Manila Bay Coastal Strategy

October 2001

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ABBREVIATIONS AND ACRONYMS

Basel Convention – Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989

BFAR - Bureau of Fisheries and Aquatic Resources

BCD – Convention on Biodiversity, 1992

BIR - Bureau of Internal Revenue

CDA - Cooperative Development Authority

CITES - Convention on the International Trade of Endangered Species of Wild Flora and Fauna, 1973

CLC – International Convention on Civil Liability for Oil Pollution Damage, 1969 and its 1992 Protocol

COA - Commission on Audit

CSC - Civil Service Commission

DA—Department of Agriculture

DAR - Department of Agrarian Reform

DECS - Department of Education, Culture and Sports

DENR - Department of Environment and Natural Resources

DENR – III - Department of Environment and Natural Resources – Region III

DILG - Department of Interior and Local Government

DOH - Department of Health

DOST - Department of Science and Technology

DOT - Department of Tourism

DTI - Department of Trade and Industry

EMB - Environmental Management Bureau

ENR - environment and natural resources

FARMC - Fisheries and Aquatic Resources Management Councils

FUND – International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage

FSP – DA - Fisheries Sector Program – Department of Agriculture

GDP - gross domestic product

GEF – Global Environment Facility

GSIS - Government Service Insurance System

HDMF - Housing Development Mutual Fund

ICM - integrated coastal management

IEC - information, education and communication

IMO - International Maritime Organization

ISO – International Organization for Standardization

LGUs - local government units

London Convention – Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 and its 1996 Protocol

LTO - Land Transportation Office

Migratory Convention – Convention on the Preservation of Migratory Species of Wild Animals, 1979

MARPOL 73/78 - - International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 relating thereto

NAMRIA—National Mapping and Resource Information Authority

NCR - National Capital Region

NEA - National Electrification Administration

NEDA - National Economic Development Authority

NEA-REO—National Electrification Administration—Rural Electrification Office

NFA - National Food Authority

NGOs – non–government organizations

NICA - National Intelligence Coordinating Agency

NSO - National Statistics Office

NSO-FIES - National Statistics Office – Family Income Economic Survey

OPRC - Oil Pollution Preparedness, Response and Cooperation

PIA - Philippine Information Agency

POPCOM - Population Commission

POs - people's organizations

PPC – Philippine Postal Corporation

PRRP - Pasig River Rehabilitation Project

R & D - research and development

RAMSAR – Ramsar Convention on Wetlands

TESDA - Technical Education and Skills Development Agency

UN - United Nations

UNCLOS - United Nations Convention on the Law of the Sea

UNDP - United Nations Development Programme

UNESCO - United Nations Educational, Scientific, and Cultural Organization

UNFCC – United Nations Framework Convention on Climate Change, 1992

Washington Declaration—Washington Declaration on a Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, 1995

World Heritage Convention – Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972

ACKNOWLEDGMENTS

The Manila Bay Coastal Strategy is a product of a unified effort of the various stakeholders of the Manila Bay coastal and watershed area whose vision is to bring back the old glory of the Bay to its rightful niche.

We are greatly indebted, first and foremost, to the common people of the communities of the coastal and watershed areas of Southern Tagalog Region, Central Luzon and the National Capital Region who unselfishly shared their time and effort in crafting this document. Their patience and strong sense of dedication is highly appreciated.

We are equally grateful to the various local government units of the cities and municipalities of the National Capital Regions, and the provinces of Regions 3 and 4, the various national agencies, the academe, the NGOs, the private sector, religious organizations and the civil society of the Manila Bay coastal and watershed area. Without them, this document would have never been possible.

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Project Management Office
Manila Bay Environmental Management Project

FOREWORD

What is the Manila Bay Coastal Strategy?

The Coastal Strategy for Manila Bay is a statement of hope by and for the people to whom this remarkable natural endowment is a source of food, employment, income, transportation, recreation, beauty, culture and history. The strategy is also a window to the future, giving multiple and diverse stakeholders a glimpse of a vision, and charting a course for that idyllic prospect.

In practical terms, the Coastal Strategy is a document that covers the social, economic and environmental aspects of Manila Bay in relation to people's values, and threats - real or perceived - that impair those values. To turn this knowledge and concern into action, it is apparent that the combined effort of government and civil society are required. These efforts involve changing the attitude and behavior of people. This is no small task, and the Coastal Strategy takes on this challenge by tasking every level of society with the responsibility of managing the Bay.

Most significantly, the Manila Bay Coastal Strategy provides a comprehensive environmental management framework, targeted outcomes and a series of actions programs involving the participation of both government and non-government sectors. The key to moving toward the shared vision is the development of partnerships among the stakeholders, and the synergy of efforts of many different players with different skills and perspectives. At the end of the day, any action program within the Coastal Strategy, whether taken up by an individual, a community or sector, represents a contribution to the realization of the shared vision for Manila Bay.

Why is it different?

The Manila Bay Coastal Strategy differs from previous and ongoing environmental management initiatives by:

1. providing key and active roles for all sectors of society within a single environmental management framework, including central and local government agencies, the private sector, civil society, the academe and local communities, as well as UN and donor agencies, and bilateral and multi-lateral financial institutions;
2. linking economic planning and development programs to environmental and resource management goals;
3. combining social issues, such as poverty alleviation, food security, public health, gender mainstreaming, education of youth, and the well-being of marginalized groups of society, with the rehabilitation and sustainable development of marine and coastal resources;

4. encompassing land- and sea-based human activities which impact on the coastal and marine environment; and
5. shifting the financial model from government-supported environmental facilities and services to self-sustaining investment opportunities for the public and private sectors.

What is the scope?

The geographical scope of the Coastal Strategy includes the surface area of the Bay, about 1,800 km^2, and the surrounding watershed areas of 17,000 km^2. The 190 km coastline is intersected by seven (7) major rivers, draining 26 catchment basins. These rivers are the major sources of marine pollution in the Bay. For this reason, land-based human activities in the coastal and inland regions are covered under the strategy, as are sea-based activities having direct influence on water quality and ecosystem health.

Atmospheric deposition of contaminants is not covered in the Coastal Strategy at this time. Although air quality is recognized as an important factor in protecting public health and sustaining economic development, the effect on living resources of Manila Bay has not been assessed. It is appreciated, however, that initiatives aimed at reducing particulate and hazardous and noxious gaseous emissions from mobile and stationary sources in the area, will have a beneficial impact on the Bay's life support system.

There is no timeline identified in the Coastal Strategy. The adoption of work programs and time schedules to meet desired outcomes belongs to the next stage of the management program, i.e., response. The stakeholders themselves determine the speed with which the shared vision is achieved by committing to the strategy and implementing action programs for which they have ownership. This may take 25 years or more, and shall entail willpower and steadfast devotion by stakeholders if changes are to occur. The key indicator of progress will be the people's enjoyment and renewed interest in the marine and coastal environment of Manila Bay, and this change will occur gradually, but measurably, over time.

