 |

**MANILA BAY OPERATIONAL PLAN
TARGETS BY ISSUES/AREAS OF CONCERN**

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | | ESTIMATE COST (In Million Pesos) |
|--------------------------------------|---|------------------------|--------------------------|--------------------------|--|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | | |
| 1. PARTNERSHIP AND GOVERNANCE | | | | | | |
| Objective 1 | Develop, adopt and implement an integrated land use and sea use plan for the Manila Bay Region by 2012. | | | | | 192.90 |
| | ACTIVITY 1: Review and consolidation of pertinent information on several habitats and resources | | | | | 43.1 |
| | ACTIVITY 2: Assessment and alignment of existing land-use plans, development plans, programs and projects and CRMI/CM-related efforts | | | | | 3 |
| | ACTIVITY 3: Amendment of CLUP guidelines to include sea/water use and foreshore uses | | | | | 2.5 |
| | ACTIVITY 4: Delineation of water boundaries of coastal municipalities and cities | | | | | 5 |
| | ACTIVITY 5: Development of the integrated land and sea-use zoning plan for the Manila Bay area | | | | | 0.15 |
| | ACTIVITY 6: Harmonization of the land-use plans of the municipalities and cities in the Manila Bay region to make them consistent with the integrated Land and Sea-Use Plan | | | | | 7 |
| | ACTIVITY 7: Implementation of Manila Bay Area's integrated land and sea-use plan | | | | | 0.45 |
| Objective 2 | Establish appropriate institutional arrangements to oversee, coordinate and guide the implementation of Manila Bay Coastal Strategy and Operational Plan by 2007. | | | | | 25 |
| | ACTIVITY 1: Conduct studies/assessments on existing policies, legislations and administrative arrangement to identify options on institutional arrangements | | | | | 2.65 |
| | ACTIVITY 2: Strengthening of the PCC as interim body to coordinate the implementation of the MBCS and its Operational Plan until the Manila Bay Sustainable Development Council is established. | | | | | 2.5 |
| | ACTIVITY 3: Formulation of a policy framework declaring Manila Bay as water quality management area. | | | | | 0.15 |
| | | | | | | --- |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|------------------------|---|------------------------|--------------------------|--------------------------|---|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| | ACTIVITY 4: Drafting of appropriate institutional arrangements and legal mechanism | | | | --- |
| | ACTIVITY 5: Lobbying for the approval of the proposed institutional arrangements | | | | --- |
| | ACTIVITY 6: Operationalization/implementation of the approved/appropriate institutional arrangement | | | | |
| Objective 3 | Develop, set-up and operationalize Integrated Coastal Area and River Basin management system covering 100% of the Manila Bay Region by 2010. | | | | 55.75 |
| | ACTIVITY 1: Development, implementation and promotion of the Manila Bay-Pasig River-Laguna de Bay as a model of integrated coastal area and river basin management. | | | | 13.75 |
| | ACTIVITY 2: Conduct of rapid appraisal, consultations, identification of key areas of concern, classification/re-classification of each river system, and development/formulation of criteria for prioritization on identified major river systems. | | | | 20 |
| | ACTIVITY 3: Development of the integrated coastal area and river basin management plan | | | | 12 |
| | ACTIVITY 4: Implementation of the integrated coastal area and river basin management plan of each of the identified river system | | | | --- |
| | ACTIVITY 5: Setting up and implementation of ICM in each coastal province, city and municipal government around the Bay area | | | | At least 2% of the 20% Development Fund |
| | ACTIVITY 6: Replication of best ICM practices. | | | | 10 |
| Objective 4 | Create awareness, build capacity and mobilize 50% of the coastal communities to participate in activities related to the implementation of the MBCS by 2010. | | | | 25.25 |
| | ACTIVITY 1: Conduct of stakeholder analysis and awareness assessment of different stakeholders consistent with those identified in the Advocacy and Communication Plan (AdComp) of MBEMP. | | | | 3 |
| | ACTIVITY 2: Updating of the communication plan for the Manila Bay Coastal Strategy and its Operational Plan | | | | 1 |
| | ACTIVITY 3: Integration of environmental lessons and activities in the NSTP/CWTS | | | | 0.75 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|------------------------|--|------------------------|--------------------------|--------------------------|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| | ACTIVITY 4: Organization and implementation of activities for school children/youth | | | | 1.5 |
| | ACTIVITY 5: Conduct of Information, Education, and Communication (IEC) and advocacy program for national and local legislators, policy-makers, educators, industries, civil society groups, and other stakeholders | | | | 3 |
| | ACTIVITY 6: Organization and implementation of community activities | | | | 4.5 |
| | ACTIVITY 7: Conduct of capacity-building activities, including training workshops and pilot programs on alternative livelihood for different stakeholders | | | | 9 |
| | ACTIVITY 8: Promotion of corporate environmental and social responsibility in the private sector. | | | | 2.5 |
| Objective 5 | Increase to at least 75% the number of LGUs within the Manila Bay region implementing development and investment programs through private sector and public-private sector partnerships by 2010. | | | | 10.5 |
| | ACTIVITY 1: Identification and documentation of best practices involving partnership arrangements and experiences | | | | 0.5 |
| | ACTIVITY 2: Development of guidelines on alternative partnership arrangements applicable to the Manila Bay region | | | | 0.25 |
| | ACTIVITY 3: Development and implementation capacity-building programs for LGUs to engage in PPPs | | | | 1.5 |
| | ACTIVITY 4: Identification of environmental investment opportunities and development of environmental investment packages/project proposals | | | | 1 |
| | ACTIVITY 5: Conduct of pre-feasibility studies, willingness-to-pay surveys and stakeholder consultations | | | | 6 |
| | ACTIVITY 6: Negotiation and entry into agreements with potential partners | | | | 0.75 |
| | ACTIVITY 7: Monitoring and evaluation of compliance to partnerships commitments | | | | 0.5 |
| Objective 6 | Reduce by 25% the illegal settlers, establishments and structures along coast lines by 2010 and prevent future preoccupation of these shorelines. | | | | 29.0 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | | ESTIMATE COST (In Million Pesos) |
|------------------------|---|------------------------|--------------------------|--------------------------|--|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | | |
| | ACTIVITY 1: Conduct of inventory and assessment of structures, establishments and illegal settlements along coastlines, riverbanks and waterways. | | | | | 0.5 |
| | ACTIVITY 2: Development of investment/financial plan | | | | | 1 |
| | ACTIVITY 3: Implementation of a program for the relocation of informal settlers living along the coastlines and waterways | | | | | 25 |
| | ACTIVITY 4: Development and issuance of regulation, standards and guidelines concerning buffer setback zoning in beach areas | | | | | 2.5 |
| | ACTIVITY 5: Implementation of buffer and setback zones along beach/shores | | | | | --- |
| Objective 7 | Develop and implement a Natural Hazards Contingency, Preparedness and Quick-Response System for the Manila Bay Region by 2008. | | | | | 9.25 |
| | ACTIVITY 1: Development of natural hazards map and identification of risk and hazard-prone areas | | | | | 1.5 |
| | ACTIVITY 2: Review of the National Disaster Coordination Plan, and assessment in relation with the needs of the Manila Bay Region. | | | | | 0.25 |
| | ACTIVITY 3: Development of a Natural Hazard Contingency Plan and Response System with concerned agencies and sectors | | | | | 2.5 |
| | ACTIVITY 4: Adoption and implementation of the contingency plan and response system. | | | | | 5 |
| Objective 8 | Develop and institutionalize a performance monitoring and evaluation system for Manila Bay Region by 2007. | | | | | 17.4 |
| | ACTIVITY 1: Development of appropriate monitoring and evaluation (M&E) system for the Manila Bay region | | | | | 2 |
| | ACTIVITY 2: Institutionalization of the M&E system developed | | | | | 1.5 |
| | ACTIVITY 3: Institutionalization of the Integrated Information Mgt. System (IIMS) and the Manila Bay Information Network (MBIN) | | | | | 1.5 |
| | ACTIVITY 4: Conduct of training on capacity-building of stakeholders on M&E and IIMS | | | | | 7.5 |
| | ACTIVITY 5: Mobilization of communities and other stakeholders for data generation, monitoring, law enforcement, etc. | | | | | 1.5 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|---------------------------|---|------------------------|--------------------------|--------------------------|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| | ACTIVITY 6: Development of voluntary agreements with industries, hospitals, commercial and tourism enterprises operating in the Manila Bay area | | | | 0.45 |
| | ACTIVITY 7: Assistance to industries towards implementation of Environment Management System (EMS) and pollution prevention programs through Phil. Environment Partnership Program (PEPP) | | | | 0.45 |
| | ACTIVITY 8: Implementation of the Eco-watch and Baywatch programs as monitoring and incentives programs | | | | 2.5 |
| 2. WATER POLLUTION | | | | | |
| Objective 1 | Reduce by 50% the discharges of raw sewage, septage and untreated and inadequately treated wastewater (from commercial, industrial, agricultural, and fisheries/aquaculture) by 2015. | | | | 17,741.20 |
| | ACTIVITY 1: Identification of point sources of pollution loading and determination of total discharge loading | | | | 2,557.50 |
| | ACTIVITY 2: Establishment of time-bound pollution-reduction target for identified major point sources | | | | 549 |
| | ACTIVITY 3: Enforcement of installation and maintenance of adequate septic tanks | | | | 2.5 |
| | ACTIVITY 4: Implementation of a pilot project on sewerage system in the Parañaque, Las Piñas and Zapote river system | | | | 0.50 |
| | ACTIVITY 5: Preparation/updating of investment plans for sewerage treatment plants (STPs) and waste water treatment facilities (WWTF). | | | | 500 |
| | ACTIVITY 6: Construction of sewerage systems and centralized sewerage treatment facilities (CSTF) in priority areas | | | | 5 |
| | ACTIVITY 7: Development of guidelines, criteria, and standards for collection, treatment, recycling, and disposal of agricultural and aquacultural wastes. | | | | 1,500 |
| | Establish integrated solid waste management programs in all LGUs by 2007. | | | | 0.50 |
| Objective 2 | ACTIVITY 1: Reconstitution and/or strengthening of SWM Boards and brgy. committees and 10-year SWM plan | | | | 12,673.5 |
| | ACTIVITY 2: Development of Investment Plan for SWM systems in major LGUs | | | | 91.5 |
| | | | | | 10 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|------------------------|--|------------------------|--------------------------|--------------------------|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| Objective 3 | ACTIVITY 3: Conversion of existing open dumpsites into "controlled dumpsites" | | | | 1,830 |
| | ACTIVITY 4.a: Implementation of 10-year SWM plan | | | | 10,741.5 |
| | ACTIVITY 4.b: Construction of MRFs and composting facilities | | | | |
| | ACTIVITY 4.c: Construction of sanitary landfill | | | | |
| | ACTIVITY 5: Prohibition of operation of open dumpsites | | | | 0.5 |
| | Develop and implement toxic and hazardous waste management system by 2008. | | | | 2,340.00 |
| | ACTIVITY 1: Mandatory registration of all hazardous waste generations, importation and use of new chemicals, and update database on sources. volume of waste generated by type | | | | 20 |
| | ACTIVITY 2: Preparation of investment plan for an integrated toxic and hazardous waste management system | | | | 10 |
| | ACTIVITY 3: Implementation of the integrated toxic and hazardous waste management system | | | | 2,300 |
| | ACTIVITY 4: Implementation of segregation of healthcare/hospital/toxic/hazardous wastes and prevent mixing with municipal solid waste | | | | 10 |
| Objective 4 | Stop sea-dumping of sewage, industrial sludge, solid waste, and contaminated dredged materials by 2006. | | | | 7.5 |
| | ACTIVITY 1: Identification of sea dumping activities | | | | 0.5 |
| | ACTIVITY 2: Identification of companies with dumping permits | | | | 0.5 |
| | ACTIVITY 3: Development of guidelines on alternative land-based disposal sites, treatment and disposal methods | | | | 1.5 |
| | ACTIVITY 4: Issuance and enforcement of moratorium on sea dumping | | | | 2.5 |
| Objective 5 | ACTIVITY 5: Revoking of licenses and permits | | | | 2.5 |
| | Stop discharges of operational waste (oily bilge and ballast water) from ships and the use of anti-fouling paints with TBT's and other harmful compounds by 2006. | | | | 156.50 |
| | ACTIVITY 1: Estimation of volume of discharges by type of waste and source | | | | 2.5 |
| | ACTIVITY 2: Construction/installation of shore reception facilities in major ports | | | | 150 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|--|---|------------------------|--------------------------|--------------------------|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| | ACTIVITY 3: Identification of environment-friendly paints and anti-fouling chemicals for all ships and boats | | | | 2 |
| | ACTIVITY 4: Implementation of guidelines on discharges of operational wastes from ships, and use of harmful paints and anti-fouling chemicals | | | | 0.5 |
| | ACTIVITY 5: Development and implementation of "Port Safety and Environmental Management System" | | | | 1.5 |
| Objective 6 | Activate a bay-wide, multi-sectoral oil spill prevention and response program by 2006. | | | | 6.2 |
| | ACTIVITY 1: Finalization and adoption of the "Manila Bay Oil Spill Contingency Plan" | | | | 0.7 |
| | ACTIVITY 2: Implementation of "Masterplan for Maritime Safety" | | | | 2.5 |
| | ACTIVITY 3: Pilot testing of the Manila Bay Oil Spill Contingency Plan | | | | 0.5 |
| | ACTIVITY 4: Promotion of the ratification of the Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) | | | | 2.5 |
| 3. Overexploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archeological and Unique Geological Sites | | | | | 1,067.30 |
| Objective 1 | Set-up sustainable institutional arrangements and management programs in all declared Protected Areas (PAs) and Critical Habitats in the Manila Bay Region by 2007. | | | | 20.0 |
| | ACTIVITY 1: Identification and assessment of existing and proposed protected areas (PAs) and critical habitats in the Manila Bay region | | | | 2.5 |
| | ACTIVITY 2: Preparation of detailed Protected Area and Critical Habitat Management Plan in the Manila Bay region | | | | 5 |
| | ACTIVITY 3: Establishment/restoration and management of designated protected areas and critical habitats | | | | 12.5 |
| Objective 2 | Implement a no net loss policy for existing mangroves, mudflats, shorelines, beaches and sandy shores by 2010. | | | | 56.0 |
| | ACTIVITY 1: Review of results of the Integrated Environmental Management Program (IEMP) | | | | 1.5 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | | ESTIMATE COST (In Million Pesos) |
|------------------------|--|------------------------|--------------------------|--------------------------|--|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | | |
| | ACTIVITY 2: Preparation of detailed rehabilitation and management plan for mangrove and mudflat areas | | | | | 1 |
| | ACTIVITY 3: Conduct of consultations with LGUs, NGOs, and IP and community stakeholders, and preparation of Action Plan | | | | | 0.5 |
| | ACTIVITY 4: Implementation of Action Plan for rehabilitation and maintenance of mangroves and mudflats | | | | | 20 |
| | ACTIVITY 5: Review and reconciliation of existing laws and ordinances on mangroves and mudflats; enforcement of the laws and ordinances | | | | | 0.50 |
| | ACTIVITY 6: Monitoring of progress of the Action Plan | | | | | 2 |
| | ACTIVITY 7: Conduct of rapid assessment of the entire stretch of the shorelines along Manila Bay | | | | | 5 |
| | ACTIVITY 8: Preparation of masterplan for the development of foreshore areas | | | | | 5 |
| | ACTIVITY 9: Issuance of moratorium on mining/quarrying of sand from rivers and on reclamation of shallow coastal waters; enforcement of laws on mining/quarrying of sand from beaches and on dumping of garbage, sludge and dredged materials along beaches/shores | | | | | 0.25 |
| | ACTIVITY 10: Implementation of programs/projects on beach nourishment/stabilization | | | | | 10 |
| | ACTIVITY 11: Implementation of the Eco-watch and Blue Flag system in the Manila Bay area | | | | | 10 |
| | ACTIVITY 12: Development and issuance of guidelines and standards for coastal road construction | | | | | 0.25 |
| Objective 3 | Increase by 80% the forest cover in the entire Manila Bay watershed area by 2015. | | | | | 539.50 |
| | ACTIVITY 1: Updating of maps on watershed boundaries/characteristics in the Manila Bay region | | | | | 1 |
| | ACTIVITY 2: Identification and assessment of the implementation of relevant various national and local programs/projects/activities | | | | | 1 |
| | ACTIVITY 3: Development of Integrated Forestry Development and Management Plan (IFDMP) for the Manila Bay region | | | | | 1.5 |
| | ACTIVITY 4: Conduct of consultation/workshop on the finalization of IFDMP | | | | | 1 |
| | ACTIVITY 5: Implementation of the IFDMP | | | | | 400 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|------------------------|---|------------------------|--------------------------|--------------------------|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| Objective 4 | ACTIVITY 6: Enforcement of laws, regulations and ordinances on illegal logging within the Manila Bay region. | | | | 135 |
| | Formulate and implement a restoration and maintenance program for important cultural, historical, religious and architectural landmarks and archeological and unique geological sites within the Manila Bay Region by 2010. | | | | 226.80 |
| | ACTIVITY 1: Conduct of inventory and assessment of al cultural, historical, architectural, religious and archeological sites | | | | 5 |
| | ACTIVITY 2: Conduct of study on the carrying capacities and appropriate management approaches for the above-mentioned sites, as well as the criteria and guidelines for preservation/rehabilitation/restoration | | | | 10 |
| | ACTIVITY 3: Development of management plan for the restoration and maintenance of these sites | | | | 1.5 |
| | ACTIVITY 4: Restoration/rehabilitation/preservation of these sites | | | | 200 |
| | ACTIVITY 5: Inclusion of the set criteria for the preservation/ rehabilitation/restoration of these sites in the Environmental impact Assessment (EIA) criteria for evaluation of development projects | | | | 0.1 |
| Objective 5 | ACTIVITY 6: Formulation and implementation of restoration and maintenance program to ensure the preservation of these sites | | | | 10 |
| | ACTIVITY 7: Incorporation of the zoning, protection, restoration/ rehabilitation and maintenance of these sites into local and national development plans, and land-use plans (CLUPs) | | | | 0.2 |
| | Increase the productivity of fishery resources within the Manila Bay Region to attain maximum sustainable yield (MSY) by 2020. | | | | 125.0 |
| | ACTIVITY 1: Conduct study on different factors/parameters regarding fishery resources within the Manila Bay region | | | | 1 |
| | ACTIVITY 2: Conduct socio-economic survey of the coastal population | | | | 1 |
| | ACTIVITY 3: Determination and evaluation of appropriate regulatory/ legal and economic instruments in Manila bay region | | | | 0.5 |
| | ACTIVITY 4: Development of integrated plan for sustainable fisheries in the Manila Bay region, consistent with the Fisheries Code | | | | 2 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|------------------------|---|------------------------|--------------------------|--------------------------|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| | ACTIVITY 5: Implementation of the integrated plan for sustainable fisheries (for entire bay and each region) | | | | 120 |
| | ACTIVITY 6: Establishment of permitting and licensing system for municipal fishing in the Manila bay region | | | | 0.5 |
| Objective 6 | Achieve sustainable and ecologically-sound aquaculture and mariculture production in Manila Bay by 2015. | | | | 6.75 |
| | ACTIVITY 1: Conduct study on carrying capacity for aquaculture and mariculture in Manila Bay region | | | | 2.5 |
| | ACTIVITY 2: Conduct inventory of owners and operators and assessment of the aquaculture and mariculture farms/industries in Manila Bay | | | | 0.5 |
| | ACTIVITY 3: Review and assessment of appropriate policy instruments and development of guidelines and standards for aquaculture and mariculture farms/industries | | | | 0.5 |
| | ACTIVITY 4: Delineation of areas for aquaculture and mariculture | | | | 1 |
| | ACTIVITY 5: Requiring owners and operators to apply appropriate aquaculture and mariculture methods and practices | | | | 2.25 |
| | ACTIVITY 6: Revoking of permits of aquaculture and mariculture farms in areas that are not designated for such use, and removal of all illegal pens/cages/ponds in Manila Bay and Laguna de Bay | | | | --- |
| | ACTIVITY 7: Restoration of production of windowpane oyster and seaweeds, if appropriate | | | | --- |
| Objective 7 | Increase coverage of water supply distribution by 50% in areas with unsustainable groundwater extraction to protect aquifers from contamination and salt-water intrusion by 2015. | | | | 93.25 |
| | ACTIVITY 1: Conduct study or collation/updating of information on matters regarding to groundwater use | | | | 5 |
| | ACTIVITY 2: Conduct of feasibility study and development of investment plan to expand coverage and supply of surface water | | | | 5 |
| | ACTIVITY 3: Development of groundwater management plan | | | | 2.5 |
| | ACTIVITY 4: Construction of water supply facilities | | | | 40 |
| | ACTIVITY 5: Construction/rehabilitation of irrigation systems and rehabilitate multi-purpose water reservoirs to increase water availability for agricultural and municipal use | | | | 40 |

| ISSUE/AREAS OF CONCERN | OBJECTIVE/MAIN FOCUS | TIME FRAME | | | ESTIMATE COST (In Million Pesos) |
|------------------------|---|------------------------|--------------------------|--------------------------|----------------------------------|
| | | SHORT-TERM (2006-2010) | MEDIUM- TERM (2011-2015) | LONG-TERM (2016 onwards) | |
| | ACTIVITY 6: Development and issuance of guidelines and standards on water use reduction technologies and processes, water recycling, groundwater extraction, and post-closure of abandoned wells. | | | | 0.25 |
| | ACTIVITY 7: Establishment of appropriate water pricing system | | | | 0.25 |
| | ACTIVITY 8: Establishment of monitoring and evaluation system for groundwater extraction, saltwater intrusion, land subsidence, and contamination of groundwater | | | | 0.25 |
| | | | | Estimate Grand Total | 19,194.30 |

Legend:

- Objective
- Activity

Manila Bay Environmental Management Project OPMBCS Activities by Lead Agencies

Partnership and Governance

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|---|--|---------------------------------|
| Manila Bay Environmental Management Project (MBEMP) Project Management Office (PMO) and Site Management Offices (SMOs) | Objective 4 | 4 |
| | Act. 1. Conduct stakeholder analysis and awareness assessment of different stakeholders (local community, school children, local and national political leaders and functionaries, civil society, private) consistent with the Advocacy and Communications Plan of MBEMP. | 3 |
| | Act. 2. Update communication plan for the Manila Bay Coastal Strategy and its Operations Plan <ul style="list-style-type: none"> a. Target Audience b. Strategy c. Programs d. Milestones e. Responsible offices f. Budgetary requirements | 1 |
| Manila Bay Environmental Management Project (MBEMP) Project Coordinating Committee (PCC) | Objective 2 | .15 |
| | Act. 2. Strengthen PCC as interim body to coordinate the implementation of the Manila Bay Coastal Strategy and its Operational Plan until the Manila Bay Sustainable Development Council is established. | 0.15 |
| | Act. 3. Formulate and adopt a policy framework declaring Manila Bay as “Water Quality Management Area” with a governing board (in accordance with the provisions of the Clean Water Act). | - |
| | Act. 4. Draft appropriate institutional arrangements and legal mechanism. | - |
| | Act. 5. Lobby for the approval of the proposed institutional arrangements. | - |
| Department of Environment and Natural Resources (DENR) | Objective 1 | 10 |
| | Act. 1. Review and consolidate pertinent information on: corals, mangroves, seagrass beds, mudflats, swamps, avifauna, fisheries, shellfishes, seaweeds, benthos, phytoplanktons, zooplanktons, beaches/sandy shores, foreshore areas, built-up areas, bedrocks | 3 |
| | Act. 5. Develop the integrated land and sea-use zoning plan for Manila Bay Area | 7 |
| | Objective 2 | 58.25 |
| | Act. 1. Study/assess existing policies, legislations and administrative arrangements, review needs and objectives, and conduct social/stakeholder analysis to identify options on institutional arrangements for the management of the Manila Bay Region. | 2.5 |
| | Act. 6. Operationalization/implementation of the approved/ appropriate institutional arrangement (staffing, budgeting) | 55.75 |
| | Objective 3 | 45.75 |
| Act. 1. Develop, implement and promote the Manila Bay-Pasig River-Laguna de Bay as a model of integrated coastal area and river basin management, using ecosystem-based management approach | 13.75 | |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|--------|---|---------------------------------|
| | (including classification of Manila Bay and Pasig River). | |
| | <p>Act. 2. Conduct the following activities:</p> <ul style="list-style-type: none"> - rapid appraisal - consultations - identification of key areas of concern - classification/re-classification of each river system, and - develop/formulate a criteria for prioritization <p>for the enumerated major river systems:</p> <ul style="list-style-type: none"> a. Pampanga River b. NCR Rivers (Parañaque, Las Piñas, Zapote rivers) c. Navotas-Malabon-Tullahan-Tenejeros d. Maragondon River (Cavite) e. Talisay River (Bataan) f. Angat Watershed and tributaries/major rivers g. Pasig-Marikina-San Juan (PAMARISAN) River h. Pasag River (Sasmuan, Masantol, Macabebe Pampanga) i. Pasig-Potrero River (Pampanga) j. Porac-Gumain River (Pampanga) k. Imus River (Cavite) | 20 |
| | Act. 3. Develop the integrated coastal area and river basin management plan and include required institutional arrangements and information network for the river systems identified in Activity 2. | 12 |
| | <p>Act. 4. Implement the integrated coastal area and river basin management plan of each river system. Include:</p> <ul style="list-style-type: none"> - IIMS and Information Network - restoration/rehabilitation of habitats and resources - integrated land- and sea-use zoning - marine sanctuaries, riverside parks - investment opportunities in environmental facilities and services - existing projects | - |
| | Objective 4 | 25.25 |
| | Act. 1. Conduct stakeholder analysis and awareness assessment of different stakeholders (local community, school children, local and national political leaders and functionaries, civil society, private) consistent with the Advocacy and Communications Plan of MBEMP. | 3 |
| | <p>Act. 2. Update communication plan for the Manila Bay Coastal Strategy and its Operations Plan</p> <ul style="list-style-type: none"> a. Target audience b. Strategy c. Programs d. Milestones e. Responsible offices f. Budgetary requirements | 1 |
| | <p>Act. 3. Integrate lessons on pollution prevention, waste management as well as the protection of important natural and unique geological areas, historical, cultural, religious and architectural landmarks in the curriculum of primary, secondary and tertiary schools (focus on Manila Bay), and environmental activities in the NSTP/CWTS.</p> <p>NSTP – National Service Training Program CWTS – Civic Welfare Training Service</p> | 0.75 |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|--------|--|---------------------------------|
| | Act. 4. Organize and implement activities for school children/youth, e.g., ecological camps, youth fora, essay writing, drawing/painting contest, tree planting, coastal and river clean up, slogan and poster contest to build awareness and mobilize participation for the long-term management of pollution and the natural/ecological, economic and social values of Manila Bay region | 1.5 |
| | <p>Act. 5. Conduct Information, Education, and Communication (IEC) and advocacy program for national and local legislators, policy-makers, educators, industries, civil society groups, and other stakeholders</p> <ul style="list-style-type: none"> • Conduct of Manila Bay Summit • Disseminate policy briefs, case studies, and other IEC on: <ul style="list-style-type: none"> - pollution prevention and waste management (solid waste, sewage and industrial wastewater, toxic and hazardous waste) - restoration/rehabilitation, protection/conservation and management of habitats, natural values, historical, cultural, religious and architectural landmarks, and archaeological and unique geological sites in Manila Bay region - aquaculture zones, quota system and appropriate aquaculture methods and practices and their benefits - environmental impacts of unregulated application of feeds (inappropriate type of feeds, over-use of feeds) - impacts of illegal logging and deforestation and measures to restore forests and mangroves - impacts of illegal, destructive and unregulated fishing, and measures to address sustainable fisheries in Manila Bay region - tree planting and coastal and river clean-up activities among schoolchildren, youth, communities, civic and non-government organizations, private sector and LGUs - impacts of over-extraction of groundwater - water recycling and water use reduction - international conventions, national laws and regulations related to protection and management of the environment, natural resources and historical and cultural sites - the contents of the CLUP, especially among those involved in processing building permits, housing permits, business permits, ECCs, etc., as well as the various enforcement groups (e.g., Bantay Dagat groups, etc.) | 3 |
| | Act. 6. Organize and implement community activities (civil society, industries, and other stakeholders) e.g., ecological camps, fora, essay writing, drawing/painting contest, tree planting, coastal and river clean up, bird watching, slogan and poster contest to build awareness and mobilize participation for the long-term management of pollution and the natural/ecological, economic and social values of Manila Bay region | 4.5 |
| | Objective 7 | 1.5 |
| | Act. 1 Develop natural hazards map and identify risk and hazard-prone areas (flooding, land subsidence, earthquakes, faultlines, volcanic eruption, lahar, flow, flash flood, and landslides, forest fires, tsunamis, red tide, fish kill) | 1.5 |
| | Act. 7. Conduct capacity-building activities, including training workshops and pilot programs on alternative livelihood, for fisherfolks, aquaculture owners and operators, farmers, livestock growers, upland | 9 |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|--------|--|---------------------------------|
| | <p>dwellers, informal settlers, industries, government employees, civil society groups, pollution officers, etc. on environmentally-sound practices, alternative livelihood programs, environmental monitoring, environmental management, and monitoring and evaluation programs</p> | |
| | Act. 8. Promote corporate environmental and social responsibility in the private sector | 2.5 |
| | Objective 5 | 6 |
| | Act. 1. Identify and document best practices involving partnership arrangements and experiences (within the Manila Bay Region and outside) | Budget lodged to DILG |
| | Act. 3. Develop and implement capacity-building programs for LGUs to engage in PPPs and enhance private sector investments in pollution reduction and resource conservation projects | Budget lodged to DTI |
| | Act. 5. Conduct pre-feasibility studies, willingness-to-pay surveys and stakeholder consultations to assess viability of the projects for private sector participation. | 6 |
| | Objective 6 | 2.5 |
| | Act. 4. Develop and issue regulations, standards and guidelines concerning buffer setback zoning in beach areas, and allocation of areas for public recreational use, and building of tourism and port facilities. | 2.5 |
| | Objective 8 | 15.45 |
| | Act. 1. Develop appropriate monitoring and evaluation system for the Manila Bay Region <ul style="list-style-type: none"> a. Review and assess existing monitoring and evaluation (M&E) programs b. Incorporate the output of the Pilot Integrated Environmental Monitoring Program (IEMP) and Risk Assessment including performance indicators/standards c. Delineate and clearly define roles and responsibilities of LGUs, NGAs, private sectors, communities in the monitoring and evaluation of programs/projects/activities in Manila Bay | 2 |
| | Act. 2. Institutionalize the M&E system developed. | 1.5 |
| | Act. 3. Institutionalize the IIMS and MBIN | 1.5 |
| | Act. 4. Conduct training on capacity-building of stakeholders (LGUs, communities, national government agencies, etc.) on M&E; IIMS | 7.5 |
| | Act. 5. Mobilize communities (including indigenous peoples, women, and other vulnerable sectors) and other stakeholders for data generation, monitoring, law enforcement, etc. | Budget lodged to LGUs |
| | Act. 7. Assist industries towards implementation of Environmental Management System (EMS) and pollution prevention programs through Phil Environment Partnership Program (PEPP) | 0.45 |
| | Act. 8. Implement the Eco-watch and Baywatch programs as monitoring and incentives programs (including regular for a web-based and public consultations) | 2.5 |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|--|--|---------------------------------|
| Department of Education (DepEd) | Objective 4 | 6.75 |
| | Act. 3. Integrate lessons on pollution prevention, waste management as well as the protection of important natural and unique geological areas, historical, cultural, religious and architectural landmarks in the curriculum of primary, secondary and tertiary schools (focus on Manila Bay), and environmental activities in the NSTP/CWTS. NSTP – National Service Training Program; CWTS – Civic Welfare Training Service | .75 |
| | Act. 4. Organize and implement activities for school children/youth, e.g., ecological camps, youth fora, essay writing, drawing/painting contest, tree planting, coastal and river clean up, slogan and poster contest to build awareness and mobilize participation for the long-term management of pollution and the natural/ecological, economic and social values of Manila Bay region | 1.5 |
| | Act. 6. Organize and implement community activities (civil society, industries, and other stakeholders) e.g., ecological camps, fora, essay writing, drawing/painting contest, tree planting, coastal and river clean up, bird watching, slogan and poster contest to build awareness and mobilize participation for the long-term management of pollution and the natural/ecological, economic and social values of Manila Bay region | 4.5 |

| | | |
|--|---|-----------------------|
| Philippine Information Agency (PIA) | Objective 4 | |
| | Act. 5. Conduct Information, Education, and Communication (IEC) and advocacy program for national and local legislators, policy-makers, educators, industries, civil society groups, and other stakeholders <ul style="list-style-type: none"> • Conduct of Manila Bay Summit • Disseminate policy briefs, case studies, and other IEC on: <ul style="list-style-type: none"> - pollution prevention and waste management (solid waste, sewage and industrial wastewater, toxic and hazardous waste) - restoration/rehabilitation, protection/conservation and management of habitats, natural values, historical, cultural, religious and architectural landmarks, and archaeological and unique geological sites in Manila Bay region - aquaculture zones, quota system and appropriate aquaculture methods and practices and their benefits - environmental impacts of unregulated application of feeds (inappropriate type of feeds, over-use of feeds) - impacts of illegal logging and deforestation and measures to restore forests and mangroves - impacts of illegal, destructive and unregulated fishing, and measures to address sustainable fisheries in Manila Bay region - tree planting and coastal and river clean-up activities among schoolchildren, youth, communities, civic and non-government organizations, private sector and LGUs - impacts of over-extraction of groundwater - water recycling and water use reduction - international conventions, national laws and regulations related to protection and management of the environment, natural resources and historical and cultural sites - the contents of the CLUP, especially among those involved in processing building permits, housing permits, business permits, | Budget lodged to DENR |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|--|---|---------------------------------|
| | ECCs, etc., as well as the various enforcement groups (e.g., Bantay Dagat groups, etc.) | |
| Department of Trade and Industry (DTI) | Objective 5 | 2.75 |
| | Act. 1. Identify and document best practices involving partnership arrangements and experiences (within the Manila Bay Region and outside) | 0.5 |
| | Act. 2. Develop guidelines on alternative partnership arrangements applicable to the Manila Bay Region | 0.25 |
| | Act. 3. Develop and implement capacity-building programs for LGUs to engage in PPPs and enhance private sector investments in pollution reduction and resource conservation projects | 1.5 |
| | Act. 7. Monitor and evaluate compliance to partnership commitments | 0.5 |
| Department of the Interior and Local Government (DILG) | Objective 5 | 0.5 |
| | Act. Identify document and and promote replication of best practices involving partnership arrangements and experiences (within the Manila Bay Region and outside) | 0.5 |
| National Mapping and Resource Information Authority (NAMRIA) | Objective 7 | |
| | Act. 1. Develop natural hazards map and identify risk and hazard-prone areas (flooding, land subsidence, earthquake, faultlines, volcanic eruption, lahar flow, flash flood and landslides, forest fires, tsunamis, red tide, fish kill). | Budget lodged to DENR |
| Department of Agriculture – Bureau of Fisheries and Aquatic Resources (DA-BFAR) | Objective 1 | 0.15 |
| | Act. 4. Delineate water boundaries of coastal municipalities and cities | 0.15 |
| National Disaster Coordinating Council (NDCC) | Objective 7 | 7.75 |
| | Act. 1. Develop natural hazards map and identify risk and hazard-prone areas (flooding, land subsidence, earthquake, faultlines, volcanic eruption, lahar flow, flash flood and landslides, forest fires, tsunamis, red tide, fish kill). | Budget lodged to DENR |
| | Act. 2. Review the National Disaster Coordination Plan, and assess in relation with the needs of the Manila Bay Region. | 0.25 |
| | Act. 3. Develop a Natural Hazard Contingency Plan and Response System with concerned agencies and sectors a. Identify the ecosystems, human settlements, and historical, cultural, religious, architectural, archeological and unique | 2.5 |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|---|---|---------------------------------|
| | geological sites that are at risk or in hazard-prone areas b. identify and develop mitigation measures c. Develop response system | |
| | Act. 4. Adopt and implement the contingency plan and response system. | 5 |
| Housing and Land Use Regulatory Board | Objective 1 | 5 |
| | Act. 3. Amend CLUP guidelines to include sea/water use and foreshore uses | 5 |
| National Economic Development Authority (NEDA) | Objective 1 | 5 |
| | Act. 3. Amend CLUP guidelines to include sea/water use and foreshore uses | 5 |
| Local Government Units (LGUs) | Objective 1 | 25 |
| | Act. 3. Amend CLUP guidelines to include sea/water use and foreshore uses | Budget lodged to HLURB |
| | Act. 7 Implementation of Manila Bay Areas integrated land and sea use plan | 25 |
| | Objective 3 | 7.45 |
| | Act. 5. Set-up and implement ICM in each coastal province, city and municipal government around the Bay area | 7 |
| | Act. 6. Replicate best ICM practices | 0.45 |
| | Objective 4 | 3 |
| Act. 5. Conduct Information, Education, and Communication (IEC) and advocacy program for national and local legislators, policy-makers, educators, industries, civil society groups, and other stakeholders <ul style="list-style-type: none"> • Conduct of Manila Bay Summit • Disseminate policy briefs, case studies, and other IEC on: <ul style="list-style-type: none"> - pollution prevention and waste management (solid waste, sewage and industrial wastewater, toxic and hazardous waste) - restoration/rehabilitation, protection/conservation and management of habitats, natural values, historical, cultural, religious and architectural landmarks, and archaeological and unique geological sites in Manila Bay region - aquaculture zones, quota system and appropriate aquaculture methods and practices and their benefits - environmental impacts of unregulated application of feeds (inappropriate type of feeds, over-use of feeds) - impacts of illegal logging and deforestation and measures to restore forests and mangroves - impacts of illegal, destructive and unregulated fishing, and measures to address sustainable fisheries in Manila Bay region - tree planting and coastal and river clean-up activities among schoolchildren, youth, communities, civic and non-government | 3 | |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|--------|---|---------------------------------|
| | organizations, private sector and LGUs - impacts of over-extraction of groundwater - water recycling and water use reduction - international conventions, national laws and regulations related to protection and management of the environment, natural resources and historical and cultural sites - the contents of the CLUP, especially among those involved in processing building permits, housing permits, business permits, ECCs, etc., as well as the various enforcement groups (e.g., Bantay Dagat groups, etc.) | |
| | Objective 6 | 1.5 |
| | Act. 1. Conduct inventory and assessment of structures, establishments and illegal settlements along coastlines, riverbanks and waterways. a. removal/relocation of structures and settlers (legal and illegal) with PNP | 0.5 |
| | Act. 2. Develop investment/financial plan on the: a. development of livelihood programs for relocated settlers, and b.. rehabilitation and protection of important natural, social and cultural sites along the coastlines, riverbanks and waterways. | 1 |

| | | |
|--------------------------------------|---|--------------|
| Local Government Units (LGUs) | Objective 6 | 27.50 |
| | Act. 3. Implement a program for the relocation of informal settlers living along the coastlines and waterways to meet the allowable TDLs/reduction targets. | 25 |
| | Act. 4. Develop and issue regulations, standards and guidelines concerning buffer setback zoning in beach areas, and allocation of areas for public recreational use, and building of tourism and port facilities. | 2.5 |
| | Act. 5. Implement buffer and setback zones along the beach/shores This includes the: <ul style="list-style-type: none"> • adoption of the action plan and zoning scheme for the beach areas and foreshore areas • removal/relocation of structures in the zoned area • setting up of protected areas/ sanctuaries for shorebirds and nesting sites of marine turtles • setting of appropriate berthing areas for artisanal fishing boats and jetties for coastal tourism establishments and industries | - |
| | Objective 8 | 1.95 |
| | Act. 5. Mobilize communities (including indigenous peoples, women, and other vulnerable sectors) and other stakeholders for data generation, monitoring, law enforcement, etc. | 1.5 |
| | Act. 6. Develop voluntary agreements (e.g., self-regulation, disclosure, etc.) with industries, hospitals, commercial and tourism enterprises operating in the Manila Bay area | 0.45 |

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|--|---|---------------------------------|
| Provincial Planning and Development Office (PPDOs) | Objective 1 | 2.5 |
| | Act. 2. Assess and align existing land-use plans, various development plans, programs and projects, and related CRM/ICM efforts at different levels of government | 2.5 |
| | Act. 3. Amend CLUP guidelines to include sea/water use and foreshore uses | Budget lodged to DENR |

Water Pollution

| Agency | Objective/Activity | Estimated Budget (In Million P) |
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| Department of Environment and Natural Resources (DENR) | Objective 1 | 551.5 |
| | 1. Conduct study to (a) identify point sources and determine total discharge loading (TDL) of raw sewage and other key parameters from domestic; | 549 |
| | (b) Conduct study to determine pollution loadings from fisheries and aquaculture and from farmlands & livestock industries; | |
| | (c) Conduct study to determine pollution loadings from manufacturing industries and commercial establishments, into the following river systems: a. Pampanga River b. NCR Rivers (Paranaque, Las Pinas, Zapote rivers) c. Navotas-Malabon-Tullahan-Tenejeros d. Maragondon River (Cavite) e. Talisay River (Bataan) f. Angat Watershed g. Pasig-Marikina-San Juan (PAMARISAN) River h. Pasag River (Sasmuan, Masantol, Macabebe, Pampanga) i. Pasig-Potrero River (Pampanga) j. Porac-Gumain River (Pampanga) k. Imus River (Cavite) | |
| | 2. Establish time-bound pollution-reduction targets for identified major point sources in the identified river systems. | 2.5 |
| | Objective 3 | 2,340 |
| | 1. Mandatory registration of: a. all hazardous waste generators b. importation and use of new chemicals, and update database on sources, volume of waste generated by type | 20 |
| | 2. Prepare investment plan for an integrated toxic and hazardous waste (THW) management system (collection, transport, recycling, and treatment of hazardous waste and proper disposal of treated hazardous wastes). - in special economic zones - in key industrial areas - healthcare wastes | 10 |
| | 3. Implement the integrated storage, treatment, and disposal (STD) plan | 2,300 |

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| | 3.a. Construct and operate a THW management facility (including collection, transport, recycling, treatment and proper disposal | |
| | 3.b. Require all generators to use the THW management facilities (integrated STD) – part of Environment Compliance Certificate (ECC) | |
| | 3.c. Require all importers/exporters of THW to secure permit/ clearance from EMB | |
| | 4. Implement segregation of healthcare/hospital/toxic/hazardous wastes and prevent mixing with municipal solid waste. | 10 |
| | Objective 4 | 1.5 |
| | Object 4 3. Develop guidelines on alternative land-based disposal sites, treatment and disposal methods for sewage, industrial sludge, solid waste, and contaminated dredged materials. | 1.50 |
| | Objective 5 | 2.0 |
| | 3. Identify environment-friendly paints and anti-fouling chemicals for all ships and boats | 2.0 |