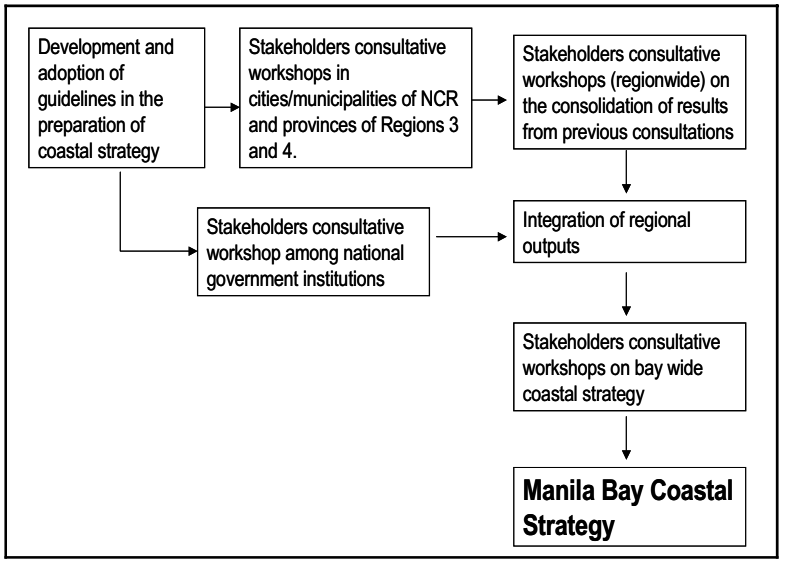
How will the strategy be used?

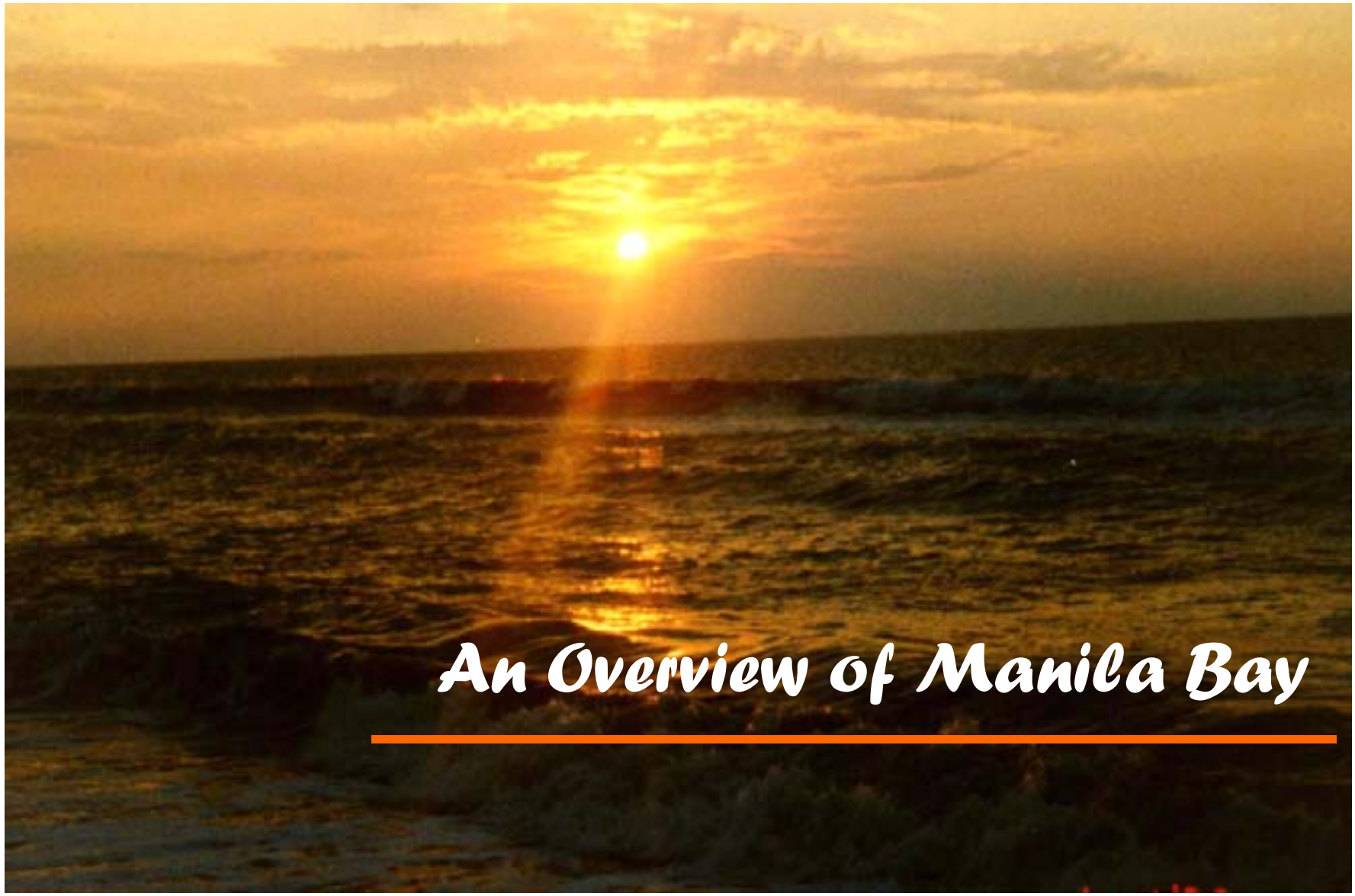
The Coastal Strategy has been developed as a consequence of a long and comprehensive consultation and approval process (see Annex A). The process has resulted in a consensus among those who care for the coastal and marine environment of Manila Bay and believe in sustainable development. This includes policy makers, fisher folk, scientists, religious groups, government departments and agencies, women's organizations, environmental advocates, communities, industries, commercial enterprises, financial institutions and so on. These are the same partners who will use the strategy to act decisively and collectively to manage Manila Bay.

Upon finalization, stakeholder groups will adopt the strategy by signing a Manila Bay Declaration. The Declaration will outline the respective roles and responsibilities of the signatories in implementing the Manila Bay Coastal Strategy. Ultimately, the Coastal Strategy and the action programs will be institutionalized through legislation. In the meantime, however, individual and collective efforts of stakeholders, in partnership and under the framework of the Coastal Strategy, are being called upon to restore the heritage of Manila Bay for future generations.

Box 1. Consultation Process on the formulation of the Manila Bay Coastal Strategy.

The Manila Bay Coastal Strategy is the result of the series of stakeholders consultative workshops conducted separately in the National Capital Region, Region III and Region IV from August 2000 to July 2001. The initial consultations were followed by region-wide consolidation workshops. A bay-wide coastal strategy for Manila Bay was finally developed highlighting the integrated framework for action in managing the Manila Bay area. The process of formulating the Manila Bay Coastal Strategy is shown in the figure below. The corresponding schedule of the series of workshops conducted is shown Annex 1.