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| Department of Agriculture – Bureau of Fisheries and Aquatic Resources (DA-BFAR) | Objective 1 | 0.50 |
| | 7. Develop guidelines, criteria, and standards for collection, treatment, recycling, and disposal of agricultural and aqua-cultural wastes | 0.50 |

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| Philippine Coast Guard (PCG) | Objective 4 | 6.0 |
| | 1. Identify sea dumping activities (e.g. dredged materials, septage sludge, solid waste, toxic & hazardous waste, etc.). | 0.50 |
| | 2. Identify companies with dumping permits. | 0.50 |
| | 3. Develop guidelines on alternative land-based disposal sites, treatment and disposal methods for sewage, industrial sludge, solid waste, and contaminated dredged materials. | Budget lodged to DENR |
| | 4. Issue and enforce moratorium on sea dumping - formulate implementing rules and regulation (IRR) - draft and issue A.O. | 2.50 |
| | 5. Revoke licenses and permits for sea dumping of sewage, industrial sludge, solid waste, and contaminated dredged materials. | 2.50 |
| | Objective 5 | 0.50 |
| | 4. Implement guidelines on the following: (a) discharges of operational waste from ships (b) use of harmful paints and anti-fouling chemicals | 0.50 |
| | 5. Develop and implement “Port Safety and Environmental Management System” | Budget lodged to PPA |
| | Objective 6 | 6.20 |
| | 1. Finalize and adopt the “Manila Bay Oil Spill Contingency Plan” | 0.70 |
| 2. Implement the ‘Masterplan for Maritime Safety’ and put in place | 2.50 | |

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| | navigational aids and vessel traffic separation (VTS) scheme | |
| | 3. Pilot test Manila Bay Oil Spill Contingency Plan | 0.50 |
| | 4. Promote ratification of the Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) | 2.50 |

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| MARINA | Objective 5 | |
| | 4. Implement guidelines on the following: (a) discharges of operational waste from ships (b) use of harmful paints and anti-fouling chemicals | Budget lodged to PCG |
| Philippine Port Authority (PPA) | Objective 5 | 154 |
| | 1. Estimate the volume of discharges of operational waste (e.g., oily bilge and ballast water) from ships (cargo, passenger, tankers, fishing boats/ships, etc.) by type and source | 2.5 |
| | 2. Construct/install shore reception facilities in major ports (e.g., PPA ports, Navotas fish port, Cavite ports, Bataan ports, public private ports) as part of the masterplan | 150 |
| | 5. Develop and implement "Port Safety and Environmental Mngt. System" | 1.5 |

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| Department of Transportation and Communication (DOTC) | Objective 6 | |
| | 1. Finalize and adopt the "Manila Bay Oil Spill Contingency Plan" | Budget lodged to PCG |
| | 4. Promote ratification of the Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) | Budget lodged to PCG |

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| Local Government Units (LGUs) | Objective 1 | 0.50 |
| | 3. Enforce the ordinances on the installation and maintenance of adequate septic tanks on target households along the major river systems and all other areas directly or indirectly draining sewage to Manila Bay. | 0.5 |
| | 5. (a) Prepare/update investment plan/master plan for the establishment of sewerage systems/sewerage treatment plants (STPs) for the priority point sources in the other major rivers to meet the allowable TDL/reduction targets by 2015 (b) prepare Investment Plan for common waste water treatment facilities (WWTF) in key industrial areas and economic zones | Budget lodged to MWSS |
| | 6. Construct sewerage systems and centralized sewage treatment facilities (CSTF) in priority areas, including subdivisions and housing projects, based on the reduction targets monitor the implementation of MWSS programs/ concessionaire projects | Budget lodged to MWSS |
| | Objective 2 | 12,673.5 |
| | 1. Reconstitute and/or strengthen functional solid waste management (SWM) Boards and Brgy. Solid Waste Committees and prepare 10-year SWM Plan. | 91.50 |
| | 2. Develop Investment Plan for SWM systems (collection, transport, disposal, segregation, recycling, and composting) in major LGUs | 10.0 |

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| | (cities and municipalities) - at least 1 city/cluster of municipalities for each province | |
| | 3. Convert existing open dumpsites into “controlled dumpsites” | 1,830 |
| | 4. Implement the Solid Waste Management Plan (SWMP) and Investment Plan 4.a Establish and implement collection for SW from household, commercial and industrial establishment | 10,741.5 |
| | 4.b. Construct Materials Recovery Facilities (MRFs) (for sorting and recycling) and composting facilities for solid waste based on Investment Plan | |
| | 4.c. Construct sanitary landfill for the disposal of residual waste. | |
| | 5. Prohibit the operation of open dumpsites. | 0.50 |

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| Metropolitan Waterworks and Sewerage System (MWSS) | Objective 1 | 2,005 |
| | 4. Implement a pilot project on sewerage system in the Parañaque, Las Piñas and Zapote river system. | 500 |
| | 5. (a) Prepare/update investment plan/master plan for the establishment of sewerage systems/sewerage treatment plants (STPs) for the priority point sources in the other major rivers to meet the allowable TDL/reduction targets by 2015 (b) prepare Investment Plan for common waste water treatment facilities (WWTF) in key industrial areas and economic zones | 5 |
| | 6. Construct sewerage systems and centralized sewage treatment facilities (CSTF) in priority areas, including subdivisions and housing projects, based on the reduction targets monitor the implementation of MWSS programs/ concessionaire projects | 1,500 |

Over-Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious, Archeological and Unique Geological Sites

| Agency | Objective/Activity | Estimated Budget (In Million P) |
|---|--|--|
| Department of Environment and Natural Resources (DENR) | Objective 1 | 20 |
| | Act. 1. Identify and assess existing and proposed Protected Areas (PAs) and critical habitats in the Manila Bay region and key habitats and resources to be designated as Protected Areas and critical habitats, including those declared and proposed by LGUs | 2.5 |
| | Act. 2. Prepare detailed Protected Area and Critical Habitat Management Plan in the Manila Bay region based on the approved integrated land and sea-use zoning plans to include but not limited to : <ul style="list-style-type: none"> • Plan for the protection and restoration/rehabilitation of the following habitats: <ul style="list-style-type: none"> - coral reefs, - seagrass beds, - mangroves, mudflats - swamps (e.g., Candaba Swamps), - inland and other wetlands, and, - forests • Designation/delineation of: <ul style="list-style-type: none"> - fishing area and fish sanctuaries | 5 |

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| | <ul style="list-style-type: none"> - mangrove and mudflat sanctuaries - sanctuaries for rare and endangered species (turtles, birds, other wildlife) - buffer zones - setback zones for beach areas - river easements - eco-tourism sites - national parks • Consultations with concerned government units/ agencies, LGUs, NGOs, informal settlers, and other stakeholders for the finalization of the PA Management Plan • Roles and responsibilities of each agency/sector involved in the implementation • Monitoring and evaluation system • Management of invasive species | |
| | <p>Act. 3. Establish/restore and manage designated Protected Areas and critical habitats</p> <p>3.1. Establish and manage sanctuaries/protected areas (e.g., fish, mangroves and mudflats, forests, swamps, birds/turtles/wildlife, etc.)</p> <p>3.2. Establish the Candaba Swamps as bird sanctuary and national park, in view of being declared as a Ramsar site Maintain existing national parks in each province/ municipality/city, including adoption of users fee system and community-based resource management programs</p> | 12.5 |
| | Objective 2 | 55.75 |
| | Act. 1. Review results of Integrated Environmental Monitoring Program (IEMP) and assess the condition of the existing mangrove areas and mudflats. | 1.5 |
| | <p>Act. 2. Prepare detailed rehabilitation and management plan for mangrove and mudflat areas</p> <p>Include:</p> <ul style="list-style-type: none"> - Mangrove reforestation under the Community-based Forest Management Framework - Revert back abandoned fishponds into mangrove areas - Measures/actions to prohibit further decrease of mangrove and mudflat areas due to conversion into aquaculture and salt beds, land reclamation for human settlement, industrial development, removal for fuel wood, pollution and sedimentation as a result of upland and upstream activities, pest infestation, among others - Mobilize/strengthen community organization/associations - Monitoring and evaluation system, including list of indicators to determine whether or not objectives of the plan are achieved - Inventory of titled mangrove areas | 1 |
| | Act. 3. Conduct consultations with LGUs, NGO, IP and community stakeholders, and prepare Action Plan. | 0.5 |
| | <p>Act. 4. Implement Action Plan for rehabilitation and maintenance of mangroves and mudflats</p> <p>4.1. Organize and mobilize community organizations, associations, NGOs and private sector for the mangrove reforestation</p> <p>4.2. Restore/revert back into mangroves all abandoned fishponds</p> <p>4.3. Reforest mangrove areas through community-based management approach</p> <p>4.4. Provide livelihood programs for communities managing and protecting the mangrove and mudflat areas</p> <p>4.5. Establish Mangrove and Bird Sanctuary in the Reclamation Area</p> | 20 |

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| | (as model for eco-tourism in mangrove areas) 4.6. Promote regular clean-up activities in the mudflat areas with the communities and LGUs | |
| | Act. 5.a. Review and reconcile existing laws and ordinances on the following: - conversion of mangroves and mudflats into fishponds and shrimp ponds - reclamation, dredging and dumping activities in mangrove and mudflat areas - cutting of mangroves and filling in of mudflat areas for resettlement, tourism, industrial and commercial areas - all municipal fisheries ordinances 5.b. Enforce the laws and ordinances. | .50 |
| | Act. 6. Monitor progress of the Action Plan for mangrove and mudflat rehabilitation and management | 2 |
| | Act. 7. Conduct rapid assessment of the entire stretch of shorelines along Manila Bay, and review current activities/structures, related policies, regulations and permitting system, and proposed plans, programs and projects to be implemented along the foreshore areas. | 5 |
| | Act. 8. Prepare masterplan for the development of foreshore areas in accordance with the integrated land-and sea-use plan and the integrated watershed and coastal area management framework, including: - appropriate methods for the restoration of damaged beaches/shores, and mitigation of coastal erosion; - rehabilitation and protection of mangroves, which serve as natural barriers to shoreline updrift and pro-gradation; and, - Action plan for the Manila Bay Region prepared by the stakeholders | 5 |
| | Act. 9.a. Issue moratorium on: - mining/quarrying of sand from rivers - reclamation of shallow coastal waters to build housing and tourist establishments 9.b. Enforce laws on: - mining/quarrying of sand/rocks from beaches and PAs - dumping of garbage, sludge and dredged materials along beaches/shores | 0.25 |
| | Act. 10. Implement programs/projects on beach nourishment/stabilization and mitigation measures to address coastal erosion. <i>(to be coordinated with implementation of the Integrated Forestry Development and Management Plan, the restoration and protection activities for mangroves and mudflats).</i> | 10 |
| | Act. 11. Implement the Eco-watch and Blue Flag system in the Manila Bay area to monitor beach and coastal water quality, and to provide incentives for beach protection. | 10 |
| | Objective 3 | 539.40 |
| | Act. 1. Update maps on watershed boundaries/characteristics in Manila Bay region, and the Manila Bay IIMS (NAMRIA) | 1 |
| | Act. 2. Identify and assess the implementation of various national and local programs/projects/ activities related to forest management policies and forest restoration/rehabilitation programs | 1 |
| | Act. 3. Develop Integrated Forestry Development and Management Plan (IFDMP) for the Manila Bay region | 1.5 |

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| Act. 4. Conduct consultation/ workshop on the finalization of Integrated Forestry Development and Management Plan (IFDMP) | 1 |
| Act. 5. Implement the IFDMP 5.1. Reforest open and denuded areas and protect forest resources through appropriate arrangements, e.g., Community-based Forest Management (CBFM), Industrial Forest Management Agreements (IFMA), Socialized Industrial Forest Management Agreements (SIFMA) 5.2. Undertake appropriate riverbank stabilization projects 5.3. Package investment opportunities for CBFM projects 5.4. Monitor and implement forest land use (mapping of forest and non-forest boundaries, ground survey, demarcation, etc.) 5.5. Grant appropriate security of tenure to upland dwellers 5.6. Provide technical assistance to the private sector and NGOs in the establishment of industrial forest plantations 5.7. Apply appropriate economic instruments to capture resource rents 5.8. Provide alternative livelihood programs/ projects 5.9. Establish eco-tourism programs 5.10. Undertake intensified forest protection campaign on forest fires and illegal logging. | 400 |
| Act. 6. Enforce laws, regulations, and ordinances on illegal logging within the Manila Bay region. | 135 |
| Objective 4 | |
| Act. 5. Include the criteria/guidelines for preservation/ rehabilitation/ restoration of important cultural, historical, religious, archeological, architectural and unique geological sites in the Environmental Impact Assessment (EIA) criteria for evaluation of development projects | Budget lodged to NCCA |
| Objective 7 | 13.25 |
| Act. 1. Conduct study/collate/update information on: a. the incidence of salt-water intrusion and land subsidence around Manila Bay b. extent of groundwater use (profile of users, volume and rate of extraction) c. current state of the aquifers d. existing water supply from surface water and groundwater e. current and projected water demand by sector and location f. potential surface water sources g. priority municipalities/cities h. contamination due to leachate from dumpsites, gasoline stations, etc. i. review of permitting system and fee system for groundwater users j. abandoned deepwells k. technologies related to recharging of aquifers | 5 |
| Act. 2. Conduct feasibility studies and develop investment plan to expand coverage and supply of surface water to coastal areas, areas outside of the central distribution system of MWSS, and other water districts. | 5 |
| Act. 3. Develop groundwater management plan, including the establishment of time-bound targets to reduce groundwater extraction and allow the recovery of aquifers, conservation (ERs) and other demand-side mgt. measures | 2.5 |
| Act. 6. Develop and issue guidelines and standards on water use reduction technologies and processes, water recycling, groundwater extraction, and post-closure of abandoned wells. | .25 |

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| | Act. 7. Establish appropriate water pricing system to reflect full cost of groundwater use, surface water impoundment, treatment and distribution, and wastewater discharges. | .25 |
| | Act. 8. Establish monitoring and evaluation system for groundwater extraction, salt-water intrusion, land subsidence, and contamination of groundwater. - Collaboration with the National Water Information Network (NWIN) | 0.25 |
| Department of Agriculture – Bureau of Fisheries and Aquatic Resources (DA-BFAR) | Objective 5 | 125 |
| | Act. 1.a. Conduct study on fish stock trends, diversity of pelagic, demersal and fresh water fish and other ecologically important species, and determine feasible, socially accepted resource management intervention. 1.b. Conduct study on maximum sustainable yield (MSY) and maximum economic yield (MEY) for pelagic, demersal and fresh water fish in Manila Bay Region, and the open and closed seasons and areas for harvesting commercially and ecologically important species 1.c. Conduct study on the trends of fish kills due to red tide and determine bioaccumulation of sediments, fish and shellfishes | 1 |
| | Act. 2. Conduct socio-economic survey of the coastal population-including fisherfolk, current fish catch, fishing effort | 1 |
| | Act. 3. Determine and evaluate appropriate regulatory/legal and economic instruments (moratorium on commercial fisheries, open/close season for fishing, licensing and permitting system) in Manila Bay Region | 0.5 |
| | Act. 4. Develop integrated plan for sustainable fisheries in Manila Bay region, consistent with the Fisheries Code Include but not limited to: - Integrated Coastal Management (ICM) program - sustainable fishing methods and practices - appropriate policy instruments - fishing areas/zones - fish sanctuaries; no-catch zones - open and closed seasons and areas for commercially and ecologically important species - alternative livelihood programs and support services - institutional arrangements - infrastructure system - detailed work and financial plan - non-intro of exotic, alien or destructive species - reduction of population of exotic species detrimental to indigenous aquatic species monitoring of fishery resources and activities | 2 |
| | Act. 5. Implement the integrated plan for sustainable fisheries (for entire bay and each region) 5.1. Establish fishing areas and fish sanctuaries (in accordance with the integrated land- and sea-use plan/zoning scheme) 5.2. Implement the designated closed season for harvesting commercially and ecologically important species and designated closed areas for identified migration routes of commercially and ecologically important fish species. 5.3. Implement existing laws and policies on commercial fishing, trawling, and other illegal fishing methods in Manila Bay. 5.4. Provide communities with appropriate alternative livelihood programs and support services (e.g., mussel culture, seaweeds | 120 |

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| | <p>farming, mudcrab fattening, microfinance, etc.).</p> <p>5.5. Construct/rehabilitate fish ports with fish storage and other necessary facilities and market road network.</p> <p>5.6. Allocate and construct berthing areas for artisanal fishers.</p> <p>5.7. Institutionalize the IEMP, specifically the monitoring system for fishery resources and fishing effort in the Manila Bay region</p> <p>5.8. Implement Fishery Code RA 8850</p> | |
| | Act. 6. Establish permitting and licensing system for municipal fishing in Manila Bay Region, and track the number of fisherfolks and fishing effort. | 0.5 |
| | Objective 6 | 6.75 |
| | Act. 1. Conduct study on carrying capacity for aquaculture and mariculture in Manila Bay region | 2.5 |
| | Act. 2. Conduct inventory of owners and operators (both with permits and without permits) and assessment of the aquaculture and mariculture farms/industries in Manila Bay relative to its carrying capacity | 0.5 |
| | Act. 3. Review and assess appropriate policy instruments and develop guidelines, aquaculture and mariculture standards, and regulations concerning implementation, monitoring and enforcement of: <ul style="list-style-type: none"> - users fee, quota system and other economic instruments - appropriate technology, methods, practices, feeds (type and application methods) and specifications for the pens/cages/ponds (e.g., size of mesh, distance of poles, etc.) | .5 |
| | Act. 4. Based on the integrated land- and sea-use plan, delineate areas for aquaculture and mariculture, and establish quota system in accordance with the carrying capacity. | 1 |
| | Act. 5. Require owners and operators to apply appropriate aquaculture and mariculture methods and practices | 2.25 |
| | Act. 6. Revoke permits of aquaculture and mariculture farms in areas that are not designated for aquaculture and mariculture production, and remove all illegal pens/cages/ponds in Manila Bay and Laguna de Bay | |
| | Act. 7. Restore production of windowpane oyster and seaweeds (as alternative livelihood), in appropriate sites with LGUs, POs, NGOs, academe, private sector | |
| Department of Public Works and Highways (DPWH) | Objective 2 | .25 |
| | Act. 12. Develop and issue guidelines and standards for coastal road construction, and enhancement of scenic view along the coasts | 0.25 |
| | Objective 7 | |
| | Act. 5 Construct/rehabilitate irrigation systems and rehabilitate multi-purpose water reservoirs to increase water availability for agricultural and municipal use, including programs to mitigate erosion, siltation and sedimentation to prolong lifespan of water reservoirs | Budget lodged to NIA |
| Department of Tourism (DOT) | Objective 4 | 10 |
| | Act. 6. Formulate and implement restoration and maintenance program to ensure the preservation of important cultural, historical, religious, archeological, architectural and unique geological sites, including the establishment of: <ul style="list-style-type: none"> - tourism guidelines using information on carrying capacities of prioritized sites - users fee schemes & enforcement system | 10 |

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| | - standards and certification program | |
| National Commission on Culture and Arts (NCCA) | Objective 4 | 216.50 |
| | Act. 1. Conduct inventory and assessment of all cultural, historical, architectural, religious and archeological sites. | 5 |
| | Act. 2. Conduct study on carrying capacities and appropriate management approaches for important cultural, historical, religious, archeological, architectural and unique geological sites, including criteria and guidelines for preservation/ rehabilitation/restoration | 10 |
| | Act. 3. Develop management plan to restore and maintain important cultural, historical, religious, archeological and unique geological sites, including: - legal and financial mechanisms - monitoring and enforcement system | 1.5 |
| | Act. 4. Restore/rehabilitate/preserve cultural, historical, religious, archeological , architectural, and unique geological sites, in accordance with the criteria and guidelines | 200. |
| Housing and Land Use Regulatory Board | Objective 4 | .2 |
| | Act. 7. Incorporate the zoning, protection, restoration/rehabilitation and maintenance of cultural, historical, religious and architectural landmarks and archeological and unique geological sites into local and national development plans, and land-use plans (CLUPs) | .2 |
| Laguna Lake Development Authority (LLDA) | Objective 5 | |
| | Act. 6. Establish permitting and licensing system for municipal fishing in Manila Bay Region, and track the number of fisherfolks and fishing effort. | Budget lodged to DA-BFAR |
| | Objective 6 | |
| | Act. 6. Revoke permits of aquaculture and mariculture farms in areas that are not designated for aquaculture and mariculture production, and remove all illegal pens/cages/ponds in Manila Bay and Laguna de Bay. | Budget lodged DA-BFAR |
| National Water Resources Board (NWRB) | Objective 7 | |
| | Act. 1. Conduct study/collate/update information on: a. the incidence of salt-water intrusion and land subsidence around Manila Bay b. extent of groundwater use (profile of users, volume and rate of extraction) c. current state of the aquifers d. existing water supply from surface water and groundwater e. current and projected water demand by sector and location f. potential surface water sources g. priority municipalities/cities h. contamination due to leachate from dumpsites, gasoline stations, etc. i. review of permitting system and fee system for groundwater users j. abandoned deepwells k. technologies related to recharging of aquifers | Budget lodged to DENR |

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| | Act. 2. Conduct feasibility studies and develop investment plan to expand coverage and supply of surface water to coastal areas, areas outside of the central distribution system of MWSS, and other water districts. | Budget lodged to DENR |
| | Act. 3. Develop groundwater management plan, including the establishment of time-bound targets to reduce groundwater extraction and allow the recovery of aquifers. | Budget lodged to DENR |
| | Act. 6. Develop and issue guidelines and standards on water use reduction technologies and processes, water recycling, groundwater extraction, and post-closure of abandoned wells. | Budget lodged to DENR |
| | Act. 7. Establish appropriate water pricing system to reflect full cost of groundwater use, surface water impoundment, treatment and distribution, and wastewater discharges. | Budget lodged DENR |
| | Act. 8. Establish monitoring and evaluation system for groundwater extraction, salt-water intrusion, land subsidence, and contamination of groundwater. - Collaboration with the National Water Information Network (NWIN) | Budget lodged DENR |

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| National Irrigation Administration (NIA) | Objective 7 | 40 |
| | Act. 5. Construct/rehabilitate irrigation systems and rehabilitate multi-purpose water reservoirs to increase water availability for agricultural and municipal use, including programs to mitigate erosion, siltation and sedimentation to prolong lifespan of water reservoirs | 40 |

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| Local Government Units (LGUs) | Objective 1 | |
| | Act. 3. Establish/restore and manage designated Protected Areas and critical habitats 3.4. Establish and manage sanctuaries/protected areas (e.g., fish, mangroves and mudflats, forests, swamps, birds/turtles/wildlife, etc.) 3.5. Establish the Candaba Swamps as bird sanctuary and national park, in view of being declared as a Ramsar site 3.6. Maintain existing national parks in each province/municipality/city, including adoption of users fee system and community-based resource management programs | Budget lodged to DENR |
| | Objective 4 | |
| | Act. 7. Incorporate the zoning, protection, restoration/rehabilitation and maintenance of cultural, historical, religious and architectural landmarks and archeological and unique geological sites into local and national development plans, and land-use plans (CLUPs) | Budget lodged to HLURB |
| | Objective 5 | |
| | Act. 6. Establish permitting and licensing system for municipal fishing in Manila Bay Region, and track the number of fisherfolks and fishing effort. | Budget lodged to DA-BFAR |
| | Objective 6 | |
| | Act. 2. Conduct inventory of owners and operators (both with permits and without permits) and assessment of the aquaculture and mariculture farms/industries in Manila Bay relative to its carrying capacity Act. 4. Based on the integrated land- and sea-use plan, delineate areas for aquaculture and mariculture, and establish quota system in accordance with the carrying capacity. | Budget lodged to DA-BFAR |

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| | Act. 6. Revoke permits of aquaculture and mariculture farms in areas that are not designated for aquaculture and mariculture production, and remove all illegal pens/cages/ponds in Manila Bay and Laguna de Bay. | |
| Concessionaires /Water Districts | Objective 7 | 40 |
| | Act. 4. Construct water supply facilities (from surface water Level III service) in coastal areas, areas outside of the central distribution system of MWSS and other water districts with critical water requirements and salt-water intrusion problems | 40 |

6.0 INFORMATION, EDUCATION AND COMMUNICATION (IEC) STRATEGY FOR THE MANILA BAY OPERATIONAL PLAN

A comprehensive and integrated IEC Plan is one of the components of the OPMBCS. It is here where the clear message of the Manila Bay Plan will be presented to the various stakeholders to solicit their support and cooperation in the implementation of the various programs/projects and activities supportive of the OPMBCS. Its overarching strategy is largely anchored on the strategies of Social Marketing/Social Mobilization/Alliance Building and Networking. Appropriate communication strategies and processes will be followed to deliver the message which can initiate awareness, acceptance, endorsement, adoption, implementation and support by the various stakeholders of the various activities of the operational plan.

The IEC Plan also hinges on the principal message "*Bahagi Ka ng Obra!*" which connotes that every stakeholder is part and parcel to the successful implementation of the Manila Bay Plan,

It is geared towards the attainment of the following objectives:

1. To create awareness and appreciation of stakeholders on the OPMBCS goals, objectives, and action programs and projects;
2. To promote the OPMBCS for endorsement and adoption of the various identified stakeholders within the Manila Bay Region;
3. To encourage the participation of stakeholders in the implementation of the OPMBCS; and,
4. To encourage stakeholders' positive attitudes and practices supportive of the OPMBCS implementation.

To achieve these objectives, the Plan has a general and a specific set of activities. Both sets of activities have identified various target audiences with specific strategies, activities, expected outputs and appropriate media that will help in the effective and efficient transfer of the messages of the three (3) issues presented in the OPMBCS. Different sets of IEC activities and presentations shall be developed for each target audience and these will be undertaken in consonance with the Advocacy and Communication (AdCom) Plan of the Manila Bay Environmental Management Project (MBEMP). A "Manila Bay Summit" is also planned to discuss priority issues and areas of concern in Manila Bay area as well as the long-term Coastal Strategy and the action plans as set forth in the Operational Plan, set in place appropriate institutional arrangements, and build strategic partnerships to mobilize resources for the implementation of the Operational Plan.

Together with the IEC Plan, sample flyers and poster have been developed presenting the general vision for the Manila Bay region. (See attached sample flyers and poster.)

The IEC Plan of the OPMBCS is presented in Table 8.

**Table 8 Action Plan for the IEC component
Operational Plan for Manila Bay Coastal Strategy**

Objectives

1. To create awareness and appreciation of stakeholders on the goals, objectives, and action programs and projects;
2. To promote the OPMB for endorsement and adoption of various identified stakeholders of the Manila Bay Region by 2005;
3. To encourage the participation of stakeholders in the implementation of the OPMB effective 2005; and,
4. To encourage positive attitudes and practices supportive of OPMBCS.

General Activity: Manila Bay Summit

| Target Audience | Strategy | Activities | Expected Output | Media | Time Frame | Responsible Agency/Office |
|------------------|----------------------------------|---|---|---|------------------------|---------------------------------------|
| All stakeholders | Formal Gathering of Stakeholders | <ul style="list-style-type: none"> ➤ Program ➤ Signing of pledge of commitment to support and/or adopt the OPMBCS ➤ Media Coverage | <ul style="list-style-type: none"> ➤ Pledge of Commitment ➤ Proceedings ➤ Photo-ops ➤ Published articles ➤ Slot in TV/radio news and public affairs programs | <ul style="list-style-type: none"> ➤ Manila Bay Coastal Strategy OPMBCS Executive Summary ➤ Audio-visual presentation ➤ Primers ➤ Pamphlets | Fourth Quarter of 2005 | PMO, SMOs, other cooperating agencies |

Specific Activities

| Target Audience | Strategy | Activities | Expected Output | Media | Time Frame | Concerned Agency |
|---|---|---|---|---|-------------------|---|
| a) Executive • Office of the President b) Legislators • National (Senate and Congress) | <ul style="list-style-type: none"> Promote and solicit endorsement and commitment of the president and legislators to OPMBCS | <ul style="list-style-type: none"> Request time slot to present the OPMBCS (DENR USec./ASec/ RED) Sponsor kapihan style fora Identify and recruit legislator champions for OPMBCS Implement AdComp applicable activities Lobbying for institutionalization of MBEMP Request for fund allocation for OPMBCS from PDAF, CDF | <ul style="list-style-type: none"> Publications TV slots/multimedia exposure Recruited champions Budget allocation Draft Bill for appropriate body that will govern the Manila Bay region including endorsement of the OPMBCS Funding allocation from PDAF, CDF | <ul style="list-style-type: none"> Executive Summary OPMBCS Flyers Talking Points for kapihan Audio-visual presentation | Oct '05 – Mar '06 | Office of the Assecs, Usecs, PMO, MBEMP |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|---|---|---|--|--|----------------------------|---|
| <p>c) LGUs</p> <ul style="list-style-type: none"> Local Chief Executives (LCEs) | <ul style="list-style-type: none"> Promote and solicit endorsement and commitment of the LCEs to OPMBCS | <ul style="list-style-type: none"> Conduct fora, meetings, dialogues, focused group dialogues Present OPMBCS by REDs and MBEMP Tech. staff | <ul style="list-style-type: none"> Commitment of support (resources) for the OPMBCS | <ul style="list-style-type: none"> Audio-Visual presentation Flyers, posters, handbills Photo-ops | <p>Dec. '05 – Feb. '06</p> | <ul style="list-style-type: none"> MBEMP SMOs |
| <ul style="list-style-type: none"> Sanggunian (prov., city/mun., brgy.) <ul style="list-style-type: none"> Functionaries | <ul style="list-style-type: none"> Promote and solicit endorsement and commitment of the Sanggunian and functionaries to OPMBCS | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Conduct workshop/seminars, fora, meetings, dialogues Recruit champions for OPMBCS advocacy and implementation | <ul style="list-style-type: none"> Sanggunian Resolution to adopt and implement OPMBCS | <ul style="list-style-type: none"> Audio-Visual presentation Flyers, posters, handbills, "komiks" Photo-ops | <p>Jan – June '06</p> | <ul style="list-style-type: none"> SMOs |
| <p>d) NGAs</p> | <ul style="list-style-type: none"> Promote and solicit endorsement and commitment of the NGAs to OPMBCS for inclusion in the MTPDP, GAA, and NGAs' Plan of Action/Programs | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Conduct workshop/seminars, fora, meetings, dialogues Signing of MOUs, MOAs and other instruments Identify OPMBCS activities that can be included in the NGAs' Plan of | <ul style="list-style-type: none"> Signed MOAs, MOUs Proceedings Workshops, seminars, fora, meetings, dialogues conducted Plan of Action/Program and Projects that include OPMBCS activities Policies | <ul style="list-style-type: none"> Audio-Visual presentation Executive Summary Photo-ops | <p>Jan – Sept. '06</p> | <ul style="list-style-type: none"> OPMBCS TWGs, SMOs |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|--------------|--|-----------------|-------|-----------|------------------|
| | and projects | Action/ Programs and projects <ul style="list-style-type: none"> • Formulate/draft and present policies related to OPMBCS objectives | | | | |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|--|--|---|--|---|---|
| <p>e) NGOs</p> | <ul style="list-style-type: none"> Launch co-management concepts for OPMBCS | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Develop and present co-management concept Conduct workshop/seminars, fora, meetings, dialogues Delineate roles and responsibilities; Identify OPMBCS activities that can be included in their programs and projects | <ul style="list-style-type: none"> Concept paper on co-management developed Proceedings Roles and responsibilities identified Programs and Projects of NGOs that include the identified OPMBCS activities MOU/MOA signed | <ul style="list-style-type: none"> Audio-Visual presentation Brochures, Flyers, Primers, Pamphlets Executive Summary Photo-ops | <ul style="list-style-type: none"> Apr – Sept '06 | <ul style="list-style-type: none"> PMO, SMOs, Regional CMMDs |
| | <ul style="list-style-type: none"> Adopt AdComp | <ul style="list-style-type: none"> Implement appropriate AdComp activities Coordinate with concerned groups and sectors | <ul style="list-style-type: none"> Synchronized IEC work plan for OPMBCS | <ul style="list-style-type: none"> Audio-Visual presentation Primer | <ul style="list-style-type: none"> Jan '06 – Onwards | <ul style="list-style-type: none"> PMO, SMOs, Regional CMMDs |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|--|--|---|--|---|--|
| | <ul style="list-style-type: none"> • Launch Mass-media campaign | <ul style="list-style-type: none"> • Conduct press conference • Develop multi-media (print, TV, Radio, internet) materials • Conduct fora, meetings, conferences, dialogues | <ul style="list-style-type: none"> • Concepts for print-TV-radio-internet materials • Radio and TV plugs • publications • Proceedings | <ul style="list-style-type: none"> • Audio-Visual presentation • Print media • Fora, meetings, conferences, dialogues | <ul style="list-style-type: none"> • Oct '05 – Mar '06 | <ul style="list-style-type: none"> • PMO, SMOs, PEMSEA, PIA, PAO, RPAOs |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|----------------------|--|---|--|--|---|--|
| f) POs & communities | <ul style="list-style-type: none"> Launch mass media campaign | <ul style="list-style-type: none"> Conduct press conference Develop multi-media materials Conduct fora, meetings, conferences, dialogues | <ul style="list-style-type: none"> Concepts for multi-media materials Print-TV-radio-internet materials Radio and TV plugs publications Proceedings | <ul style="list-style-type: none"> Audio-Visual presentation Print media Fora, meetings, conferences, dialogues | <ul style="list-style-type: none"> Oct '05 – Mar '06 | <ul style="list-style-type: none"> PMO, SMOs, PEMSEA PIA, PAO, RPAOs |
| | <ul style="list-style-type: none"> Launch co-management concepts for OPMBCS | <ul style="list-style-type: none"> Present OPMBCS by MBEMP Tech. staff Develop and present co-management concept Conduct workshop/seminars, fora, meetings, dialogues; Formulate/develop on-the-ground activities (e.g., coastal clean-up, tree planting, painting contest, etc.) Delineate roles and responsibilities; Signing of MOUs, MOAs and other instruments | <ul style="list-style-type: none"> Concept paper on co-management developed Proceedings Roles and responsibilities identified MOU/MOA signed | <ul style="list-style-type: none"> Audio-Visual presentation Brochures, Flyers, Primers, Pamphlets Executive Summary Photo-ops | <ul style="list-style-type: none"> Feb – July '06 | <ul style="list-style-type: none"> PMO, SMOs, PEMSEA, regional CMMDs |
| | <ul style="list-style-type: none"> Solicit commitment, endorsement and adoption | <ul style="list-style-type: none"> Present OPMBCS by MBEMP Tech. staff Conduct workshop/seminars, fora, | <ul style="list-style-type: none"> Signed MOAs, MOUs Proceedings | <ul style="list-style-type: none"> Audio-Visual presentation Executive Summary | <ul style="list-style-type: none"> Jan '06 - onwards | <ul style="list-style-type: none"> PMO, SMOs, PEMSEA, Regional CMMDs |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|--|--|---|--|---|---|
| | of OPMBCS | <ul style="list-style-type: none"> meetings, dialogues Conduct of technology demonstration (e.g., ESWM) Formulate award/incentive system Signing of MOUs, MOAs and other instruments | <ul style="list-style-type: none"> award/incentive system | <ul style="list-style-type: none"> Photo-ops | | |
| | <ul style="list-style-type: none"> Tap Regional CMMIDs (DENR), NFARMCs / MFARMCs and other organized groups | <ul style="list-style-type: none"> Present OPMBCS by MBEMP Tech. staff Conduct workshop/seminars, fora, meetings, dialogues Tasking Pledge of commitment | <ul style="list-style-type: none"> Printed documents | <ul style="list-style-type: none"> Audio-Visual presentation Brochures, flyers, primers, pamphlets, streamers, billboards Executive summary Photo-ops Slogans Proceedings T-shirts/caps | <ul style="list-style-type: none"> Oct '05 – Jan '06 | <ul style="list-style-type: none"> SMOs |
| | <ul style="list-style-type: none"> Conduct and/or link with special events and activities | <ul style="list-style-type: none"> Clean-up activities Tree planting On-the-Spot painting/drawing/essay-writing/ declamation contest Photo contest Sports events | <ul style="list-style-type: none"> Replicated best practices Documented success stories Awards distributed | <ul style="list-style-type: none"> Theme for the events Sponsors Streamers, billboards, posters | <ul style="list-style-type: none"> Jan '06 – onwards | <ul style="list-style-type: none"> PMO, SMOs |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|----------|---|-----------------|-------|-----------|------------------|
| | | <ul style="list-style-type: none"> Identify and award best practices Slogan contest | | | | |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|---|---|---|--|--|---|
| g) Academe | <ul style="list-style-type: none"> Promote and solicit endorsement of OPMBCS | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Conduct workshop/seminars, fora, meetings, dialogues Prepare IEC materials | <ul style="list-style-type: none"> Research-based information developed Advocacy activities identified Proceedings | <ul style="list-style-type: none"> Audio-Visual presentation Flyers, posters, handbills, comics Photo-ops | <ul style="list-style-type: none"> April – June '06 | <ul style="list-style-type: none"> SMOs, EMB |
| | <ul style="list-style-type: none"> Establish partnerships (e.g. PATLEPAM) | <ul style="list-style-type: none"> Identify roles and responsibilities Signing of MOU/MOA Recruit champions for OPMBCS advocacy and implementation | <ul style="list-style-type: none"> Proceedings Signed MOU/MOA Identified champions | <ul style="list-style-type: none"> Audio-visual presentation Seminars, fora, dialogues, meetings, conferences | <ul style="list-style-type: none"> May – Oct '06 | <ul style="list-style-type: none"> SMOs, EMB |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|---------------------|---|--|--|--|--|---|
| h) Religious sector | <ul style="list-style-type: none"> Promote and solicit endorsement of OPMBCS | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Conduct workshop/seminars, fora, meetings, dialogues | <ul style="list-style-type: none"> Proceedings | <ul style="list-style-type: none"> Audio-Visual presentation Flyers, posters, handbills, comics Photo-ops | <ul style="list-style-type: none"> April – June '06 | <ul style="list-style-type: none"> PMO, SMOs |
| | <ul style="list-style-type: none"> Develop and implement IEC Activities for OPMBCS | <ul style="list-style-type: none"> Prepare Advocacy/IEC materials | <ul style="list-style-type: none"> Advocacy/IEC materials | <ul style="list-style-type: none"> Advocacy materials | <ul style="list-style-type: none"> | <ul style="list-style-type: none"> |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|---|--|--|---|--|--|---|
| i) Women and Senior Citizens Groups/Associations | <ul style="list-style-type: none"> Promote and solicit endorsement of OPMBCS | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Conduct workshop/seminars, fora, meetings, dialogues | <ul style="list-style-type: none"> Advocacy activities identified Proceedings | <ul style="list-style-type: none"> Audio-Visual presentation Flyers, posters, handbills, comics Photo-ops | <ul style="list-style-type: none"> April – June '06 | <ul style="list-style-type: none"> PMO, SMOs, Regional CMMDs |
| | <ul style="list-style-type: none"> Establish partnerships | <ul style="list-style-type: none"> Identify roles and responsibilities Signing of MOU/MOA Recruit champions for OPMBCS advocacy and implementation Identify projects that can be implemented by women associations Identify gender-related projects | <ul style="list-style-type: none"> Proceedings Signed MOU/MOA Identified champions Projects | <ul style="list-style-type: none"> Audio-visual presentation Seminars, fora, dialogues, meetings, conferences | <ul style="list-style-type: none"> May – Nov. '06 | <ul style="list-style-type: none"> PMO, SMOs, Regional CMMDs |
| j) Funding institutions, donor agencies, multi-lateral financing institutions and other | <ul style="list-style-type: none"> Promote and solicit commitment to the OPMBCS | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Conduct inter-agency workshop/seminars, fora, meetings, dialogues | <ul style="list-style-type: none"> Proceedings Signed MOA/MOU | <ul style="list-style-type: none"> Audio-Visual presentation Technical papers Feasibility studies Research results | <ul style="list-style-type: none"> April – Dec. '06 | <ul style="list-style-type: none"> DENR, PMO, SMOs |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|---|---|--|--|---|--|
| agencies | <ul style="list-style-type: none"> Package project proposals | <ul style="list-style-type: none"> Submit project proposals Present viable project proposals Draft commitments or MOA/MOUs | <ul style="list-style-type: none"> Compiled project proposals and feasibility studies Funding allocation | <ul style="list-style-type: none"> Audio-Visual presentation Technical papers Feasibility studies Research results | <ul style="list-style-type: none"> April - onwards | <ul style="list-style-type: none"> PMO, PEMSEA, respective Project proponents |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|--|--|--|--|--|---|--|
| k) Youth Sector and Sangguniang Kabataan (SK), including out-of-school youth | <ul style="list-style-type: none"> Launch mass media campaign | <ul style="list-style-type: none"> Conduct press conference Develop multi-media materials Conduct youth forum, meetings, conferences, dialogues | <ul style="list-style-type: none"> Multi-media materials Proceedings | <ul style="list-style-type: none"> Audio-Visual presentation Print media Fora, meetings, conferences, dialogues | <ul style="list-style-type: none"> Oct '05 – Mar '06 | <ul style="list-style-type: none"> PMO, SMOs, PEMSEA, PIA, PAO, RPAOs, CMMIDs |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|-----------------|--|---|---|---|--|---|
| | <ul style="list-style-type: none"> Mobilize the Project ECO-CORPS and DENR Youth Desk | <ul style="list-style-type: none"> Coordinate with ECO-CORPS and DENR Youth Desk Conduct action planning workshop Identify practicum sites within the Manila Bay region Conduct environmental education drive with emphasis on Manila Bay region's concerns and OPMBCS Identify roles and responsibilities | <ul style="list-style-type: none"> Action Plan developed Signed MOA/MOU Practicum sites Educational materials | <ul style="list-style-type: none"> Audio-Visual presentation Fora, meetings, conferences, dialogues Technical papers | <ul style="list-style-type: none"> Oct '05 - onwards | <ul style="list-style-type: none"> PMO, SMOs |
| | <ul style="list-style-type: none"> Launch school-based activities or events | <ul style="list-style-type: none"> Conduct sports, arts- and literary-related contests (i.e. fun-run, essay writing, poem) Conduct of eco-tours and site visitation (i.e. bird watching, trekking, camping,) and students forum | <ul style="list-style-type: none"> Documented activities | <ul style="list-style-type: none"> Audio-Visual presentation Meetings, dialogues Posters, brochures | <ul style="list-style-type: none"> June '06 - onwards | <ul style="list-style-type: none"> SMOs, Youth Desk, Proj. ECO-CORPS |

| Target Audience | Strategy | Activities | Expected Output | Media | Timeframe | Concerned Agency |
|---|--|---|---|---|---|---|
| <p>I) Private Sector and Industries</p> | <ul style="list-style-type: none"> Promote and solicit endorsement and commitment to the OPMBCS Establish partnerships | <ul style="list-style-type: none"> Present OPMBCS by REDs and MBEMP Tech. staff Conduct inter-industry workshop/seminars, fora, meetings, dialogues Update industries on policies and guidelines related to sustainable development Conduct IEC on corporate social and environmental responsibility, and socially responsible investments Identify roles and responsibilities Signing of MOU/MOA Recruit champions for OPMBCS advocacy and implementation Present projects for funding Develop award/incentive system | <ul style="list-style-type: none"> Proceedings Signed MOU/MOA Materials on policies and guidelines Identified champions Eco-labeling adopted Funding allocation Award/incentive system | <ul style="list-style-type: none"> Audio-Visual presentation Technical papers Feasibility studies Research results Audio-visual presentation Seminars, fora, dialogues, meetings, conferences | <ul style="list-style-type: none"> July –Dec '06 Aug '06 – July '07 | <ul style="list-style-type: none"> SMOs, EMB, SMOs, EMB |

7.0 FINANCIAL PLAN

The Financial Plan deals with the budgetary requirements/estimated financial costs and the financial strategies for the identified prioritized projects/activities. Availability of the plan is deemed essential in the actual implementation of various projects/activities thereby realizing their goals and objectives.