An Overview of Manila Bay

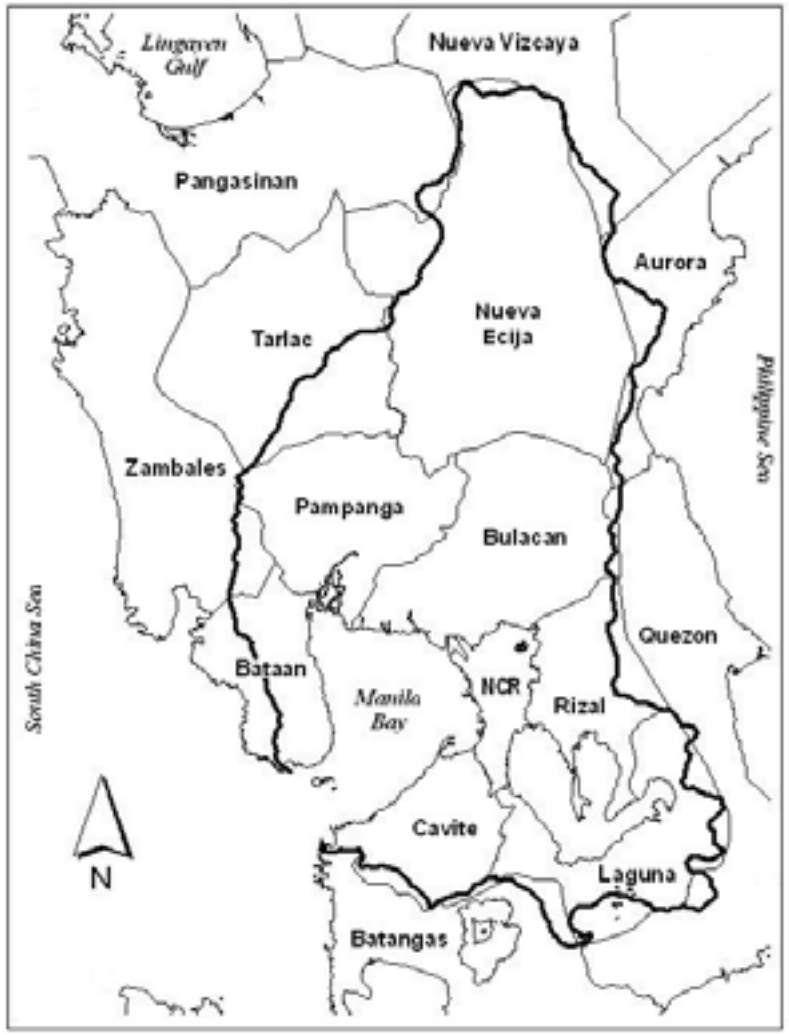
OVERVIEW OF MANILA BAY

Manila Bay, a semi-enclosed estuary facing the South China Sea, is one of the best natural harbors in the world. The bay is located at the southwest portion of Luzon Island, one of the major islands in the Philippines. It lies in the coordinates between 120°28´ to 121°15´ east longitude, and between 14°16´ to 15° north latitude. The Bay, 60 km long, may be entered through a channel 18 km wide, in which Corregidor and Caballo Islands are situated. It has a coastline of approximately 190 kilometers and a surface area of about 1,800 square kilometers. It is bordered by coastal cities and municipalities of the National Capital Region or NCR (Manila, Pasay, Parañaque, Las Piñas, and Navotas), and the coastal provinces of Bataan, Pampanga, Bulacan in Region 3, and Cavite in Region 4. Also within the watershed of Manila Bay are the non-coastal cities and municipalities of the NCR (Quezon City, Caloocan City, Makati, Pasig, Marikina, Mandaluyong, Muntinlupa, Valenzuela, Malabon, San Juan, Pateros, and Taguig), provinces of Nueva Ecija and Tarlac in Region 3, and Rizal and Laguna in Region 4.

Manila Bay consists of a gently sloping basin with the depth increasing at a rate of 1 meter per kilometer from the interior to the entrance and has an average depth of 17 meters (PRRP, 1999). It receives drainage from approximately 17,000 square kilometers of watershed consisting of 26 catchment areas. The catchment area is bounded by the Sierra Madre mountain range to the east, the Caraballo mountains to the north, the Zambales mountains to the northwest and the Bataan mountains to the west (BFAR, 1995).

The two main contributory areas are the Pasig and the Pampanga river basins. The Pasig River connects Manila Bay with Laguna de Bay, the largest freshwater lake in Southeast Asia. Most of the river systems in the province of Pampanga, Bulacan and Nueva Ecija drain into the Pampanga River (BFAR, 1995). Other major rivers discharging directly into Manila Bay are Talisay, Pasag, Meycauayan, Navotas-Malabon-Tullahan-Tenejeros, and Maragondon. Freshwater inflow has been estimated at approximately 25 cubic kilometer/year. Seasonal and annual variations in discharges are pronounced with the largest input occurring in August and the lowest in April. The typical retention time for freshwater in the Bay is between two weeks and one month, depending on the season (PRRP, 1999).

The tide is predominantly diurnal with an average tidal range of 1.2 meters during spring tide and 0.4 meter during neap tide. Seasonal wind systems (i.e., the monsoons) and diurnal breezes affect the current pattern especially in shallow water. The salinity of the water column is homogeneous in the dry season but increases from surface to bottom during the wet season. Median salinity at all depths is between approxim ately 30 and 35 parts per thousand, a little less than the open ocean. Seasonal and temporal variations in water temperature are slight and vary around 30^{o}C (PRRP, 1999).



The Manila Bay Coastal and Watershed Area Boundary.

Source: BFAR 1995.

The Manila Bay.

The coastal character of Manila Bay

Zone	*Location*	*Description*
1. Brushland/Industrial	Southern Bataan (Mariveles & vicinities)	• coral reefs, seagrass and seaweeds • special economic zone
2. Urban/Aquaculture/ Agricultural	Bataan (from Limay & northwards)	• urban centers amid agricultural & aquaculture activities
3. Aquacultural and agricultural env't	Coastal Pampanga (Pasac River & environs)	• main drainage system for Central Luzon
4. Extensive aquacultural and agricultural env't	Coastal Bulacan (Tibaguin & Pamarawan River & environs)	• natural spawning area • large tracts of fishponds • large agricultural areas inland

Zone	*Location*	*Description*
5. Aquacultural/ Industrial	Eastern Bulacan (Meycauayan & eastward)	• natural spawning area • extensive aquaculture • industrial areas
6. Highly urbanized and industrialized areas	NCR •Navotas and environs •Pasig River area •Paranaque River area	
7. Extensive open-water aquacultural & urbanized environment	Northern Cavite (Bacoor and vicinities)	• productive aquaculture • commercial and residential areas
8. Limited aquacultural/ Extensive agricultural/ tourism	Southern Cavite (Rosario to Ternate)	• limited aquacultural activities • highest population of fisherfolk
9. Natural environment	Southernmost Cavite	• mountainous terrain
10. Island environment	Corregidor	• coral reefs, seagrass and seaweeds

The People of Manila Bay

PEOPLE OF MANILA BAY

History

A Muslim kingdom and settlements, founded between 300 to 200 B.C. by immigrants from Central Java, thrived along the Pasig and Pampanga Rivers extending up to Cagayan. It was ruled by Rajahs Sulayman, Matanda and Lakandula before they were defeated in the Battle of Tondo (Manila) by the Spaniards, who then declared possession of the islands. Miguel Lopez de Legaspi built a fort on the same spot, and declared Manila as the capital of the Spanish colony in 1571. Manila has been the seat of political power in the Philippines for the past 430 years.