However, identification of viable financing sources and financing schemes, which vary for different types of project/activity, is crucial in the development of realistic financial plan. Thus, the OPMBCS has proposed budget estimates and financial strategies which can help stakeholders carry out their plans/programs/project in the Manila Bay region.

7.1 BUDGET ESTIMATES

To arrive at an estimated budget for identified projects, a typical/standard or appropriate model for identified projects has determined. As in any project, the major costs are fixed, i.e., buildings and structures, capital equipment, acquisition of newer or better technology, operating equipment and variable/quasi-fixed, i.e., salaries and wages of administrative, technical, management personnel, maintenance costs of both the implementing and the supervisory institutions.

The estimation methodology used these different "models", together with secondary data from existing projects or previous projects to arrive at an estimated financial cost. In cases where it is feasible and desirable, some dynamic parameters may be included especially in long-term projects to make estimates more realistic.

Notably, some of the identified activities are already being carried out by concerned national government agencies as part of their mandate. However, the funds allotted by each agency to these activities were not able to separate from the total budgetary requirements of the proposed activities due to lack of agency's financial report and no funds allocation solely for the activity implementation during the stakeholders' consultations. Majority of the activities being implemented by concerned agencies are commitments and funds for these usually came from different agency's plans/programs/activity allocation. The DENR, DA-BFAR, and LGUs are presently implementing various activities in support of the Manila Bay's sustainable development and management, which are as follows:

DENR

- Rehabilitation of forest, mangroves, and swamps (Candaba)
- For the Pampanga River Basin, hereunder the priority projects/activities:
 - Upland reforestation (including watershed management)
 - Community-Based Forest Management (Agro Forestry Dev't.)
 - Soil Conservation and Watershed Mgt.
 - Area protection
 - Survey of forestland boundaries including identification of appropriate land use
 - Evaluation, assessment and validation of best land use/s and appropriate tenurial instruments
 - Restoration of denuded areas within PAs
 - Establishment of PAs
 - Operationalization of PAMB and protection of PAs
 - Management and Protection of PA
 - Coastal rehabilitation
- Regions 3 and 4A and NCR have been implementing various activities in support of the OPMBCS. Mostly, these focus on the technical assistance extended to various LGUs pertaining to CRM deliverables, (solid waste mgt., mangrove rehabilitation, and capacity building activities, among others).

- Water pollution management
 - Monitoring of water quality of selected river systems draining to the Manila Bay.
 - Linis-Estero Program
 - database on hazardous waste generators
- Solid waste management
 - Provide technical assistance to some LGUs, i.e., preparation of the 10-year SWM Plan
 - Conduct IEC to LGUs and other interest groups

LGUs

- LGUs adopts various CRM key result areas
- Republic Act 9003 or the Ecological Solid Waste Management Act of 2000 mandates LGUs to plan and implement a sustainable solid waste management in their respective jurisdiction. Some of the activities already being done by them are the following:
 - Conversion of open dumps into controlled dumps
 - Reconstitution of solid waste management boards
 - Preparation of the 10-year Solid Waste Management (SWM) Plan
 - Establishment of Material Recovery Facilities/Systems in some barangays

DA-BFAR

- DA-BFAR implements its RA 8550 and conducts monitoring activity on red tide occurrence

The implementation of these activities complements with and/or supports the OPMBCS, but has to realize different set of objectives/goals.

7.2 FINANCIAL STRATEGIES

In the selection of the strategy the following factors have been considered:

- (a) the strategy used to solve existing environmental problems and prevent future potential problems;
- (b) the choice of instruments: use of market and non-market solutions, or a combination of both to achieve efficient outcomes; and
- (c) the partners in development - private sector participation, concerned citizens, non-government groups, international conservation groups, etc.

The OPMBCS recognizes that government has very limited funds to finance its development programs. The OPMBCS' financial plan is developed based on the above-mentioned strategies, the existing mechanisms and other innovative approaches.

A mixture of market-based and non-market instruments is considered to mobilize funds to support implementation of the OPMBCS activities. Market-based instruments take the forms of incentives for companies to increase environmental investments. These include the user charges and polluters fees; Incentives for technology investment (e.g. waste water treatment).

The non-market based instruments take the form of good performance of regulatory functions by the national and local governments which could generate funds such as:

- a) Adoption of good land use and development plan that expands and regulate economic activities thereby increasing real property tax and business taxes.

- b) GFIs open credit windows for LGUs for Sanitary Landfill and waste water treatment facilities;
- c) National government could provide needed capacity building/technical assistance of LGUs in the implementation of the Plan;
- d) Inclusion of expenditures of OPMBCs in the operating budgets of the LGUs, NGAs and in the Priority Development Allocation Fund (PDAF) of representatives
- e) Public-Private Partnership such as:
 - Build-own-operate (BOO) – for project wholly funded, owned and operated by the private sector;
 - Build-operate-transfer (BOT) – the private sector finances the project, derives financial returns from it within a concessional period and after such period, the assets are transferred to the LG;
 - Joint ventures between the LGU and the private sector for commercial and business undertakings;
 - Concession Arrangement – private sector takes charge in operation, financing and providing investments but assets ownership remains with the government. Risks involved are tendency for the private sector to become rent-seeking and there are many safeguards needed to ensure performance;
 - Service/Management Contracts – the private sector provides, operates and or manages a specific environmental facility or service. There is complete public ownership, i.e, the government provides the resources for capital investments, while the operating costs are transferred to the private sector. Government reduces its operating costs but has to cut back on public sector employment;
 - Create a Multi-stakeholder partnership where all concerned entities have a direct stake in the overall design, implementation and operation of a project. Government, national and local; private sector, civil society, local community, non-government organizations, etc. In effect, a self-sustaining non-profit organization is created for a specific provision of an environmental good or service. A start up cost may be provided by the local government; operating cost can come from fees/penalties

Build-Operate Transfer type projects may be solicited by government or initiated by the private sector. However, it is necessary to consider the financial viability and the security of the project and that the project is the only one serving the purpose in the area.

- f) Grants from bilateral sources (JICA, UNDP and PEMSEA/IMO)
- g) Other sources such as foreign non-government organizations
- h) Attracting support from financing institutions and donors through replication of best practices
- i) Setting-up of Manila Bay Fund

With NEDA's assistance, proponents can be assisted in identifying potential projects, developing feasibility studies and in finding sources of financing.

An investment program to engage the private sector to finance IEC, capacity building enforcement of regulations will be pushed through by dissemination of its products and technologies.

7.3 PRIORITIZING PROJECTS/ACTIVITIES

With limited capabilities and funds, or at times the latter is not available, there should be clear and decisive prioritization of projects/activities. This will determine the sequence of carrying out the identified programs identified projects/activities.

7.3.1 Limitation of the Prioritization Process

The process of prioritization used has its own weaknesses and limitations. At least four (4) models had been developed and tested. The model used as explained below showed the least biases for the three (3) issues/concerns.

For example the model is bias with activities wherein the provision of budget has not been prioritized though they are crucial for jumpstarting and sustainability of the project. This was observed in the institutionalization activity target of the OPMBCS. Since its budgetary requirement is not yet clear/available, it came out as among the third priority in the issue of partnership and governance.

However, the weakness of the model can also serve as basis to justify the immediate attention for prioritization of the activity when it comes to fund allocation.

7.3.2 Steps in the Prioritization Process

For the OPMBCS, the following are the steps involved in the prioritization of identified projects/activities:

(a) Development of criteria.

- Each criterion from the most important to least important has a corresponding weight. The most important criterion was given a higher value. (See table below)

| No. of Priority | Criteria | Value |
|-----------------|-------------------------------------|-------|
| 1 | Availability of funding | 8 |
| 2 | Needs (environmental consideration) | 7 |
| 3 | Capacity (Human and Technical) | 6 |
| 4 | Pre-requisite activity | 5 |
| 5 | Compliance to law | 4 |
| 6 | MTPDP | 3 |
| 7 | Institutional Arrangement | 2 |
| 8 | International Commitment | 1 |

(b) Prioritization of activities

- After determining the value of each of the activities, the first prioritization was made by using the following ranges: This process determines which among the activities fall within various sets of prioritization.
 - 32-36 falls under the 1st Priority
 - 27-31 falls under the 2nd Priority
 - 22-26 falls under the 3rd Priority
 - 17-21 falls under the 4th Priority
 - 16 and below fall under the 5th Priority

(c) Ranking of Activities

- From the prioritization process, another step was adopted by subjecting the prioritized activities (b) using the timeframe (short, medium and long).The timeframe was defined as follows:
 - Short
 - One (1) year implementation – 1st Priority
 - Two (2) year implementation – 2nd Priority
 - Three (3) years implementation – 3rd Priority,

(This process was also adopted for the medium and long term activities)

- The final list of activities is categorized as first to fifth priority with each has a classification of whether the activity falls under short, medium and long term.

(d) Final Categorization of Prioritized Activities as to Type of Investment

- The prioritized activities were again further categorized according to nature of their investment (capital or non-capital).
- Notably, the habitat issue has set of activities that fall under capital and non-capital. This means that the activities can be either considered capital or non-capital investment.

The prioritized activities are presented in Table 9. This table reflects the list of possible funding sources as well as the concerned implementing agencies.

Table 9.1 Financial Strategy for Water Pollution

| Final Activity | Over-all Total Cost | Possible Funding Source | Concerned Agencies/Institutions/Sectors | Time Frame |
|--|---------------------|---|---|----------------|
| CAPITAL | | | | |
| Objective 1 6. Construct sewerage systems and centralized sewage treatment facilities (CSTF) in priority areas, including subdivisions and housing projects, based on the reduction targets and investment plan - monitor the implementation of MWSS programs/ concessionaire projects - leverage LGUs, private investment, national and local and external funding sources and/or access Manila Bay Fund | 500/site | IRA, Development Loans, ODA, ADB, Private Sector Investment | MWSS, Concessionaires, LGUs, DENR-EMB, LLDA | 2006 – 2015 |
| Objective 1 4. Implement a pilot project on sewerage system in the Parañaque, Las Piñas and Zapote river system | 500 | IMO | Parañaque, Las Piñas, and Bacoor LGUs, MWSS, Maynilad, DENR, LLDA, MMDA | 2006 – 07 |
| Objective 2 3. Convert existing open dumpsites into “controlled dumpsites” | 10/site | IRA, UNDP, JICA | LGUs, MMDA, with assistance from DENR, DILG | 2006 |
| Objective 2 4. Implement the Solid Waste Management Plan (SWMP) and Investment Plan 4a. Establish and implement collection for SW from household, commercial and industrial establishment | 50/site | JICA, UNDP, Development Loans, Private Sector Investment | LGUs, DENR, MGB, DILG | 2006 – onwards |
| Objective 2 4b. Construct Materials Recovery Facilities (MRFs) (for sorting and recycling) and composting facilities for solid waste based on Investment Plan | 0.5/site | IRA, UNDP, JICA | LGUs, DENR-MGB, DILG | 2006 – Onwards |
| Objective 2 4.c. Construct sanitary landfill for the disposal of residual waste. | 75/ha | ODA, Private Sector Financing (BOO, BOT) | LGUs, MMDA, DENR-MGB | 2007 – onwards |
| 4.d Develop strategic partnership and leverage LGUs, private investment, national & local and external funding sources and/or access the Manila | | IRA, UNDP, JICA | LGUs and concerned agencies | |

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| Bay Fund | | | | | | |
| Objective 3 4. Implement the integrated storage, treatment, and disposal (STD) plan | 2,300 | ODA, Development Loans, ADB, Private Sector Investment | PEZA*, Industries, DENR, LGUs, DOST | 2006 – onwards | | |
| 4.a. Construct and operate a THW management facility (including collection, transport, recycling, treatment and proper disposal) | | | | | | |
| Objective 3 4b. Require all generators to use the THW management facilities (integrated STD) – part of Environment Compliance Certificate (ECC) | 1.0 | GOP/ODA | DENR-EMB*, PNRI, DOST | 2006 – onwards | | |
| Objective 3 4c. Require all importers/exporters of THW to secure permit/ clearance from EMB | 1.0 | GOP/ODA | DENR-EMB*, PNRI, DOST | 2006 – onwards | | |
| Objective 5 2. Construct/install shore reception facilities in major ports (e.g., PPA ports, Navotas fish port, Cavite ports, Bataan ports, public private ports) as part of the master plan | 25/port | UNDP/Multilateral Funding Agencies | PPA, MARINA, BFAR, NEDA | 2006 – onwards | | |
| Objective 6 3. Pilot test Manila Bay Oil Spill Contingency Plan | 0.5 | GOP/ODA | PCG*, DENR-EMB, DOTC, shipping companies, petroleum companies, DND, other signatories of the MOA | 2006 | | |
| NON-CAPITAL | | | | | | |
| Objective 1 5. (a) Prepare/update and implement investment plan/master plan for the establishment of sewerage systems/sewage treatment plants (STPs) for the priority point sources in the other major rivers to meet the allowable TDL/reduction targets by 2015 (b) prepare/implement Investment Plan for common waste water treatment facilities (WWTF) in key industrial areas and economic zones | 5.0 | Development Loans/ World Bank | LGUs, MWSS, Concessionaires, DENR-EMB, DA, HLURB/HUDCC, PEZA | 2006 | | |
| Objective 1 7. Develop guidelines, criteria, and standards for collection, treatment, recycling, and disposal of agricultural and aqua-cultural wastes | 0.5 | GOP/ODA | DA, DENR-EMB | Nov. 2005 | | |

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| <p>Objective 1 1. Conduct study to (a) identify point sources and determine total discharge loading (TDL) of raw sewage and other key parameters from domestic;</p> | <p>1.0/LGU</p> | <p>World Bank, UNDP</p> | <p>DENR-EMB, LGUs, DA, BFAR, PRRC, MWSS, Concessionaires, LLDA, DOH</p> | <p>2006 – 07</p> |
| <p>Objective 1 1b. Conduct study to determine pollution loadings from fisheries and aquaculture and from farmlands & livestock industries;</p> | <p>1.0/LGU</p> | <p>World Bank, UNDP</p> | <p>DENR-EMB, LGUs, DA, BFAR, PRRC, MWSS, Concessionaires, LLDA, DOH</p> | <p>2006 – 07</p> |
| <p>Objective 1 1c. Conduct study to determine pollution loadings from manufacturing industries and commercial establishments, into the selected river systems</p> | <p>1.0/LGU</p> | <p>World Bank, UNDP</p> | <p>DENR-EMB, LGUs, DA, BFAR, PRRC, MWSS, Concessionaires, LLDA, DOH</p> | <p>2006 – 07</p> |
| <p>Objective 1 2. Establish time-bound pollution-reduction targets for identified major point sources in the identified river systems</p> | <p>2.5</p> | <p>UNDP</p> | <p>DENR-EMB*, LGUs, DA, BFAR, PRRC, MWSS, LLDA, DOH, Concessionaires</p> | <p>2006 – 07</p> |
| <p>Objective 1 3. Enforce the ordinances on the installation and maintenance of adequate septic tanks on target households along the major river systems and all other areas directly or indirectly draining sewage to Manila Bay</p> | <p>0.5</p> | <p>IRA, GOP</p> | <p>LGUs, MWSS, DENR-EMB, DOST</p> | <p>2006 – 07</p> |
| <p>Objective 2 1. Reconstitute, strengthen and build capacity of functional solid waste management (SWM) Boards and Brgy. Solid Waste Committees to prepare 10-year SWM Plan</p> | <p>0.5</p> | <p>IRA, UNDP, JICA</p> | <p>LGUs, DENR, DILG, NSWMC</p> | <p>2006</p> |
| <p>Objective 2 5. Prohibit the operation of open dumpsites</p> | <p>0.5</p> | <p>GOP/ODA</p> | <p>LGUs, DENR, GB, DILG</p> | <p>2006</p> |
| <p>Objective 2 2. Develop a Waste Mgt. Plan for Manila Bay Region and Investment Plan for SWM systems (collection, transport, disposal, segregation, recycling, and composting) in major LGUs (cities and municipalities) - at least 1 city/cluster of municipalities for each province - get support of key NGAs, GFIS, IFIs, and other donor agencies</p> | <p>10</p> | <p>IRA, UNDP, JICA</p> | <p>LGUs, NSWMC, MMDA, DILG, DENR. NGOs, Eco-gov</p> | <p>2006</p> |
| <p>Objective 3 2. Update the existing feasibility studies and implement investment plan for an integrated toxic and hazardous waste (THW) management system (collection, transport, recycling, and treatment of hazardous waste and</p> | <p>10</p> | <p>Development Loans/World bank</p> | <p>DENR*, LGUs, PEZA, Interagency Technical Advisory Council</p> | <p>2006</p> |

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| proper disposal of treated hazardous wastes) - in special economic zones - in key industrial areas - healthcare waste | | | | | | |
| Objective 3 1. Mandatory registration of: a. all hazardous waste generators b. importation and use of new chemicals, and update database on sources, volume of waste generated by type | 1.0 | GOP/ODA | DENR-EMB, LGUs, PEZA, THW generators, chemical industries, interagency technical advisory council | 2006 – onwards | | |
| Objective 4 2. Identify companies with dumping permits | 0.5 | GOP/ODA | PCCG* | Jul. – Oct. 2005 | | |
| Objective 4 3. Identify, develop and implement guidelines on alternative land-based disposal sites, treatment and disposal methods for sewage, industrial sludge, solid waste, and contaminated dredged materials. | 1.5 | UNDP, Multilateral Funding Agencies | DENR-EMB, PCG | Nov. 2005 | | |
| Objective 4 1. Identify sea dumping activities (e.g. dredged materials, septage sludge, solid waste, toxic & hazardous waste, etc.) | 0.5 | GOP/ODA | PCG | Jul – Oct. 2005 | | |
| Objective 4 4. Issue and enforce moratorium on sea dumping and prohibit future dumping - formulate implementing rules and regulation (IRR) - draft and issue A.O. | 2.5 | GOP | PCG*, DENR-EMB, DPWH, MWSS, MMDA, LLDA | Dec 2005 | | |
| Objective 4 5. Revoke licenses and permits for sea dumping of sewage, industrial sludge, solid waste, and contaminated dredged materials | 2.5 | GOP | PCG* | 2006 | | |
| Objective 5 1. Estimate the volume of operational wastes discharges from ships and other sea vessels by type of waste and source | 2.5 | World Bank, UNDP | PCG | 2005 – 06 | | |
| Objective 5 3 Identify environment-friendly paints and anti-fouling chemicals for all ships and boats | 2.0 | UNDP, GOP | DENR*, PCG, PPA | 2005 – 06 | | |

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| <p>Objective 5 4. Implement guidelines on the following: (a) discharges of operational waste from ships (b) use of harmful paints and anti-fouling chemicals</p> | <p>0.5</p> | <p>GOP/ODA</p> | <p>PCG*, PPA, MARINA, DENR</p> | <p>2005 – 06</p> |
| <p>Objective 5 5. Develop and implement "Port Safety and Environmental Management System"</p> | <p>1.5</p> | <p>GOP</p> | <p>PPA*, PCG</p> | <p>2005 – 06</p> |
| <p>Objective 6 1. Finalize and adopt the "Manila Bay Oil Spill Contingency Plan"</p> | <p>0.7</p> | <p>UNDP, IMO</p> | <p>PCG</p> | <p>2005</p> |
| <p>Objective 6 2. Implement the 'Masterplan for Maritime Safety' and put in place navigational aids and vessel traffic separation (VTS) scheme</p> | <p>2.5</p> | <p>Private Sector Investment (PPP-BOT), Multilateral Funding Agencies</p> | <p>PCG*, DOTC, DENR</p> | <p>2005</p> |
| <p>Objective 6 4. Promote ratification of the Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)</p> | <p>2.5</p> | <p>GOP</p> | <p>DOTC, PCG, DENR</p> | <p>2006</p> |