Manila Bay has been a witness to the country's struggles against colonialism and dictatorship. Dr. Jose Rizal from Calamba, Laguna, who led the campaign for reforms in the Spanish administration in the last two decades of the nineteenth century, and provided inspiration to the revolutionary movement, was executed in Bagumbayan Field (now Rizal Park) located along the Manila Bay. The masses, led by Andres Bonifacio from Tondo, Manila, played key roles in the fight for independence that started in 1896. Emilio Aguinaldo from Kawit, Cavite, declared independence from Spanish rule in June 12, 1898 and became the first President of the Philippine Republic in 1899. Marcelo H. del Pilar and Gregorio del Pilar are among the great heroes from Bulacan, which is known as the "Cradle of Noble Heroes". In 1899, Malolos, Bulacan became the site of the founding of the first Philippine Republic, also known as the Malolos Republic, and the ratification of the Constitution of the First Philippine Republic. Seven of the eight provinces which revolted against Spain are found in the Manila Bay area.

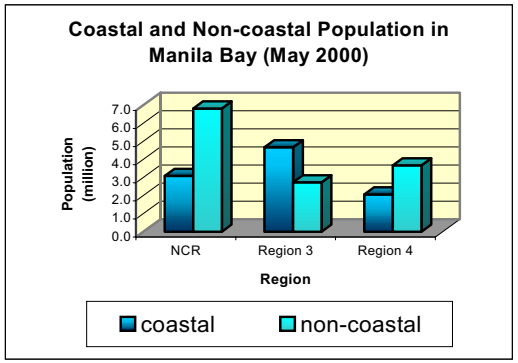
Spain ceded the Philippines to the United States of America after the 'mock' Battle of Manila Bay in 1898 where the United States Navy, led by Admiral George Dewey, dominated the Spanish Naval Fleet. This was the outcome of an arrangement between the two countries, which Spain had agreed to because the Filipinos, led by Gen. Emilio Aguinaldo, had surrounded the city and were on the verge of winning the war.

Manuel Quezon was the president of the Philippine Commonwealth when the Filipino and American troops fought against Japanese invaders in World War II. Manila was bombed by the Japanese on 8 December 1942 while the people were celebrating the Feast of the Immaculate Conception. Manila Bay, specifically Corregidor Island, was the site of the last organized resistance against the Japanese.

The fight against the 20-year dictatorship rule of former President Marcos culminated in the People Power Revolution in 1986, which happened along a stretch of Epifanio de los Santos Avenue (popularly known as EDSA), a street named after the bibliographer of Jose Rizal.

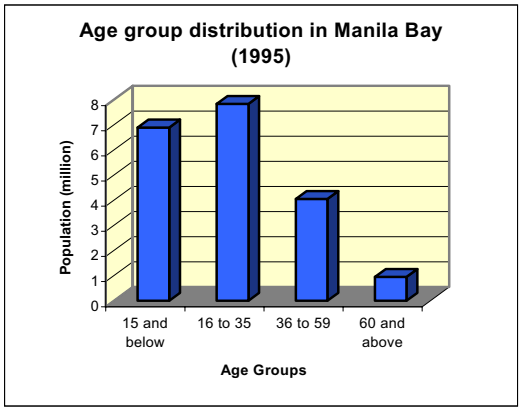
Demography

Total population



- Around 30% of the country's population is found in the Manila Bay area. As of May 2000 (NSO, 2001), there are 23,045,442 persons living in this area. About 42.6% of this population or 9,826,622 live in the coastal areas, which include Manila, Las Piñas City, Parañaque City, Pasay City, Navotas, Bataan, Bulacan, Pampanga and Cavite. The non-coastal population is 13,218,820 persons.
- In the NCR, Quezon City registered the highest population level at 2.17 million persons followed by Manila with 1.58 million persons. In Southern Tagalog, Cavite registered the highest population at 2.06 million persons, followed closely by Laguna with 1.97 million persons. In Central Luzon, Bulacan registered the highest population at 2.23 million persons, followed by Nueva Ecija with 1.66 million persons. Pampanga, excluding Angeles City, was the third largest with 1.62 million persons. Bataan had the lowest population level at 558 thousand persons.

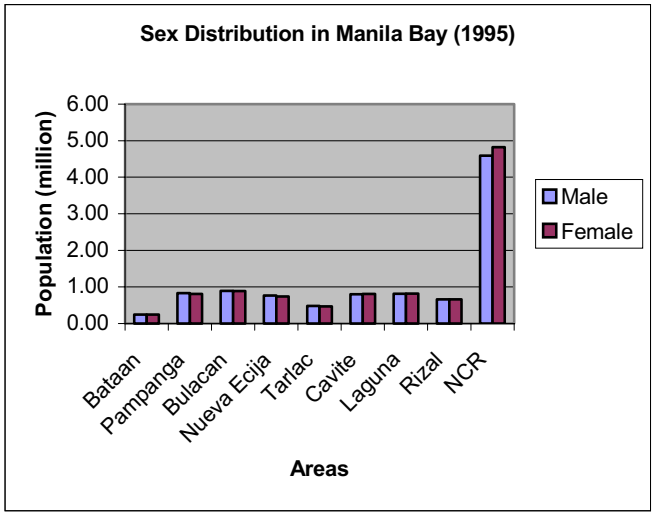
Population growth rate



- The population of the NCR (1995-2000) grew at the rate of 1.06% with Taguig being the fastest growing area with an annual growth rate of 4.45% followed by Caloocan City at 3.06%. The average growth rate in Region III (1995–2000) was 3.72%, with Bulacan being the fastest growing province with an average annual growth rate of 4.93%, while Nueva Ecija was the slowest with 2.11%. The average growth rate for the whole of Region IV (1995–2000) is 3.20%, with Rizal being the fastest growing province at an average annual growth rate of 5.79%, followed closely by Cavite at 5.45%.
- The high population growth rates in the provinces create pressure on resources — opening up of marginal lands for cultivation and application of additional fishing effort or destructive fishing methods in order to put food on the table. Ultimately, such practices impair agricultural and fishing productivity resulting in low earnings for rural households.

Population density

The population density, as of May 2000, is 1,190 persons/km^2 in the coastal areas and 1,110 persons/km^2 in the non-coastal areas.



Age-sex structure

- The majority of the population is comprised of children (15 years old and below) and young adults (16 to 35 years old) constituting 34.9% and 39.7%, respectively. Adults (36 to 59 years old) and elderly (60 years old and above) constitute 20.6% and 4.8% of the population, respectively. The high percentage of young people below their peak earnings period, and largely dependent on adults for health care and education, keep household savings low and constrain investments that could otherwise raise the productive capacity of the economy.
- Individuals in the working age bracket (15 to 60 years old) are 61.2% of the total population.
- Male population accounts for 49.6% of the total population while female population accounts for 50.4%.

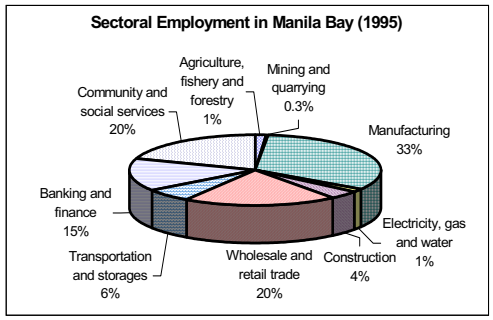
Poverty

- The annual per capita poverty threshold level for 1997 was PhP 11,319.00. Poverty incidence in the Philippines was 31.8%, with 44.4% found in rural areas and 17.9 % in urban areas (NSO-FIES, 1997). The poverty incidence in the NCR in 1994 was 8.0% (NSO, 2001).
- The percentage distribution of the poor in the Philippines, by region, was 3.3%, 4.1% and 6.9% in the NCR, Central Luzon and Southern Tagalog, respectively (NSO, 2001).

- Pressures of poverty compound the threat of overexploitation of the natural resources of Manila Bay. Ultimately, the poor also suffer the most from a polluted and degraded Manila Bay.

Employment and livelihood

The employment rates in NCR, Region 3 and Region 4, as of April 2001, were 82.3%, 87.9% and 86.7% of the total labor force, respectively (NSO, 2001).



Of the total number who were gainfully employed in 1995, 32.6% were engaged in manufacturing, 19.8% in both wholesale and retail trade and community and social services, and 14.8% in banking and finance. Those engaged in agriculture, fishery and forestry constituted 1.3% of the total employed population (NSO, 2001).

Culture

- Ethno-linguistic groups

  Approximately 80% of the population is Tagalog. Other significant groups are the Kapampangan who live in the provinces of Pampanga and Tarlac, as well as Ilocanos, Visayans, Bicolanos and other ethnic groups who migrated to this area. The language generally spoken is Tagalog, upon which the Filipino language is based. The other official language, English, is usually used in schools and offices.

- Indigenous communities

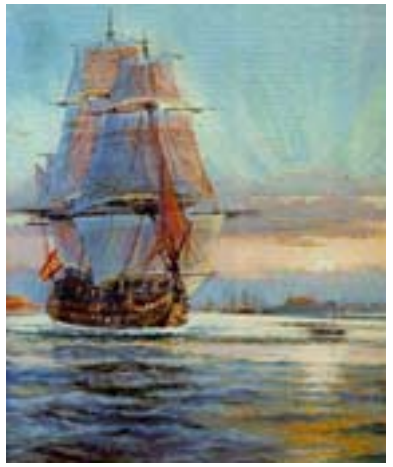
  The Aetas and Negritos are considered the aboriginal people in the country, but they are now concentrated in the uplands of Pampanga, Bataan and Zambales. The other major ethnic groups are the Dumagats and Ilongots in Nueva Ecija and Bulacan. These are the indigenous people who have managed the forest and other natural resources in the area through traditional ways. Other ethnic groups like the Ibalois, Kankanaeys, Kalingas, Kalanguyas, Bagos and Ewoks are found but are not considered endemic in Nueva Ecija (DENR-III, 1999).

- Religion

  The predominant religion is Roman Catholic. Other religious affiliations include the Iglesia ni Cristo, United Methodist Church, Seventh Day Adventist, Jehovah's Witness, United Church of Christ in the Philippines, Aglipay, Baptists, Born Again Christians, Mormons, Islam and Buddhism.

The Value of Manila Bay

THE VALUE OF MANILA BAY



Historical and Cultural Values

Historical and Religious Sites

Manila Bay is the premier international gateway to the country's political, economic and social center. The Bay has been known for its strategic importance ever since the pre-colonial times. One of the finest natural harbors in the world, Manila Bay was a focal point of the Manila-Acapulco Galleon Trade. The Bay has been a scene of many battles, and until today a historic naval base in Cavite stands, guarding the entrance to the Bay.

The Manila Bay area is a place of many striking contrasts. Monuments and sculptured images of heroes past stand amidst glass, steel and concrete skyscrapers. Centuries-old churches are a stone's throw away from big shopping malls and posh hotels. The walled city of Intramuros – the bastion of Spanish rule, Corregidor's ruined barracks and artilleries – testimony of heroism in World War II, ancestral houses, museums and historical markers take one down along memory lane. Theater and open-air performances offer a cultural interlude.

Geological and archaelogical sites

Marine fossils have been found in the mountains of Antipolo, Rizal, indicating that this part of the Sierra Madre mountain range was once under the sea. In Angono, Rizal, prehistoric petroglyphs or rock engravings dating back to 3000 B.C. have been included in the World Inventory of Rock Art under the auspices of UNESCO, and nominated as one of the '100 Most Endangered Sites of the World' under the World Monument Watch List. Archeological excavations in Santa Ana, Manila, revealed habitation and burial sites of early settlers and ancient datus from the 12th to 13th centuries (DOT 1999).

Cultural sites

The National Museum Complex, National Library, Metropolitan Theatre and the Cultural Center Complex are found in Manila. Inside Intramuros, one can find the museums of Fort Santiago and San Agustin Church. Open-air concerts and plays are shown at the Paco Park and the Rajah Sulayman Theatre in Fort Santiago.


Mt. Arayat


Candaba Swamp


Navotas

Natural Values


Intramuros

Ecological

- Mangroves

  Mangroves are among the most productive ecosystems. They provide nursery function to various species of fish. They serve as a pollutant 'sink' by filtering certain types of waste, and provide shoreline defense against floods and erosion. At the turn of the 20th century, there were about 54,000 hectares of mangrove around the Bay. By 1990, only 2,000 hectares were recorded, and in 1995, only about 794 hectares remained (BFAR, 1995).

- Wetlands

  Manila Bay has wetlands covering about 4,600 hectares (BFAR, 1995). Some of the important values of wetlands include: providing food and habitat of fish, shorebirds and wildlife; maintaining and improving water quality of rivers, lakes and estuaries, acting as reservoir for watersheds, and protecting adjacent and downstream properties of the area from potential flood damage. Wetlands in Manila Bay include mudflats, sand flats, swamps, beaches, mangroves and rocky shores.

  Millions of shorebirds rest and feed in wetlands of Manila Bay area when flying South from their breeding grounds in the arctic tundra during September to April, and returning North during the short northern hemisphere summer of May to August.

  Mudflats are found along the coast of Bataan and Pampanga — areas suitable for shellfisheries.

- Coral reefs and seagrass beds

  Coral reefs can be found at the mouth of Manila Bay. While there have been significant decline over time, coral reefs are still considered important habitats for fish and in the functioning of the Manila Bay ecosystem.

  Based on the study conducted by BFAR (1995), seagrass beds are found in the mouth of the Bay, particularly in Orion and Mariveles, Bataan and Corregidor areas.

- Upland forests

  Forest areas are found within the watershed of Manila Bay. The forests are not only sources of food, timber, fuelwood and other products, but also are habitats for wildlife. They provide protection from soil erosion and help maintain the water levels and water quality in rivers and streams.

  Among the remaining forests in the Manila Bay area are Mt. Makiling, Angat Dam watershed, La Mesa Dam watershed, Mt. Palay-Palay, Mataas na Gulod National Park, Mt. Arayat, and other portions of national parks located in Bataan, Bulacan, Rizal and Tarlac.

Tourism and recreational values

- Beaches and resorts

  Beach resorts are found along the coasts of Cavite. These resorts use Manila Bay primarily for boating.

  There are also resorts and convention centers in non-coastal areas. Laguna is famous for the Pagsanjan Falls, Hidden Valley and hot spring resorts, particularly in Calamba and Los Baños. Antipolo City in Rizal is being developed as a convention city because of spacious and first-class convention centers. There are also world-class golf courses in Bataan, Cavite and Laguna. Along Manila Bay are the Philippine International Convention Center and World Trade Center.