**Table 9.2 Financial Strategy
Over-Exploitation of Resources and Degradation of Habitats and Historical, Cultural, Religious,
Archeological and Unique Geological sites**

| Activity | Cost (In Million) | Possible Funding Sources | Responsible Agency | Timeframe |
|---|-------------------|--------------------------|---|-----------|
| NON-CAPITAL/CAPITAL | | | | |
| <p>Objective 7 – Increase coverage of water supply distribution system by 50% in areas with unsustainable groundwater extraction to protect aquifers from contamination and salt-water intrusion by 2015</p> <p>1. Conduct study/collate information on:</p> <ul style="list-style-type: none"> a. the incidence of salt-water intrusion and land subsidence around Manila Bay b. extent of groundwater use (profile of users, volume and rate of extraction) c. current state of the aquifers d. existing water supply from surface water and groundwater e. current and projected water demand by sector and location f. potential surface water sources g. priority municipalities/cities h. contamination due to leachate from dumpsites, gasoline stations, etc. i. review of permitting system and fee system for groundwater users j. abandoned deepwells K technologies related to recharging of aquifers | P5 | GOP funds and ODA | DENR, NWRB, DA, NIA, DOE, NPC, DOST-PNRI, LWUA and Water districts, MWSS, concessionaires, and LGUs | 2006 |
| <p>Objective 2 – Implement a no net loss policy for existing mangroves, mudflats, shorelines, beaches and sandy shores by 2010</p> | | | | |
| <p>1. Review results of Integrated Environmental Monitoring Program (IEMP) and assess the condition of the existing mangrove areas and mudflats.</p> | P1.5 | GOP Funds and ODA | DENR, DA-BFAR, DA-BSWM, NGOs/POs | 2005 |

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| <p>5. a Review and reconcile existing laws and ordinances on the following :</p> <ul style="list-style-type: none"> - Conversion of mangroves and mudflats into fishponds and mudflats and shrimp ponds; - Reclamation, dredging and dumping activities in mangrove areas; - Cutting of mangroves and filling in of mudflat areas for resettlement, tourism, industrial and commercial areas - Municipal fisheries ordinances <p>5.b Enforce the laws and ordinances</p> | <p>P0.25/yr.</p> | | <p>GOP, USAID, UNDP, and Bilateral Funding Sources</p> | <p>2005-onwards</p> |
| <p>7. Conduct rapid assessment of the entire stretch of shorelines along Manila Bay, and review current activities/structures, related policies, regulations and permitting system, and proposed plans, programs and projects to be implemented along the foreshore areas.</p> | <p>P5</p> | <p>GOP, ODA, IRA, and countryside development fund</p> | <p>LGUs, DILG, DENR, NAMRIA, MGB, PCG, PRA, PPA, DOT-PTA, Academe, Navy, DA-BFAR, NGOs, Pos</p> | <p>2006</p> |
| <p>9.a. Issue moratorium on:</p> <ul style="list-style-type: none"> - mining/quarrying of sand from rivers - reclamation of shallow coastal waters to build housing and tourist establishments <p>9.b. Enforce laws on:</p> <ul style="list-style-type: none"> - mining/quarrying of sand from beaches and PAs - dumping of garbage, sludge and dredged materials along beaches/shores. | <p>P0.25</p> <p>Same</p> | <p>GOP Fund and IRA</p> <p>GOP Fund</p> | <p>DENR, MGB, DPWH, DOTC, PRA, DILG, DOT, LGUs and DA-BFAR</p> <p>Same</p> | <p>2006</p> <p>2006</p> |
| <p>12. Develop and issue guidelines and standards for coastal road construction, and enhancement of scenic view along the coasts.</p> | <p>P0.25</p> | <p>GOP Fund and ODA</p> | <p>DENR, DPWH, DOTC, LGUs, DILG, DOT, DA-BFAR</p> | <p>2006</p> |
| <p>Objective 3 – Increase by 80% the forest cover in the entire Manila Bay watershed area by 2015</p> | <p>P1</p> | <p>GOP Fund</p> | <p>DENR, NAMRIA, NWRB, LGUs, DA-BSWM</p> | <p>2006</p> |
| <p>1. Update maps on watershed boundaries/characteristics in Manila Bay region, and build up the IIMS database</p> <p>2. Identify and assess the implementation of various national and local programs/projects/ activities related to forest management policies and forest restoration/rehabilitation programs</p> | <p>P0.50</p> | <p>GOP and ODA</p> | <p>DENR, Academe</p> | <p>2006</p> |

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| <p>3. Develop Integrated Forestry Development and Management Plan (IFDMP) for the Manila Bay region</p> | <p>P1.5</p> | <p>ODA and GOP</p> | <p>DENR, LGUs, DILG, Academe, NGOs, POs</p> | <p>2006-2007</p> |
| <p>4. Conduct consultation/ workshop on the finalization of Integrated Forestry Development and Management Plan (IFDMP)</p> | <p>P0.5</p> | <p>ODA and GOP</p> | <p>DENR, LGUs, DILG, NEDA, DTI, Academe</p> | <p>2006-2007</p> |
| <p>Objective 6 – Achieve sustainable and ecologically-sound aquaculture and mariculture production in Manila Bay Region by 2015</p> | | | | |
| <p>2 Conduct inventory of owners and operators (both with permits and without permits) and assessment of the aquaculture and mariculture farms/industries in Manila Bay relative to its carrying capacity and net so cio-economic benefits</p> | <p>P2.5</p> | <p>GOP Fund, IRA, and Funds generated from collection of taxes</p> | <p>LGUs, DILG, DA-BFAR, DOST-PCMARD, NFDRI, DENR</p> | <p>2006-2007</p> |
| <p>3. Review and assess appropriate policy instruments and develop guidelines, aquaculture and mariculture standards, and regulations concerning implementation, monitoring and enforcement of:</p> <ul style="list-style-type: none"> - users fee, quota system and other economic instruments - appropriate technology, methods, practices, feeds (type and application methods) and specifications for the pens/cages/ponds (e.g., size of mesh, distance of poles, etc.) | <p>P0.5</p> | <p>ODA and GOP</p> | <p>LGUs, DILG, DA-BFAR, PCMARD, NFDRI, DENR</p> | <p>2006-2008</p> |
| <p>6. Revoke permits of aquaculture and mariculture farms in areas that are not designated for aquaculture and mariculture production, and remove all illegal pens/cages/ponds in Manila Bay and Laguna de Bay.</p> | <p>P0.250</p> | <p>GOP Fund, IRA, and Funds generated from collection of taxes</p> | <p>LGUs, DILG, DA-BFAR, DENR, PCMARD, NFDRI</p> | <p>2006-Onwards</p> |
| <p>Objective 7 – Increase coverage of water supply distribution system by 50% in areas with unsustainable groundwater extraction to protect aquifers from contamination and salt-water intrusion by 2015</p> | | | | |
| <p>3. Develop groundwater management plan, including the establishment of time-bound targets to reduce groundwater extraction and allow the recovery of aquifers, conservation (3Rs), and other demand-side mgmt . measures</p> | <p>P1.5</p> | <p>GOP Fund and ODA</p> | <p>NWRB, DENR, LLDA, EMB, MGB, DA, NIA, DOT, DOH, golf course owners, industries</p> | <p>2006-2008</p> |
| <p>5. Construct/rehabilitate irrigation systems and rehabilitate multi-purpose water reservoirs to increase water availability for agricultural and municipal use, including programs to mitigate erosion, siltation, and sedimentation to prolong lifespan of water reservoirs</p> | <p>P5/yr.</p> | <p>GOP, ODA, Countryside Development Fund, IRA, BOT, Joint Ventures bet.</p> | <p>NWRB, DENR, LLDA, DPWH, MWSS, and concessionaires, LWUA and Water Distircts</p> | |

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| <p>6. Develop and issue guidelines and standards on water use reduction technologies and processes, water recycling, groundwater extraction, and post-closure of abandoned wells.</p> | <p>P0.25</p> | <p>LGUs and Private Sector</p> | <p>NWRB, DENR-EMB</p> | <p>2006</p> |
| <p>7. Establish appropriate water pricing system to reflect full cost of groundwater use, surface water impoundment, treatment and distribution, and wastewater discharges.</p> | <p>P0.25</p> | <p>GOP Fund and ODA</p> | <p>NWRB, LWUA and Water Districts, DENR-EMB, LLDA, NGOs</p> | <p>2006</p> |
| <p>Objective 1 – Set-up sustainable institutional arrangements and management programs in all declared protected areas (PAs) and critical habitats in the Manila Bay region by 2007</p> | | | | |
| <p>1. Identify and assess existing and proposed Protected Areas (PAs) and critical habitats in the Manila Bay region and key habitats and resources to be designated as Protected Areas and critical habitats, including those declared and proposed by LGUs</p> | <p>P2.5</p> | <p>ODA, and GOP Fund</p> | <p>DENR, PAWB, NAMRIA, LGUs, DILG, DA-BFAR, PRRC, NGOs/POs, Civic organizations, Academe, Communities affected</p> | <p>2005-2007</p> |
| <p>2. Prepare detailed Protected Area and Critical Habitat Management Plan in the Manila Bay region based on the approved integrated land and sea-use zoning plans to include but not limited to :</p> <ul style="list-style-type: none"> • Plan for the protection and restoration/rehabilitation of the following habitats: (including guidelines, criteria and procedures) <ul style="list-style-type: none"> - corals, - seagrass beds, - mangroves, mudflats - swamps (e.g., Candaba Swamps), - inland and other wetlands, and, - forests • Designation/delineation of: <ul style="list-style-type: none"> - fishing area and fish sanctuaries - mangrove and mudflat sanctuaries - sanctuaries for rare and endangered species (turtles, birds, other wildlife) - buffer zones - setback zones for beach areas - river easements - eco-tourism sites | <p>P5</p> | <p>GOP Fund and ODA</p> | <p>DENR, PAWB NAMRIA, LLDA, LGUs, DILG, HLURB, DOT, DA, PCG, DFA-MOAC</p> | <p>2007-2008</p> |

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|--|----------------|---|---|-------------|
| <ul style="list-style-type: none"> - national parks • Guidelines and criteria • Consultations with concerned government units/agencies, LGUs, NGOs, informal settlers, and other stakeholders for the finalization of the PA Management Plan and capacity building for implementation • Roles and responsibilities of each agency/sector involved in the implementation • Management of invasive species | <p>P2.5/yr</p> | <p>GOP Fund, IRA. Funds generated from collection of taxes/ sale of assets, Joint ventures between LGU and private sector, and commercial banks</p> | <p>DENR, PAWB, LGUs, DILG, HLUB, DA, DOT, PTA</p> | <p>2006</p> |
| <p>3. Establish/restore and manage designated Protected Areas and critical habitats together with LGUs, POs, NGOs, concerned NGAs, academe, private sector, donor agencies, and other stakeholders in accordance with the PA Mgt. Plan</p> <p>3.1. Establish and manage sanctuaries/protected areas (e.g., fish, mangroves and mudflats, forests, swamps, birds/turtles/wildlife, etc.)</p> <p>3.2. Establish the Candaba Swamps as bird sanctuary and national park, in view of being declared as a Ramsar site</p> <p>Maintain existing national parks in each province/ municipality/city, including adoption of users fee system and community-based resource management programs</p> | | | | |
| <p>Objective 2 – Implement a no net loss policy for existing mangroves, mudflats, shorelines, beaches and sandy shores by 2010</p> | | | | |
| <p>2. Prepare detailed rehabilitation and management plan for mangrove and mudflat areas</p> <p>Include:</p> <ul style="list-style-type: none"> - Mangrove reforestation under the Community-based Forest Management Framework - Revert back abandoned fishponds into mangrove areas - Measures/actions to prohibit further decrease of mangrove and mudflat areas due to conversion into aquaculture and salt beds, land reclamation for human settlement, industrial development, removal for fuel wood, pollution and sedimentation as a result of upland and upstream activities, pest infestation, among others - Mobilize/strengthen community organization/associations | <p>P1</p> | <p>GOP Fund and ODA</p> | <p>DENR, FMB, LLDA, DA-BFAR, PCMARD, LGUs, DILG, PRA, PAWB, DOT-PTA</p> | <p>2006</p> |

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| <ul style="list-style-type: none"> - Monitoring and evaluation system, including list of indicators to determine whether or not objectives of the plan are achieved - Inventory of titled mangrove areas | | | | | | | |
| <p>3. Conduct consultations with LGUs, NGO, IP and community stakeholders, and prepare Action Plan for the rehabilitation of mangroves and mudflats</p> | | <p>P0.5</p> | | <p>2006</p> | <p>DENR, FMB, DA-BFAR, PNP, LGUs, DILG, PRA, NCIP</p> | | |
| <p>Objective 4 – Formulate and implement a restoration and maintenance program for important, religious, architectural landmarks and archeological and unique geological sites within the Manila Bay Region by 2010.</p> | | | | | | | |
| <p>1. Conduct inventory and assessment of all cultural, historical, architectural, religious and archeological sites.</p> | | <p>P5</p> | | <p>2006-2007</p> | <p>NCCA, DOT, NHI, LGUs, DENR, DOST, Academe</p> | | |
| <p>2 Conduct study on carrying capacities and appropriate management approaches for important cultural, historical, religious, archeological, architectural and unique geological sites, including criteria and guidelines for preservation/ rehabilitation/restoration</p> | | <p>P10</p> | | <p>2006-2007</p> | <p>NCAA, DOT, NHI, Academe, National Museum, LGUs</p> | | |
| <p>2. Develop management plan to restore and maintain important cultural, historical, religious, archeological and unique geological sites, including:</p> <ul style="list-style-type: none"> - legal and financial mechanisms - monitoring and enforcement system | | <p>P1.5</p> | | <p>2006-2007</p> | <p>NCAA, DOT, NHI, DILG, NEDA, MMDA, Academe, National Museum, LGUs, NGOs, POs, National Museum</p> | | |
| <p>5. Include the criteria/guidelines for preservation/ rehabilitation/ restoration of important cultural, historical, religious, archeological, architectural and unique geological sites in the Environmental Impact Assessment (EIA) criteria for evaluation of development projects</p> | | <p>P0.1</p> | | <p>2006-2010</p> | <p>DENR, EMB, LLDA, NHI, NCCA</p> | | |
| <p>Objective 2 – Implement a no net loss policy for existing mangroves, mudflats, shorelines, beaches and sandy shores by 2010</p> | | | | | | | |
| <p>4. Implement Action Plan for rehabilitation and maintenance of mangroves and mudflats</p> <p>4.1. Organize and mobilize community organizations, associations, NGOs and private sector for the mangrove reforestation</p> | | <p>P5</p> | | <p>2006- Inwards</p> | <p>DENR, FMB, DA-BFAR, LGUs, DILG, PRA, DTI, DOTC-NCR, DOT-PTA, NGOs, private sector</p> | <p>ODA, IRA, countryside development fund, President/s Social Fund</p> | |

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| 4.2 | Restore and revert back into mangrove all abandoned fishponds | | | | | | | 2006- Inwards |
| 4.3 | Reforest mangrove areas through community-based management approach | | | | | | Same | |
| 4.4 | Provide livelihood programs for communities managing and Protecting the mangrove and mudflat areas | | | | | | Same | 2006- Inwards |
| 4.5 | Establish Mangrove and Bird Sanctuary in the reclamation area (as model for eco-tourism in mangrove areas) | | | | | | same | 2010 onwards |
| 4.6 | Promote regular clean-up activities in the mudflat areas with The communities and LGUs | | | | | | Same | 2006- Inwards |
| 8. | Prepare masterplan for the development of foreshore areas in accordance with the integrated land-and sea-use plan and the integrated watershed and coastal area management framework, including: - appropriate methods for the restoration of damaged beaches/shores, and mitigation of coastal erosion; - rehabilitation and protection of mangroves, which serve as natural barriers to shoreline updrift and pro-gradation; and, - Action plan for the Manila Bay Region prepared by the stakeholders | | | P5 | | | Same | 2006-2007 |
| | Objective 7 – Increase coverage of water supply distribution system by 50% in areas with unsustainable groundwater extraction to protect aquifers from contamination and salt-water intrusion by 2015 | | | | | | | |

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| <p>2. Conduct feasibility studies and develop investment plan to expand coverage and supply of surface water to coastal areas, areas outside of the central distribution system of MWSS, and other water districts</p> | <p>P5</p> | <p>ODA and Private sector,</p> | <p>NWRB, DENR, LLDA, DA, DOE, DTI-BOI, NPC, NIA, concessionaires, LWUA and Water Districts</p> | <p>2007-2008</p> |
| <p>8. Establish monitoring and evaluation system for groundwater extraction, salt-water intrusion, land subsidence, and contamination of groundwater. - Collaboration with the National Water Information Network (NWIN)</p> | <p>P0.25</p> | <p>GOP Fund, ODA and private sector</p> | <p>NWRB, DENR-EMB</p> | <p>2006-2008</p> |
| <p>Objective 5 – Increase the productivity of fishery resources within the Manila Bay region to attain the maximum sustainable yield (MSY) by 2020</p> | | | | |
| <p>1.a. Conduct study on fish stock trends, diversity of pelagic, demersal and fresh water fish and other ecologically important species, and determine feasible, socially accepted resource management intervention.</p> | <p>P1.5</p> | <p>ODA and GOP</p> | <p>DA-BFAR, DOST, PCMARD, NFRDI, DENR, EMB,</p> | <p>2006</p> |
| <p>1.b. Conduct study on maximum sustainable yield (MSY) and maximum economic yield (MEY) for pelagic, demersal and fresh water fish in Manila Bay Region, and the open and closed seasons and areas for harvesting commercially and ecologically important species</p> | | | | |
| <p>1.c. Conduct study on the trends of fish kills due to red tide and determine bioaccumulation of sediments, fish and shellfishes</p> | | | | |
| <p>2. Conduct socio-economic survey of the coastal population – including fisherfolk, current fish catch, fishing effort</p> | <p>P 1</p> | <p>ODA, Multilateral and GOP</p> | <p>DA-BFAR, DOST, PCMARD, NFRDI, DENR, EMB,</p> | <p>2006</p> |
| <p>Objective 6 – Achieve sustainable and ecologically-sound aquaculture and mariculture production in Manila Bay Region by 2015</p> | | | | |
| <p>1. Conduct study on carrying capacity for aquaculture and mariculture in Manila Bay region</p> | <p>P2.5</p> | <p>ODA and GOP</p> | <p>DA-BFAR, DOST, PCMARD, NFRDI, DENR, LLDA, Academe</p> | <p>2006</p> |
| <p>4. Based on the integrated land- and sea-use plan, delineate areas for aquaculture and mariculture, and establish quota system in accordance with the carrying capacity.</p> | <p>P1</p> | <p>GOP Fund, IRA and countryside development fund</p> | <p>LGUs, DILG, DA-BFAR, PCMARD, NFRDI, DENR</p> | <p>2006</p> |
| <p>5. Require owners and operators to apply appropriate aquaculture and</p> | <p>P0.25/yr.</p> | <p>LGU</p> | <p>DA-BFAR, DENR, DILG, and LGUs</p> | <p>2006</p> |

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| <p>mariculture methods and practices</p> | | | | | | |
| <p>Objective 5 – Increase the productivity of fishery resources within the Manila Bay region to attain the maximum sustainable yield (MSY) by 2020</p> | | <p>P0.5</p> | <p>GOP, ODA, UNDP, and Bilateral Funding Sources</p> | <p>DA-BFAR, PCAMRD, DENR, EMR, LLDA, LGUs, FARMCs, NGOs, POs</p> | <p>2006</p> | |
| <p>3. Determine and evaluate appropriate regulatory/legal and economic instruments (moratorium on commercial fisheries, open/close season for fishing, licensing and permitting system) in Manila Bay region</p> | | <p>P2</p> | <p>ODA and GOP</p> | <p>DA-BFAR, DOST-PCMARD, NFDRI, DENR, EMB, LLDA NGOs, POs</p> | <p>2006-2007</p> | |
| <p>4. Develop integrated plan for sustainable fisheries in Manila Bay region, consistent with the Fisheries Code</p> <p>Include but not limited to:</p> <ul style="list-style-type: none"> - Integrated Coastal Management (ICM) program - sustainable fishing methods and practices - appropriate policy instruments - fishing areas/zones - fish sanctuaries; no-catch zones - open and closed seasons and areas for commercially and ecologically important species - alternative livelihood programs and support services - institutional arrangements - infrastructure system - detailed work and financial plan - non-intro of exotic, alien or destructive species - reduction of population of exotic species detrimental to indigenous aquatic species - monitoring of fishery resources and activities | | | | | | |
| <p>6. Establish permitting and licensing system for municipal fishing in Manila Bay Region, and track the number of fisherfolk and fishing effort</p> | | <p>P10/yr (initial funding & part of the integrated fisheries plan</p> | <p>IRA, Countryside Development Fund, Joint Ventures bet. LGUs and private sector</p> | <p>DA-BFAR, PCMARD, NFDRI, DENR, EMB, LLDA, DILG, LGUs, FARMCs, PRA, PPA</p> | <p>2008-Onwards</p> | |
| <p>Objective 4 – Formulate and implement a restoration and maintenance program for important, religious, architectural landmarks and</p> | | | | | | |