- Natural parks

  There are significant natural parks located within the Manila Bay Region. The Ninoy Aquino Parks and Wildlife Nature Center, found right in the heart of Metro Manila — is being proposed as protected landscape where endemic trees abound. Region 3, on the other hand, has five (5) protected landscapes such as the Minalungao, Biak na Bato, Mt. Arayat, Mt. Samat, and Roosevelt National Parks. Likewise, Region 4 boasts of Mt. Palaypay—Mataas na Gulod National Park (Cavite), Hinulugang Taktak National Park (Rizal), and Mt. Makiling National Park (Laguna). These areas are designated as destinations for tourists because of their aesthetic and scenic attributes.

- Parks

  Parks and gardens in the Rizal Park and Quezon Memorial Circle provide residents and visitors places for strolling, biking, skating or just plain relaxation with families and friends.

  Along the coast of Manila Bay, one can find hotels and dining areas, such as those in Malate and Ermita, Manila, the stretch of Roxas Blvd. to the Coastal Road, the historic Manila Hotel and the former Army-Navy club.









The Economic Importance of Manila Bay

THE ECONOMIC IMPORTANCE OF MANILA BAY

Today, the National Capital Region (Metro Manila), consisting of 12 cities and 5 municipalities, is a bustling metropolis. There are about 39 special economic zones and technological parks located in the provinces, alongside prime agricultural lands. Financial and business centers are also concentrated in this area. Considered as the best natural harbor in East Asia, the country's biggest shipping ports as well as ferry terminals, fish port, and yachting marina are found around the Bay. Its orientation towards the South China Sea allows the country to benefit from the current trend of transboundary development and trade with the rest of Asia and the world.

The NCR, Regions 3 and 4 contribute around 55% of the country's gross domestic product (GDP). These regions account for almost one-third of the country's agriculture, fisheries and forestry production; and 64% and 60% of the contribution of the industrial and services sectors to the GDP, respectively.

Fisheries and aquaculture

Fisheries and aquaculture are among the major sources of livelihood in Manila Bay. Commercial, municipal and artisanal fisheries are common in the Bay. The whole area of Manila Bay, except those near the ports, is a major fishing grounds. Shellfisheries are common in the southern part of the NCR and Cavite. Aquaculture also abounds in Laguna Lake, as well as in inland areas in Nueva Ecija, Bulacan, Pampanga and Tarlac.

Gross Regional Domestic Product, 1999
At Constant Prices (1985=100)
Percent Distribution

	NCR	Region 3	Region 4
GDP	30.42	9.15	15.49
Sector:			
Agriculture, Fisheries & Forestry		10.45	18.37
Industry	33.59	10.72	19.26
Manufacturing	38.94	11.86	19.91
Mining		1.09	5.76
Services	41.38	7.39	11.36
Trade	26.30	8.26	15.14
Finance	76.50	3.05	7.72

Settlements and development areas

Manufacturing industry

Manufacturing industries are found in industrial parks both in coastal and non-coastal areas of the Bay. Manila Bay area is home to oil refineries, tanneries and jewelry manufacturing, food and beverage, textile, electronics, pharmaceutical, and plastics industries.

Shipping and ports

Shipping is the major avenue for trade and commerce in the Bay. An average of 30,000 ships arrive and depart from these ports annually, transporting passengers, manufactured goods and raw materials.

The Bay includes international ports, fish ports, a container terminal and several major terminals servicing industries in the area. A shipyard is being developed in the former Sangley Base.

Agriculture

The surrounding inland area of Manila Bay area is predominantly agriculture. Most provinces and a small portion of the NCR engage in agricultural activities producing rice, corn, vegetables and other crops, as well as livestock and poultry. Central Luzon (Region 3) is the rice granary of the country, and Bulacan is a major source of livestock and poultry for the Metro Manila area.

Mining and quarrying

Lahar quarrying and mining are common in the provinces of Pampanga and Tarlac. Rock mining occurs in Rizal and Bulacan. Various minerals are also mined in the provinces of Nueva Ecija and Tarlac.

Commercial areas

Commercial and business areas abound in the NCR, being the center of trade, commerce and finance. Most cities have shopping malls, business and commercial centers.

Residential areas

With the increase of population in urban centers, many residential areas were developed in the Bay region. Residential zones are concentrated in low lying areas, stretching from the coastal zone to upland areas. With the real estate boom in the 1990s, settlements became prevalent in medium and high elevation areas, such as Doña Remedios Trinidad (Bulacan), Antipolo (Rizal) , and Tagaytay City (Cavite). Subdivisions and villages began impinging into sprawled former agriculture areas.

Risks and Challenges

RISKS AND CHALLENGES

The natural environment of the Manila Bay area is facing various threats from different factors: overpopulation, pollution discharges from land-based and sea-based sources, over-fishing, uncontrolled coastal development and habitat degradation. The effects on the ecosystem and human health have resulted in increasing infrastructure and rehabilitation costs as well as health and social services expenditures.

Water pollution

The water quality of Manila Bay has continuously deteriorated due to increasing discharges from domestic and industrial sources, as well as urban and agricultural runoff. Sea-based activities (e.g., ports, ships, aquaculture) also contribute to the increasing pollutant load to the Bay. The major issues of concern in the Bay include:

CONCERNS	IMPLICATIONS ON MANILA BAY
• Domestic sewage discharged to Pasig River from 11 major areas in Metro Manila is estimated at 168 metric tons per day (PRRP, 1998). • Other major contributors of organic loading to Manila Bay include the Bulacan, Pampanga and Cavite River Systems (PRRP, 1998). • Nitrate, nitrite, ammonia and phosphate concentrations are increasing in the eastern part of the Bay, especially near Bulacan, Pasig, and Parañaque Rivers (Velasquez and Jacinto, 1995 and PRRP, 1999). • Heavy metals and pesticides are contaminating sediments and seafoods.	• Bathing in contaminated waters, consumption of contaminated seafood, and nutritional deficiencies arising from insufficient food resources from the Bay pose risks to human health with associated increase in costs of health care. • Decline in food security resulting from exposure of marine organisms to contaminants has adverse effects on their fitness for human consumption as well as on their reproduction and growth. • The poor water quality in Manila Bay makes it unfit for recreational uses, particularly swimming, skin diving, and other primary contact recreation, that attract tourists and generate tourism revenues.

CONCERNS	IMPLICATIONS ON MANILA BAY
• The red tide phenomenon, which is caused by the bloom of harmful algae, is causing paralytic shellfish poisoning (PSP) in humans through consumption of contaminated shellfish. Between 1988 to 1999, 30 deaths out of a total of 46 deaths due to PSP nationwide were attributed to contaminated shellfish from Manila Bay. • High organic loading manifested in low dissolved oxygen levels. • Oil and grease from land– and sea-based sources fouls shorelines, vessels and equipment and inhibits living resources. • Heavy metals and pesticides in sediments and seafoods.	• The economic and social losses brought by deterioration of the Bay waters and consequent decline in economically important resources are felt most by the fisherfolks, particularly those who depend on subsistence fishing. • While Manila Bay waters can still support living systems, the kind and quantity of these systems reflect a degraded state and reflect an ecosystem under stress, which, in the face of unabated pollution, may eventually lose the ability to support marine life.

Solid waste

CONCERNS	IMPLICATIONS ON MANILA BAY
• Pollution brought about by inadequate solid waste management is a serious environmental problem. Domestic, commercial, and industrial activities generate solid wastes (i.e., garbage)which enter the Bay directly or via river and drainage systems—blocking these in the process and resulting in flooding.	• Solid wastes are capable of impairing ecosystems, blanketing habitats, degrading aesthetics, and posing public health risks. Clean-up is expensive, and there is increased demand for government action, particularly for efficient collection and appropriate disposal of municipal garbage and ship waste.

Overexploitation of resources

CONCERNS	IMPLICATIONS ON MANILA BAY

• Available data clearly indicate an overfished Bay (BFAR, 1995; Tambuyog Development Center, 1990; and FSP-DA, 1992).
• Upland areas have been cleared of forest cover due to logging, quarrying, and other activities, like *kaingin* (slash-and-burn method of crop cultivation), including the encroachment by informal settlers
• The uncontrolled withdrawal of groundwater for various uses have brought about saltwater intrusion in some of the coastal areas around the Bay. Some areas have been converted to other uses like residential, commercial, and industrial and therefore continuously require water withdrawals, which result in salt water intrusion.
• Some areas in the Manila Bay region have been and are being mined for gold, silver and copper, and non-metallic deposits of clay, sand and gravel. The most prominent non-metallic mineral deposits are the quarry deposits of sand and gravel.
	• Decline in resources
	• Lower Income
	• Increase in fishing effort – declining returns
	• Need for alternative livelihood and source of income
	• Social unrest
	• Increasing demand for government action
	  • Infrastructure development
	  • Compensation
	  • Restoration
	  • Welfare

Siltation and sedimentation

CONCERNS	IMPLICATIONS ON MANILA BAY
• Siltation and sedimentation are caused by natural processes of weathering and erosion as well as inappropriate development activities along the coastline and watershed areas . • Ocean dumping of sludge, wastes and other contaminated materials. • Coastal reclamation using wastes and contaminated materials.	Ecological • Turbidity, impairment of photosynthesis. • Changes in benthic community structure or suffocation of bottom-dwelling organisms and deterioration of the few remaining coral reefs and seagrass meadows in the bay. • Degradation of water quality; acute and chronic toxicity with negative impacts on fisheries and human health. Physical • Shallowing of Bay waters, which affects navigational routes and access to ports. • Clogging of waterways and irrigation canals. • Flooding and breaching of the riverbank due to blocking of waterways especially at river mouths. • Changes in currents, bathymetry and shoreline position. Financial • Accumulation of sediments near tidal entrances to harbors increases the need to invest in dredging facilities. • Construction and maintenance of seawalls and similar shoreline stabilization structures

Habitat degradation

CONCERNS	IMPLICATIONS ON MANILA BAY
• Physical habitats provided by the mangrove forests, coral reefs, and seagrass beds are important refuges and nursery grounds for commercial and non-commercial fish and shellfish. However, from an estimate area of 54,000 hectares in 1890, the total area occupied by mangrove stands has been greatly reduced to about 794 hectares based on 1995 survey by BFAR.	• Destruction of mangroves, coral reefs, and seagrass will have large ecological consequences due to the loss of their ecological functions as breeding, spawning and nursery grounds for various marine life. Habitat loss and degradation results in rising demands for government action, such as improved law enforcement, habitat restoration, construction of alternative infrastructure and provision of extension services.

Natural Hazards

CONCERNS	IMPLICATIONS ON MANILA BAY
• Flooding is frequently caused by heavy rainfall in low-lying areas and as a consequence of poor drainage systems or blockage of drainage systems. • The Philippine earthquake fault traverses Luzon from north to south and the Marikina Valley System strikes through the Metropolitan Manila area (DENR-III, 1999). • In the Manila Bay watershed, the most notable volcanoes are Mt. Pinatubo, Mt. Makiling, Mt. Arayat and Mt. Natib. • Lahar flow is caused by mobilization of pyroclastic flow deposits from the eruption of Mt. Pinatubo. It continues to threaten the low-lying areas in Pampanga and Tarlac.	• Dislocation of people. • Livelihood, commercial activities impeded. • Possible changes in shoreline position, bathymetry, clogging of river mouths and consequent flooding. • Measures to protect infrastructure and communities along the coast .

Sea level rise

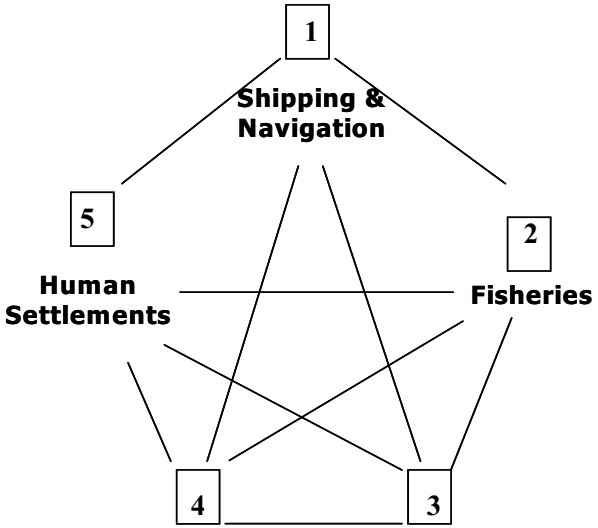
CONCERNS	IMPLICATIONS ON MANILA BAY
• Based on NAMRIA's 47-year mean sea level data at South Harbor, Manila, there has been a general rise in sea level at the rate of 1.1 cm/yr. Such increase may be attributed to the increased rates of groundwater withdrawal in Metro Manila. (Siringan, et al., 1997).	• Changes in relative sea level may alter the morphology and position of shorelines, causing coastal flooding, waterlogging of soils, and a loss or gain of land. Coastal ecosystems are bound to be affected, particularly coastal wetlands and salt marshes.

Multiple and conflicting uses

CONCERNS	IMPLICATIONS ON MANILA BAY
• Various users, beneficiaries and sectors that have stake in the Bay have varied interests and priorities about the Bay. • National government agencies and local government units implement policies and mandates that are sometimes overlapping and conflicting, resulting in competing priorities accorded to the use of the Bay. • In terms of jurisdiction, there are some overlaps among municipalities in the 15-km municipal waters boundary.	• Decline in resources and lower productivity in fisheries and other economic activities. • Social unrest since there are no clear cut regulations or framework on the appropriate use of the Bay and its resources. • Increase in demand for government action or interventions to resolve the conflicts through formulation of appropriate polices and plans, enforcement of laws, provision of extension services and many others.

Multiple-use conflicts

- shipping vs. aquaculture
- tourism vs. aquaculture
- municipal fishing vs. commercial fishing
- industries vs. fishing
- Tourism vs. industries



Transboundary Environmental Issues

TRANSBOUNDARY ENVIRONMENTAL ISSUES

Four coastal provinces, four non-coastal provinces and the National Capital Region share the semi-enclosed Manila Bay. Because of the nature of water, damages can occur and their effects felt at significant distances from the threat or source of the problem. Municipal boundaries in terms of rights of exploitation of the Bay are defined according to the Fisheries Code. Migratory species, however, do not recognize these boundaries. Fisheries, shipping, habitat destruction and pollution from land- and sea-based sources all have transboundary impacts. A major problem in one municipality or city is a threat to the entire Bay area. This implies that institutions need to be configured to facilitate decision-making and management of the Bay at an inter-regional scale.