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| <p>archeological and unique geological sites within the Manila Bay Region by 2010.</p> | <p>P2.5/yr</p> | <p>ODA, IRA, countryside development fund, credit window of govt., and commercial banks</p> | <p>DOT, NCCA, NHI, LGUs, DILG, MMDA, DENR, Academe</p> | <p>2006-onwards</p> |
| <p>6. Formulate and implement restoration and maintenance program to ensure the preservation of important cultural, historical, religious, archeological, architectural and unique geological sites, including the establishment of: tourism guidelines using information on carrying capacities of prioritized sites users fee schemes & enforcement system standards and certification program</p> | <p>P0.1</p> | <p>GOP, ODA and Multilateral funding sources</p> | <p>LGUs, NCA, NHI, LGUs, DIIG MMDA, DENR and Academe</p> | <p>2006-onwards</p> |
| <p>7. Incorporate the zoning, protection restoration/rehabilitation and maintenance of cultural, historical, religious and architectural landmarks and archeological and unique geological sites into local and national development plans, and land-use plans (CLUPs)</p> | | | | |
| <p>Objective 5 – Increase the productivity of fishery resources within the Manila Bay region to attain the maximum sustainable yield (MSY0 by 2020</p> | | | | |
| <p>5. Implement the Integrated Plan for Sustainable Fisheries for the Entire Manila Bay and each region</p> | <p>P10/yr.</p> | <p>GOP, IRA, Countryside Development Fund, USAID, and Multilateral Funding sources</p> | <p>DA-BFAR, PCMARD, NFDRI, DENR, EMB, LLDA, LGUs, DILG, DILD, FARMCs, PRA, PPA, NGOs, POs, Private Sector</p> | <p>2008-onwards</p> |
| <p>5.1. Establish fishing areas and fish sanctuaries (in accordance with the integrated land- and sea-use plan/zoning scheme</p> | | | | |
| <p>5.2 Implement the designated closed season for harvesting commercially and ecologically important species and designated closed areas for identified migration routes of commercially and ecologically important fish species</p> | | | | |
| <p>5.3 Implement existing laws and policies on commercial fishing, trawling, and other illegal fishing methods in Manila Bay</p> | | | | |
| <p>5.4 Provide communities with appropriate alternative livelihood programs and support services (e.g., mussel culture, seaweeds farming, mudcrab fattening, microfinance, etc.).</p> | | | | |

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| 5.5 Construct/rehabilitate fish ports with fish storage and other necessary facilities and market road network | | | | | | |
| 5.6 Allocate and construct berthing areas for artisanal fishers | | | | | | |
| 5.7 Institutionalize the IEMP, specifically the monitoring system for fishery resources and fishing effort in the Manila Bay region | | | | | | |
| 5.8 Implement Fishery Code RA 8550 | | | | | | |
| 5.7 Apply appropriate economic instruments to capture resource rents | P50/yr (Part of the IFDMP) | ODA and GOP | DENR, LGUs, DILG, DTI, NAMRIA, DOT, DPH, NIA, NGOs, PNP, NCIP, Media, Private Sector | | 2007-Onwards | |
| Objective 2 – Implement a no net loss policy for existing mangroves, mudflats, shorelines, beaches and sandy shores by 2010 | | | | | | |
| 6. Monitor progress of the Action Plan for mangrove and mudflat rehabilitation and management | P0.5/yr. | GOP, UNDP, USAID and IRA | DENR, CMMO, DA-BFAR, PRA, LGUs, NGOs, Pos | | 2006-onwards | |
| 10. Implement programs/projects on beach nourishment/stabilization and mitigation measures to address coastal erosion | P5 | GOP, IRA Countryside Development Fund, funds generated from collection of taxes/sale of assets, USAID, and Multilateral funding sources | DENR, DPWH, DOT, DOTC, DA_BFAR, LGUs, NGOs, Pos | | 2006-onwards | |
| 11. Implement the Eco-watch and Blue Flag system in the Manila Bay area to monitor beach and coastal water quality, and to provide incentives for beach protection. | P2.5/yr | GOP, IRA, and funds generated from the collection of taxes/sale of assets, Joint ventures between LGUs and private sector | DENR, DOT, PCG, DOE, NPC, DILG, DA-BFAR, LGUs, hotel resort operators, coastal industries, NGOs, Pos | | 2006-Onwards | |

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| <p>Objective 3 – Increase by 80% the forest cover in the entire Manila Bay watershed area by 2015</p> | | | | |
| <p>5. Implement the Integrated Forestry Development and Management Plan (IFDMP) for Manila Bay region</p> | <p>P50/yr.</p> | <p>GOP, Ira, Countryside Development Fund, JICA, USAID, and Multilateral funding source</p> | <p>DENR, DILG, LGUs, DTI, NAMRIA, DOT, DPWH, NIA, NCIP</p> | |
| <p>5.1. Reforest open and denuded areas and protect forest resources through appropriate arrangements, e.g., Community-based Forest Management (CBFM), Industrial Forest Management Agreements (IFMA), Socialized Industrial Forest Management Agreements (SIFMA)</p> <p>5.2. Undertake appropriate riverbank stabilization projects</p> <p>5.3. Package investment opportunities for CBFM projects</p> <p>5.4. Monitor and implement forest land use (mapping of forest and non-forest boundaries, ground, survey, demarcation, etc)</p> <p>5.5. Grant appropriate security of tenure to upland dwellers</p> <p>5.6. Provide technical assistance to the private sector and NGOs in the establishment of industrial forest plantations</p> <p>5.7. Apply appropriate economic instruments to capture resource rents</p> <p>5.8. Provide alternative livelihood programs/projects</p> <p>5.9. Establish eco-tourism programs</p> <p>5.10 Undertake intensified forest protection campaign on forest fires and illegal logging</p> | | | | |
| <p>Objective 4 – Formulate and implement a restoration and maintenance program for important, religious, architectural landmarks and archeological and unique geological sites within the Manila Bay Region by 2010.</p> | | | | |
| <p>4. Restore /rehabilitate/preserve cultural, historical, religious, archeological, architectural and unique geological sites, in accordance with the criteria and guidelines</p> | <p>P50/yr</p> | <p>GOP, IRA, Countryside Development, funds generated from collection of</p> | <p>NCCA, DOT, NHI, DILG, MMDA, DENR, National Museum, NGOS, POs</p> | <p>2006-onwards</p> |

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| <p>Objective 6 – Achieve sustainable and ecologically-sound aquaculture and mariculture production in Manila Bay Region by 2015</p> | | | | |
| <p>7. Restore production of windowpane oyster and seaweeds (as alternative livelihood) in appropriate sites with LGUs, POs, NGOs, academe, private sector and donor agencies</p> | <p>P1.5</p> | <p>IRA, funds generated from the collection of taxes/sale of assets, Joint ventures between LGUs and private sector</p> | <p>LGUs, DILG, DA-BFAR, DENR, PCMARD, NFDRI</p> | <p>2006-Onwards</p> |
| <p>Objective 7 – Increase coverage of water supply distribution system by 50% in areas with unsustainable groundwater extraction to protect aquifers from contamination and salt-water intrusion by 2015</p> | | | | |
| <p>4. Construct water supply facilities (from surface water, Level III service) in coastal areas, outside of the central distribution system of MWSS, and other water districts with critical water requirements and salt-water intrusion problems</p> | <p>P5/yr.</p> | <p>GOP, IRA, Credit windows of govt. and commercial banks, Joint ventures bet. LGUs and private sector and World Bank</p> | <p>NWRB, DENR, LLDA, EMB, MGB, DA, NIA, DOT, MMDA, LWUA, MWSS, and concessionaires</p> | <p>2006-onwards</p> |

Table 9.3 Funding Strategy for Partnerships and Governance

| Activity | Cost | Possible Funding Source | Responsible Agency | Time Table |
|--|---|--|--|--------------|
| CAPITAL | | | | |
| Objective 6 5. Implement buffer and setback zones along the beach/shores in accordance with Integrated Land and Sea Use Plan. This includes the: <ul style="list-style-type: none"> • Adoption of the action plan and zoning scheme for the beach areas and foreshore areas • Removal/relocation of structures in the zoned area • Setting up of protected areas/ sanctuaries for shorebirds and nesting sites of marine turtles • Setting of appropriate berthing areas for artisanal fishing boats and jetties for coastal tourism establishments and industries | Refer to other activities of other issues | UNDP/other Multi-lateral funding source | LGUs*, DILG, NHA, HUDCC, HLURB, DENR, DOT, DA, DOTC, PPA, PRA, NCCA, PNP, POS | 2007-onwards |
| Objective 6 4. Develop and issue regulations, standards and guidelines and uses' fee system concerning setback zoning in beach areas, and allocation of areas for public recreational use, and building of tourism and port facilities. | .5 | UNDP/other multi-lateral funding source | LGUs*, DILG HLURB, DENR*, DOT, DOTC, PPA, PRA, NCCA | 2006-2007 |
| Objective 3 2. Conduct the following activities: <ul style="list-style-type: none"> - rapid appraisal - consultations - identification of key areas of concern - classification/re-classification of each river system, and - develop/formulate a criteria for prioritization for the enumerated major river systems: <ul style="list-style-type: none"> a. Pampanga River b. NCR Rivers (Parañaque, Las Piñas, Zapote rivers) c. Navotas-Malabon-Tulahan-Tenejeros d. Maragondon River (Cavite) e. Talisay River (Bataan) f. Angat Watershed g. Pasig-Marikina-San Juan (PAMARISAN) River h. Pasag River (Sasmuan, Masantol, Macabebe Pampanga) i. Pasig-Potrero River (Pampanga) j. Porac-Gumain River (Pampanga) k. Imus River (Cavite) | 10 | JICA/IRA/UNDP Multi lateral Funding Agencies | DENR* (NCR, R3, R4), FMB, DPWH, NWRB, LLDA, LGUs, MWSS and concessionaires, NIA, NPC, DA, MMDA, DILG, LWUA, NEDA, RDCs, PRRC | 2006-2008 |

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| <p>OBJECTIVE 6 1. Conduct inventory and assessment of structures, establishments and illegal settlements along coastlines, riverbanks and waterways.</p> | <p>.5</p> | <p>Devt.loans/ODA Private Sector Investment/other multilateral funding agencies</p> | <p>LGUs, DILG DENR, LLDA, PCG, PPA, DA, DOE, DOT, DPWH, NGOs, NHA</p> | <p>2006</p> |
| <p>OBJECTIVE 6 3. Implement a program for the relocation of informal settlers living along the coastlines and waterways to meet the allowable TDLS/reduction targets.</p> | <p>5/LGU/yr.(excluding cost of land acquisition)</p> | <p>UNDP Multi lateral Funding Agencies Devt.loans/ODA Private Sector Investment</p> | <p>LGUs, in coordination NHA and PAG-IBIG, PNP, DILG, MMDA, DENR, HLURB</p> | <p>2006-2010</p> |
| <p>OBJECTIVE 6 2. Develop investment/financial plan on the: a) Removal/relocation of structures and settlers (legal and illegal) b) Development of relocation and livelihood programs for relocated settlers, and c) Rehabilitation and protection of important natural, social and cultural sites along the coastlines, riverbanks and waterways.</p> | <p>1</p> | <p>IRA/UNDP/other multi- lateral funding source</p> | <p>LGUs, DILG DENR, LLDA, DA, DOTC, DOT, NCCA, NHA</p> | <p>2006</p> |
| <p>Objective 1 2. Assess and align existing land-use plans (RFPs, PFPs, CLUPs), various development plans, programs & projects and related CRM/ICM efforts at different levels of government</p> | <p>2.5</p> | <p>IRA/UNDP/other multi- lateral funding source</p> | <p>DENR, LLDA, NEDA, PEA (RDS*, LUCs), LGUs, DA, DILG, MMDA, DLR, PPA, PRRC, HLURB, DOT, other concerned NGAs, NAMRIA lead agency</p> | <p>2007</p> |
| <p>NON-CAPITAL Objective 2 2. Strengthen Project Coordinating Committee (PCC) as interim body to coordinate the implementation of the Manila Bay Coastal Strategy and Operational Plan (including change in chairmanship, membership composition, functions, etc.) – until the Manila Bay Sustainable Development Council is established</p> | <p>.15</p> | <p>IRA/UNDP/Other Private Sector Investment</p> | <p>DENR, MBEMP PCC</p> | <p>2005</p> |
| <p>Objective 4 5. Conduct Information, Education, and Communication (IEC) for national and local legislators, policy-makers, educators, industries, civil society groups, and other stakeholders <i>Advocacy programs and IEC on:</i> - pollution prevention and waste management (solid waste, sewage and industrial wastewater, toxic and hazardous waste)</p> | <p>.5/yr</p> | <p>IRA Devt.loans/ODA Private Sector Investment</p> | <p>DENR*, LGUs, PIA, KBP other concerned agencies, media, Private Sector, Civil Society groups, MWSS</p> | <p>2005- onwards</p> |

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|--|---------------------|---|--|---------------|
| <ul style="list-style-type: none"> - restoration/rehabilitation, protection/conservation and management of habitats, natural values, historical, cultural, religious and architectural landmarks, and archaeological and unique geological sites in Manila Bay region - aquaculture zones, quota system and appropriate aquaculture methods and practices and their benefits - environmental impacts of unregulated application of feeds (inappropriate type of feeds, over-use of feeds) - impacts of illegal logging and deforestation and measures to restore forests and mangroves - impacts of illegal, destructive and unregulated fishing, and measures to address sustainable fisheries in Manila Bay region - tree planting and coastal and river clean-up activities among schoolchildren, youth, communities, civic and non-government org., private sector and LGUs - impacts of over-extraction of groundwater - water recycling and water use reduction - international conventions, national laws and regulations related to protection and management of the environment, natural resources and historical and cultural sites - the contents of the CLUP, especially among those involved in processing building permits, housing permits, business permits, ECCs, etc., as well as the various enforcement groups (e.g., Bantay Dagat groups, etc.) - Conduct of A "Manila Bay Summit" | | UNDP/other Multi-lateral funding source | DENR-NAMRIA , DA-BFAR* , and LGUs DILG/LGUs* DFA-MOAC | 2006-2008 |
| <p>Obj.1 4. Delineate water boundaries of coastal municipalities and cities</p> <p>Objective 4 Conduct capacity-building activities, including training workshops and pilot programs on alternative livelihood, for fisherfolks, aquaculture owners and operators, farmers, livestock growers, upland dwellers, industries, government employees, civil society groups, pollution officers, etc. on environmentally-sound practices, alternative livelihood programs, environmental monitoring, environmental management, and monitoring and evaluation programs.</p> | .05/LGU 3/yr | UNDP/other multi-lateral funding source | DENR* , and concerned NGAs, LGUs, NGOs and other civil society groups, private sector, Bantay Dagat, FARMCs, PCAPI | 2006- onwards |
| <p>Objective 3 1. Develop, implement and promote the manila bay-pasig river-laguna de bay as a model of integrated coastal area and river basin management, using ecosystem-based management approach (including classification of manila bay and pasig river).</p> | 275 | UNDP/other Multi-lateral funding source | DENR* , LLDA, PRRC, LGUs, DPWH, DILG, MMDA, NWRB, NIA, DFA-MOAC | 2006- onwards |

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| <p>Objective 1 3. Amend CLUP guidelines to include sea/water use and foreshore uses</p> | <p>5</p> | <p>IRA/Devt. Loans/ODA Private sector investment</p> | <p>HLURB, NEDA, LGUs, other concerned NGAs, Private Sectors</p> | <p>2006</p> |
| <p>Objective 7 2. Review the National Disaster Coordination Plan, and assess in relation with the needs of the Manila Bay Region.</p> | <p>.25</p> | <p>JICA/IRA/ODA/ other multi-lateral funding institution</p> | <p>NDCC, DND, DENR, MGB, EMB, LLDA, DOST, NCCA, PAGASA, PHIVOLCS, NAMRIA, MIMDA, BFAR, National Museum, Office of Civil Defense, MARINA, I</p> | <p>2006</p> |
| <p>Objective 6 3. Develop a Coastal Hazard Contingency Plan, and Response System with concerned agencies and sectors a. Identify the ecosystem, human settlements, and historical, cultural, religious, architectural, archeological and unique geological sites that are at risk in hazard-prone areas b. Identify and develop mitigation measures c. Develop response systems.</p> | <p>2.5</p> | <p>UNDP/GOP/other multi-lateral funding institution</p> | <p>GUs, DILG, PNP, DSWD, DOTC, PCG, Academe, DFA-MOAC</p> | <p>2006</p> |
| <p>Obj.2 4 Draft appropriate institutional arrangements and legal mechanism</p> | <p>-</p> | <p>IRA/UNDP/Other Private Sector Investment</p> | <p>DENR, MBEMP PCC, and other concerned stakeholders</p> | <p>1st qtr. 2006</p> |
| <p>Objective 2 5. Lobby for the approval of the proposed institutional arrangements</p> | <p>-</p> | <p>RA/UNDP/Other Private Sector Investment</p> | <p>MBEMP PCC</p> | <p>2nd & 4th qtr.2006</p> |
| <p>Objective 2 6. Operationalize/implement the approved/appropriate institutional arrangement (staffing, budgeting)</p> | <p>-</p> | <p>JICA/IRA/UNDP Multi lateral funding agencies</p> | <p>DBM, Congress, other concerned agencies</p> | <p>2007- onwards</p> |
| <p>Objective 4 2. Update communication plan for the Manila Bay Coastal Strategy and its Operations Plan a. Target audience b. Strategy c. Programs d. Milestones e. Responsible offices f. Budgetary requirements</p> | <p>1</p> | <p>GOP/UNDP/Multi lateral funding agencies</p> | <p>DENR*, MBEMP TWG/ Member Agencies, KBP, PIA, LGUs</p> | <p>2005-2006</p> |

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| <p>Objective 1 Review and consolidate pertinent information on: Corals, mangroves, seagrass beds, mudflats, swamps, avifauna, Fisheries, shellfishes, seaweeds, Benthos, phytoplanktons, zooplanktons, beaches/sandy shores, foreshore areas, built-up areas, bedrocks</p> | <p>3</p> | <p>UNDP Multi lateral Funding Agencies/ Private Sector Investment</p> | <p>DENR*, NEDA, LLDA, PAWB, NAMRIA, DILG, LGUs, MMDA, HLURB, PRA, DA, DOT, MBEMP, TWG-IEMP, BFAR, AFP (Phil. Navy), PCG, NGOs, PG-ENRO, UP-MSI, NCIP, DFA-MOAC * - lead agency</p> | <p>2006-2007</p> |
| <p>Objective 1 5. Develop the integrated land and sea-use zoning plan for Manila Bay Area Include: - Protected Area Zones o National Parks o NIPAS Zone o Sanctuaries o Ancestral Domain - Rehabilitation/Buffer Zones - Sustainable Fisheries Use Zone - Coastal Tourism, other eco-tourism zones - Trade and Navigation zones - Human settlement areas - Agricultural and industrial zones</p> | <p>7 & other sources</p> | <p>IRA/UNDP/Other Private Sector Investment</p> | <p>DENR, Professional group LUC (DA, DLR, DOJ, DOTC, DILG, DENR, DTI, DPWH, DOST, DOT, HUDCC, NEDA), Phil. Navy, PCG, MARINA, PRA, PPA, HLURB, NAMRIA, NCIP, PRRC, Academe, LLDA, LGUs, MMDA lead agency</p> | <p>2007-2012</p> |
| <p>Objective 3 3. Develop the integrated coastal area and river basin management plan and include required institutional arrangements and information network for the river systems identified in Activity 2.</p> | <p>12</p> | <p>UNDP Multi lateral Funding Agencies/ Devt.loans/ODA Private Sector Investment</p> | <p>LGUs, DENR* (NCR, R3, R4), FMB, DPWH, NWRB, LLDA, MWSS and concessionaires, NIA, NPC, DA, MMDA, DILG, LWUA, NEDA, RDCs, PRRC</p> | <p>2006-2007</p> |
| <p>Objective 7 4. Adopt and implement the contingency plan and response system</p> | <p>5</p> | <p>JICA/IRA/UNDP Multi lateral Funding Agencies</p> | <p>NDCC, DND, DENR, MGB, EMB, LLDA, DOST, PAGASA, PHIVOLCS, NAMRIA, MMDA, BFAR, NCCA, National Museum, Office of Civil Defense, MARINA, IGUs, DILG, PNP, DSWD, DOTC, PCG, Academe, DFA-MOAC</p> | <p>2006-2007</p> |
| <p>Objective 3 3. Implement the integrated coastal area and river basin management</p> | <p>Refer to other activities of other</p> | <p>UNDP Multi lateral Funding Agencies</p> | <p>LGUs, DENR* (NCR, R3, R4), FMB, DPWH,</p> | <p>2007- onwards</p> |

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| <p>plan of each river system Include: - IIMS and Information Network - restoration/rehabilitation of habitats and resources - integrated land- and sea-use zoning - marine sanctuaries, riverside parks - investment opportunities in environmental facilities and services - existing projects</p> | <p>issues</p> | <p>Devt.loans/ODA Private Sector Investment</p> | <p>NWRB, LLDA, MWSS, concessionaires, NIA, NPC, DA, MMDA, DILG, LWUA, NEDA, RDCs (R4, R3, NCR), PRRC, EMB, DFA-MOAC</p> | <p>2007- onwards</p> |
| <p>Objective 3 5. Set –up and implement ICM in each coastal province, city and municipal government around the Bay area</p> | <p>At least 2% of the 20% of Devt. Fund & other funding sources</p> | <p>UNDP Multi lateral Funding Agencies</p> | <p>LGUs Environmental Office</p> | <p>2007- onwards</p> |
| <p>Objective 3 6. Replicate best ICM practices</p> | <p>2.5/LGU/yr.</p> | <p>IRA/Multi lateral Private sector investment</p> | <p>LGUs*, communities, private sector, civil society groups, DENR, DILG</p> | <p>2007- onwards</p> |
| <p>Objective 6 1. Develop coastal hazards map and identify risk and hazards-prone areas (flooding, land subsidence, earthquake, faultlines, volcanic eruption, lahar flow, flash flood and landslides, forest fires, tsunamis, red tide, fish kill)</p> | <p>1.5</p> | <p>UNDP/other multi-lateral funding source</p> | <p>NDCC, DND, DENR, MGB, EMB, LLDA, DOST, PAGASA, PHIVOLCS, NAMRIA, MMDA, BFAR, NCCA, National Museum, Office of Civil Defense, MARINA, IGUs, DILG, PNP, DSWD, DOTC, PCG, Academe, DFA-MOAC</p> | <p>2006</p> |
| <p>Objective 1 7. Implement Manila Bay Area's integrated land and sea-use plan</p> | <p>5 (for M % E)</p> | <p>IRA/Devt.loan/ ODA/ private sector investment</p> | <p>DENR, EMB, LLDA, MGB, NWRB, NAMRIA, LGUs, DILG,HLURB, HUDCC, NHA, NEDA, DA, BFAR, DOST, PHIVOLCS, PCMARD, PAGASA, DOTC, PCG, PPA, MARINA, DPWH Civil society groups Private sector, Academe, FARMCs, DFA-MOAC</p> | <p>2007-2012</p> |

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|--|---------------|--|---|------------------|
| <p>Objective 1</p> <p>6. Harmonize the land use plans (RPFs, PPFs and CLUPs) of the municipalities and cities in the Manila Bay Region to make them consistent with the Integrated Land- and Sea Use Plan.</p> | <p>.15/yr</p> | <p>IRA/UNDP other Multi-lateral funding source</p> | <p>RPFs – RDCs for approval PPFs – HLURB for approval CLUPs – LGUs, Sangguniang Panlalawigan for approval *DENR-MBEMP, LGU LGUs, RDC & HLURB (adopting)</p> | <p>2007-2012</p> |
| <p>Objective 2</p> <p>1. Study/assess existing policies, legislations and administrative arrangements, review needs and objectives, and conduct social/stakeholder analysis to identify options on institutional arrangements for the management of the Manila Bay Region.</p> | <p>2.5</p> | <p>IRA Devt. loans/ODA Private Sector Investment</p> | <p>DENR*, LLDA, PRRC, EMB, MGB, NWRB, PAWB, LGUs, DILG, DA, DOTC, PCG, PPA, DPWH, DOST, DOT, PRA, NHA, HLURB, HUDCC, NHI, NCCA, NEDA, DFA-MOAC</p> | <p>2005</p> |
| <p>Objective 4</p> <p>1. Conduct awareness assessment of different stakeholders (local community, school children, local and national political leaders and functionaries, civil society, private) consistent with the Advocacy and Communications Plan of MBEMP</p> | <p>1.5</p> | <p>IRA Devt. loans/ODA Private Sector Investment</p> | <p>DENR, MBEMP PMO, SMOs, Member Agencies, LGUs, DepEd</p> | <p>2005-2006</p> |
| <p>Objective 5</p> <p>1. Identify, document and disseminate to local officials, legislators, key NGAs, GFIs, and other stakeholders best practices involving partnership arrangements and experiences (within the Manila Bay Region and outside)</p> | <p>.5</p> | <p>IRA/UNDP other Multi-lateral funding source</p> | <p>DENR, LGUs, DILG, NGOs/civil society groups, DTI, NEDA, DOF, financing institutions</p> | <p>2006</p> |
| <p>Objective 5</p> <p>2. Develop guidelines on alternative partnership arrangements applicable to the Manila Bay Region for the implementation of environmental investment projects</p> | <p>.25</p> | <p>IRA/UNDP other Multi-lateral funding source</p> | <p>DENR, DILG, DOF, DTI, financing institutions, NEDA (NCR, Region 3 and Region 4A)</p> | <p>2006</p> |
| <p>Objective 5</p> <p>4. Identify environmental investment opportunities and develop environmental investment packages/project proposals, and incentives (including appropriate guarantees, user fee system, and other cost recovery scheme) to allow private sector participation</p> | <p>1</p> | <p>IRA Devt. loans/ODA Private Sector Investment</p> | <p>DENR, LGUs*, NEDA, DTI-BOI, MWSS</p> | <p>2006</p> |
| <p>Objective 8</p> | <p>1</p> | <p>UNDP/other multi-lateral</p> | <p>DENR*</p> | <p>2006-2007</p> |

| | | | | |
|--|--|----------------|-------------|--|
| <p>1. Develop appropriate monitoring and evaluation system for the Manila Bay Region (See M & E Strategy)</p> <ul style="list-style-type: none"> a. Review and assess existing monitoring and evaluation (M&E) programs b. Incorporate the output of the Pilot Integrated Environmental Monitoring Program (IEMP) and Risk Assessment including performance indicators/standards c. Delineate and clearly define roles and responsibilities of LGUs, NGAs, private sectors, communities in the monitoring and evaluation of programs/projects/activities in Manila Bay 3. | | funding source | PCC members | |
|--|--|----------------|-------------|--|

| | | | | |
|---|-------------------|--|--|---------------------|
| <p>Objective 4</p> <p>3. Integrate lessons on pollution prevention, waste management as well as the protection of important natural and unique geological areas, historical, cultural, religious and architectural landmarks in the curriculum of primary, secondary and tertiary schools (focus on Manila Bay), and environmental activities in the NSTP/CWTS.</p> <p>NSTP – National Service Training Program CWTS – Civic Welfare Training Service</p> | <p>.15/yr</p> | <p>IRA Devt. loans/ODA Private Sector Investment</p> | <p>Department of Education (DepEd) , DENR, NCCA, LGUs, Academe, DFA-MOAC</p> | <p>2005-onwards</p> |
| <p>Objective 4</p> <p>4. Organize and implement community activities (civil society, industries, and other stakeholders) e.g., ecological camps, fora, essay writing, drawing/painting contest, tree planting, coastal and river clean up, bird watching, slogan and poster contest to build awareness and mobilize participation for the long-term management of pollution and the natural/ecological, economic and social values of Manila Bay region</p> | <p>.30/yr/LGU</p> | <p>JICA/IRA/UNDP Multi lateral funding source</p> | <p>DepEd, DENR Public and private schools within the Manila Bay Region Parents-Teachers Associations Boy Scouts of the Phil. And the Girl Scouts of the Phil. Private foundations and donors</p> | <p>2006-onwards</p> |
| <p>Obj.4</p> <p>8. Promote corporate environmental and social responsibility in the private sector</p> | <p>.5/yr</p> | <p>IRA Devt.loans/ODA Private Sector Investment</p> | <p>DENR, and concerned NGAs, LGUs, NGOs and other civil society groups, private sector, resort owners and developers, PCAPI, PCCI*</p> | <p>2006-onwards</p> |
| <p>Obj.5</p> <p>3. Implement capacity-building programs for national government and LGUs, and financing institutions to engage in PPPs</p> | <p>.3/LGU</p> | <p>UNDP/other multi-lateral funding source/ Devt.loans/ODA Private Sector Investment</p> | <p>DENR, NEDA, DILG, DTI, DOF, LGUs</p> | <p>2006-onwards</p> |
| <p>Objective 5</p> <p>5. Conduct pre-feasibility studies, willingness-to-pay surveys and stakeholder consultations to assess viability and include the viable projects in the LGUs' Local Development Plan of the projects for private sector participation,</p> | <p>2/trng.</p> | <p>IRA Devt.loans/ODA Private Sector Investment</p> | <p>LGUs, DENR</p> | <p>2006-onwards</p> |
| <p>Objective 5</p> | <p>.15/yr</p> | <p>IRA Devt.loans/ODA</p> | <p>LGUs*, private sector,</p> | <p>2006-onwards</p> |

| | | | | |
|---|-----------|--|--|--------------|
| <p>6. Negotiate and enter into agreements (with supporting resolutions and ordinances) with potential partners (local private partners, foreign donors, etc.) as well as financing institutions to develop, finance and implement the environmental investment projects</p> | | Private Sector Investment | NEDA, DENR communities, civil society groups, financing institutions, donor agencies, MWSS | 2006-onwards |
| <p>Objective 5 7. Monitor and evaluate compliance to partnership commitments</p> | .1/proj. | IRA Devt.loans/ODA Private Sector Investment | DTI-BOT Center, Financing institutions | 2006-onwards |
| <p>Objective 8 2. Institutionalize the M&E system developed</p> | .5 | UNDP/other multi-lateral funding source | DENR* PCC members | 2006-onwards |
| <p>Objective 8 3. Institutionalize the IIMS and MBIN Activity</p> | .5/yr | UNDP/other multi-lateral funding source/ | DENR* PCC members | 2006-onwards |
| <p>Objective 8 5. Mobilize communities (including indigenous peoples, women, and other stakeholders for data generation, monitoring, law enforcement, etc.</p> | .15/yr | IRA Devt.loans/ODA Private Sector Investment | DENR*, LGUs, PCC members | 2005-onwards |
| <p>OBJ.7 8. Implement the Eco-watch and Baywatch programs as monitoring and incentives programs (including regular fora, web-based and public consultations)</p> | .5/yr | UNDP/other multi-lateral funding source/ | DENR*, LGUs, PCC members, DOT, PCCG, MARINA | 2005-onwards |
| <p>Objective 8 4. Conduct training on capacity-building of stakeholders (LGUs, communities, national government agencies, etc.) on M&E</p> | .05/trng. | UNDP/other multi-lateral funding source/ | DENR* PCC members | 2006-onwards |
| <p>Objective 8 6. Develop voluntary agreements (e.g., self-regulation, disclosure, etc.) with industries, hospitals, commercial and tourism enterprises operating in the Manila Bay area</p> | .15/yr | UNDP/other multi-lateral funding source/ | LGUs PCCI, private sector | 2006-onwards |
| <p>Objective 8 7. Assist industries towards implementation of Environmental Management System (EMS) and pollution prevention programs through Phil. Environment Partnership Program (PEPP)</p> | .15/yr | Devt.loans/ODA Private Sector Investment | DENR*, LGUs, PCC members, PCCI, MAP, private sector | 2006-onwards |

8.0 MONITORING AND EVALUATION STRATEGY

The developed monitoring, evaluation and reporting plan outlines the steps that will be undertaken to ensure that the project/activity implementation is on track. It is deemed necessary to monitor the project's interventions to know whether or not the project/activity has achieved the specified goals and objectives or determine what are the needs of the project/activity to improve its implementation.

While the concerned agencies/institutions are implementing the action plan, they have to implement the monitoring plan. The monitoring plan consists of the design of the monitoring strategy, selecting the specific units to monitor, and selecting the appropriate method.

The proposed monitoring, evaluation and reporting procedural guidelines are described below:

8.1 AREAS TO BE MONITORED

The areas of monitoring cover the Physical Accomplishments (input output process), Financial Performance, and the Field Inspection.

- a) Physical Accomplishment Report (PAR) – This refers to the comparison of the actual accomplishment against the set targets for the period. It is required to use a uniform source of document to facilitate recording and monitoring of physical accomplishments. The PAR covers all the activities of the program/project, which have measurable or quantifiable outputs.

Source Document

This refers to document, which is the primary record of the count or the basis of the count/computation of physical accomplishments being reported. The primary source documents of monitored activities include survey forms, field reports, and the project's accomplishment report.

- Survey Forms and/or Similar Working Documents are used to record any action from the project and/or initiate the undertaking of an activity by concerned groups/stakeholders. The use of this type of working document is appropriate for activities like determining the level of awareness of target clientele, analyzing the trends of the water sampling analysis, among others.
- Field Reports become the basis of first record of accomplishment for activities undertaken by field personnel considering they are supported by working papers and documentations.
- Project Accomplishment Report refers to documents reporting the accomplishment of a project undertaken by authorized unit/group/office.

Report Forms

The forms are designed to monitor the work unit's physical accomplishments in terms of outputs for each activity. Each activity has a corresponding performance indicator which is identified and agreed upon by proponents, implementers and concerned stakeholders. The accomplishment reports are presented in the proposed form (Refer to FORM 1). The form has the following data elements:

- Title of the project
- Month and year (report period)
- Region, province, Municipality and Barangay
- Project/Activity
- Performance Indicators
- Unit of Work of Measurements (UWM)
- Target (Annual and to date)
- Accomplishments (This month and to date)

- Percentage of Accomplishments

Flow of Reports

The flow of paper begins at the project site. The staff of the of project staff prepare and submit the accomplishment report to lead agency/Project Management Office (PMO), copy furnished the concerned regional, provincial and municipal agencies, LGUs, private sector and other stakeholders. Refer to Figure 10. The PMO consolidates, reviews, assesses and recommends appropriate corrective measures to effectively and efficiently implement the project/activity.

- b) Financial Performance Report Monitoring – The financial performance monitoring is tracking of determining the actual expenses incurred and comparing these against the allocation for the activity or project. The financial report is required and submitted semi-annually to PMO. Refer to FORM 2.
- c) Field Inspection – This focuses on the verification of certain report for the activity. The Project Management Office should form a validation team to verify the performance of the project on the ground. The team is required to come-up with proposed validation guidelines, which serve as basis for evaluating the project performance. This is carried out annually.

**FORM 1
PHYSICAL ACCOMPLISHMENT REPORT**

Title of Project : _____

For the Month of _____ 200__

REGION : _____
 PROVINCE : _____
 MUNICIPALITY : _____
 BARANGAY : _____

| Activity | Indicator | Target | | Accomplishment | | % Accomplishment | Remarks |
|----------|-----------|--------|---------|----------------|---------|------------------|---------|
| | | Annual | To Date | This month | To Date | | |
| | | | | | | | |

**FORM 2
FINANCIAL MONITORING REPORT**

Title of Project : _____

For the Month of _____ 200__

REGION : _____
 PROVINCE : _____
 MUNICIPALITY : _____
 BARANGAY : _____

| Activity | Indicator | UWM | Target | | Accomplishment | | % Accomp. | Budgetary Allotment Releases This Mo. | Budgetary Allotment Expenditure To date |
|----------|-----------|-----|--------|------------|----------------|------------|--------------|--|--|
| | | | Annual | To Date | This Month | To Date | | | |
| | | | | | | | | | |

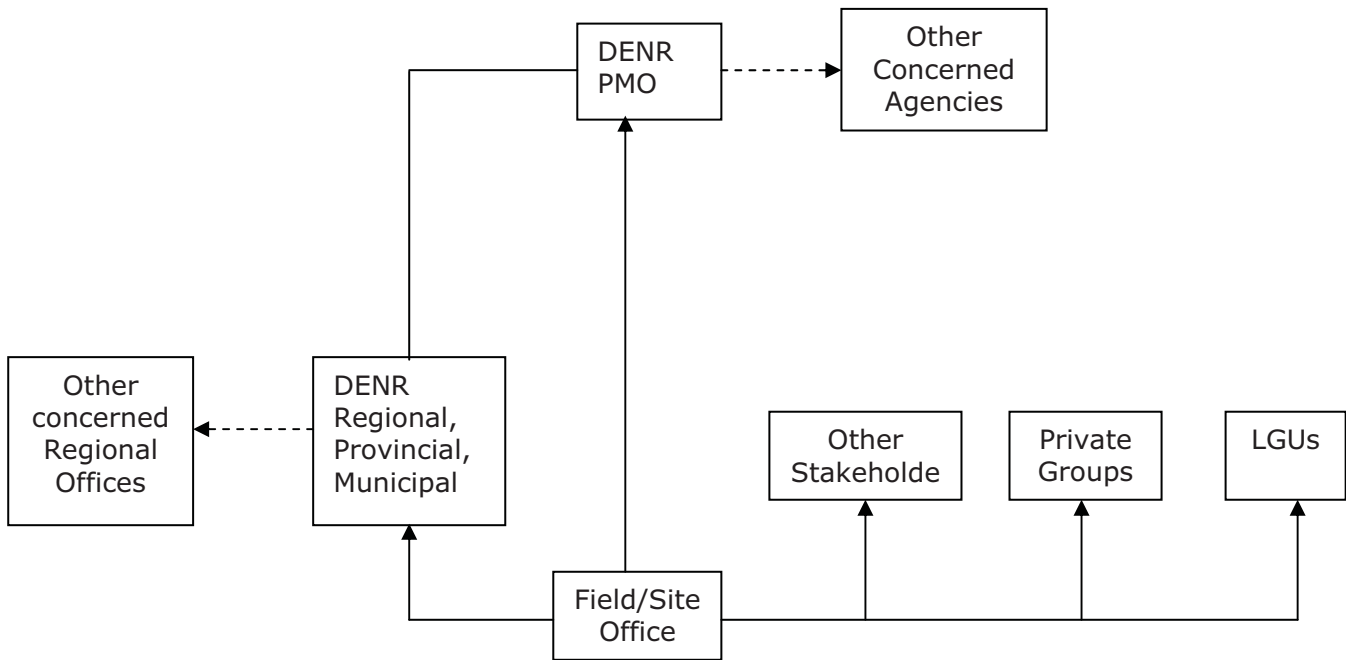


Figure 3 Flow of Reports

9.1 MONITORING AND EVALUATION

This is a periodic assessment of the relevance, efficiency, effectiveness, and impact of the project in relation to development objectives.

Preparation of monitoring/evaluation plans covers three (3) aspects, namely: designing of monitoring strategy, and indicators selecting units/group to monitor, and selecting the appropriate method. Proposal on how to conduct this activity is presented below:

Monitoring Strategies:

1. Identify target audience
2. Identify information needs such as the project goals and objective
3. Determine the monitoring strategies and indicators
4. Determine when, by whom, and where the data will be collected

A sample of monitoring sheets on water pollution and overexploitation of resources and degradation of habitats are presented in Table 10.

Table 10 Sample Monitoring Sheet

WATER POLLUTION

| Objectives | Monitoring Strategy | Indicators | Methods/Tasks | When | Who | Where |
|---|---|---|--|--------------------------------|---|-----------------------------------|
| Reduce by 50% the discharges of raw sewage and untreated and inadequately treated wastewater, (i.e. commercial, industrial, agricultural, and fisheries/aquaculture) by 2015. | Identify point sources | Point of sources and pollution loadings - Fisheries - Aquaculture - Residential - Commercial - Industrial | Gather data on the status of these point sources and pollution | | Concerned agencies & Institutions | Concerned agencies & Institutions |
| | Determine total daily load (TDL) of raw sewage and other key parameters into the major rivers | - total daily loadings - Key parameters - Major rivers classification - Establish loading locations along the rivers | Database/Updating of existing data previously collected Compliance Reports | Daily/Monthly/Quarterly/Yearly | Concerned agencies & Institutions in coordination with various LGUs | Implementing agencies |
| | Determine pollution loadings from fisheries and aquaculture and from farmlands and livestock industries | total daily loadings - Key parameters - Major rivers classification - Establish loading locations along the major rivers | Database/Updating of existing data previously collected Compliance Reports | Daily/Monthly/Quarterly/Yearly | Concerned agencies & Institutions with coordination with various LGUs and companies | Project Sites |
| Stop dumping of sewage, industrial sludge, solid waste, and contaminated dredged materials by 2005. | Determine pollution loadings from manufacturing industries | total daily loadings - Key parameters - Major rivers classification - Establish loading locations along the major rivers | Database/Updating of existing data previously collected Compliance Reports | Daily/Monthly/Quarterly/Yearly | Concerned Agencies & Institutions with coordination with various LGUs and companies | Target sampling areas |
| | Identify ocean dumping activities | List/Inventory of materials being dumped to the ocean - dredged materials - septage sludge - solid waste - toxic and haz wastes - others | Inventory Report from various companies and agencies Database/Monitoring Report | Monthly/Quarterly/Yearly | Concerned Agencies and institutions with coordination with various LGUs and companies | Concerned agencies/institutions |
| | Identify companies with dumping permits | List of companies with legitimate permits | Information from the various companies and from lead government agencies | | Concerned Agencies and institutions with coordination with various LGUs and companies | |

OVER-EXPLOITATION OF RESOURCES AND DEGRADATION OF HABITATS AND HISTORICAL, CULTURAL, RELIGIOUS, ARCHEOLOGICAL AND UNIQUE GEOLOGICAL SITES

| Objectives | Monitoring Strategy | Indicators | Methods/ Tasks | When | Who | Where |
|--|---|---|--|----------|---|-----------------------------------|
| Establish and manage all declares Protected Areas (PAs) and National Parks in the Manila Bay Region by 2007. | Identify and assess existing PAs | Assessment Report List of proposed PAs List of established PAs | Inventory Report from the concerned government lead agencies | Annually | Concerned agencies & Institutions | Concerned agencies & Institutions |
| | Identify key habitats and resources in the designated as PAs and National Parks | List of habitats and other resources within the PAs and National Parks | Gather data on the status of these habitats and resources within the designated PAs and National Parks Inventory Report from the concerned government lead agencies | Annually | Concerned agencies & Institutions in coordination with various LGUs | Designated PAs and National Parks |
| | Establish and restore and manage designated Protected Areas and National Parks | Number and area (hectares) of PAs and National Parks established Memorandum of Agreement (MOA) signed by concerned stakeholders and other partners | Coordinate with the concerned government lead agencies | | Concerned agencies & Institutions with coordination with various LGUs | Designated PAs and National Parks |

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