Pollution

Garbage and various unwanted by-products of modern life are being dumped regularly into the Bay due to the mistaken belief that the vastness of the sea allows it to absorb large quantities of waste without suffering noticeable damage. Certain types of pollutants, such as inorganic chemicals and heavy metals accumulate, not only in watercourses, but in the food chain as well. As the zone of influence of pollutants extends beyond local boundaries and across time, the political difficulties of implementing comprehensive, cost-effective management interventions are compounded. Pollutants crossing political boundaries impose external costs, which are difficult to measure and monitor. There is no single jurisdiction, considering the various sources, pathways (water, air, food), and numerous targets (inhabitants, visitors, habitats and resources). For example, sewage discharged from the Pasig River affects the cities and municipalities of the National Capital Region as well as the coast of Cavite. Marine debris, oil spills and operational discharges from ships and fishing boats not only threaten the ecosystem but the aesthetic quality of the Bay. A polluted and congested Bay renders tourism development a high risk investment. Health risks continue, and will only intensify the pressure on the government to put in additional resources for the provision of health and other social services.

Fisheries

Much of the open water of the Bay is a common-property resource to governments as well as to individual fisherfolk. No single body exercises control over it. There is a 15-km limit for municipal fisheries, but this results in overlapping jurisdiction among the municipalities. Encroachment of commercial fishing boats into municipal waters continues to be a source of conflict with municipal fishers.

Unrestricted access to commercially valuable species will generally result in over-exploitation. This over-exploitation, in turn, results in overcapitalization, depressed incomes for fisherfolk, and depleted fish stocks. The catch data show a shift in abundance from larger and longer living species to small pelagic fish species and invertebrates, such as shrimps and squids. The majority of the demersal fish population of Manila Bay are juvenile and immature. These results indicate that the fish stock of Manila Bay is overfished, and with the dwindling mature fish population, the fishing pressure is now directed towards the younger individuals.

Manila Bay is a shallow body of water with relatively flat bottom contour, especially suited for trawl and other similar fishing operation involving the dragging or pushing of nets. These destructive fishing practices have caused the degradation of the soft-bottom communities, and in particular the near-extinction of the windowpane oyster in the Bay.

Habitats

Habitats straddle across administrative boundaries. Most of the habitats in Manila Bay — mangroves, upland forests, coral reefs — are degraded due to human activities. Such degradation implies local, regional and transnational adverse environmental effects. For example, the Candaba Swamps, located between Bulacan and Pampanga, is a feeding ground of migratory herons and egrets. It is a candidate for protected areas under the RAMSAR Convention. Mangroves and upland forests not only provide beneficial services to the ecosystem of Manila Bay area, but also serve as carbon sinks which have a positive effect on the prevention of global warming. In general, habitats provide services and important ecological functions that benefit people throughout the Manila Bay area and their degradation has transboundary implications.

Introduction of alien species

Due to the increasing number of ship arrivals in Manila Bay, marine organisms from the ballast water may be introduced into the Bay, threatening the ecosystem and public health. In some countries for instance, ballast water contained Red Tide organisms that have contaminated shellfish. Red Tide is recurring problem in Manila Bay, and has affected hundreds of people in the coastal municipalities and cities in terms of paralytic shellfish poisoning and decline in income.

Our Response

OUR RESPONSE

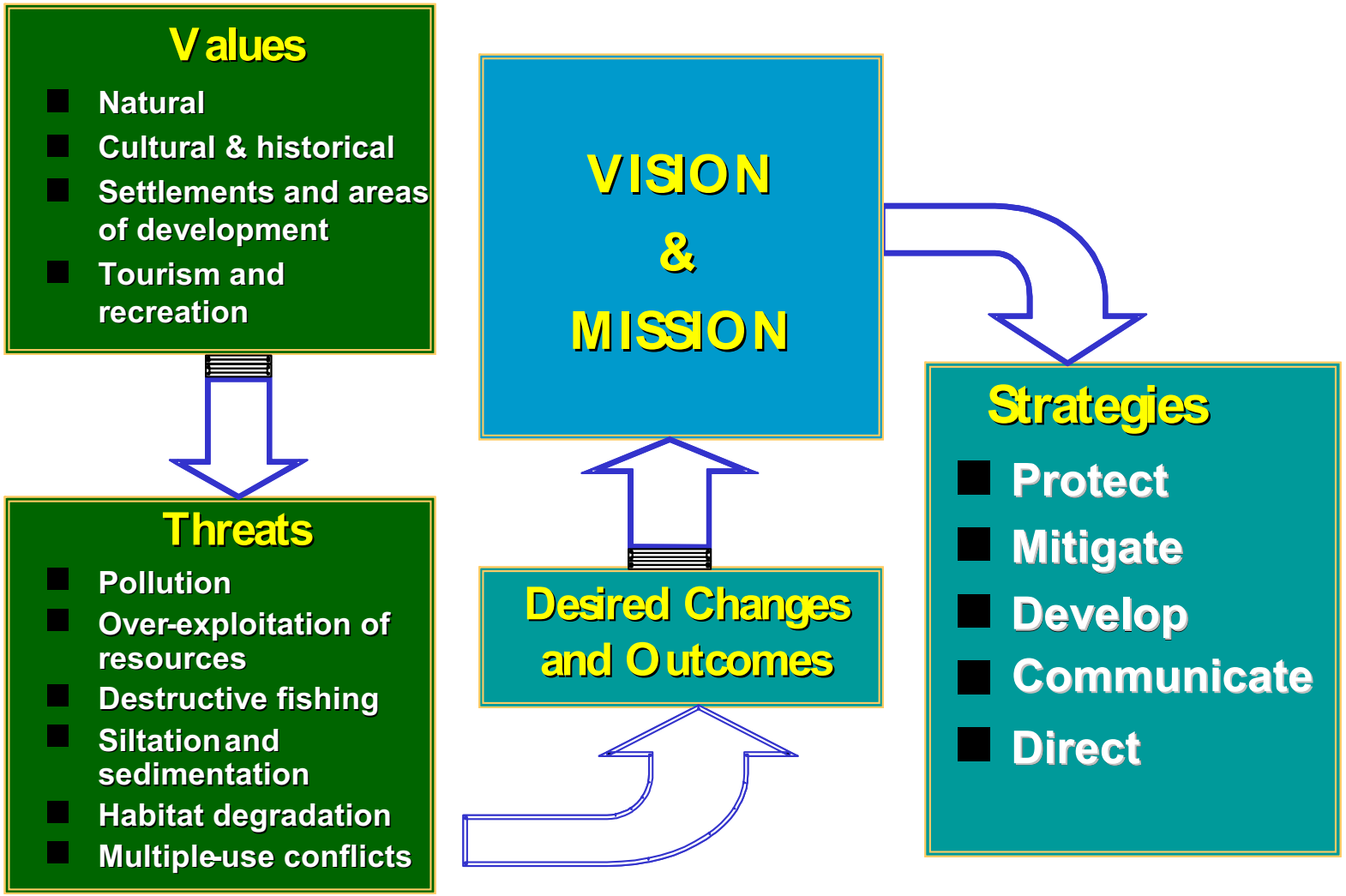
The stakeholders of Manila Bay will:

- Adopt a shared vision of Manila Bay;
- Pursue a common strategy to achieve the shared vision which can be undertaken at all levels of society in the area;
- Become a signatory to the Manila Bay Declaration, thereby declaring their role and commitment to the implementation of action programs;
- Share responsibility to address complex environmental threats which are beyond the capacity of any single government, agency, community, group or individual.

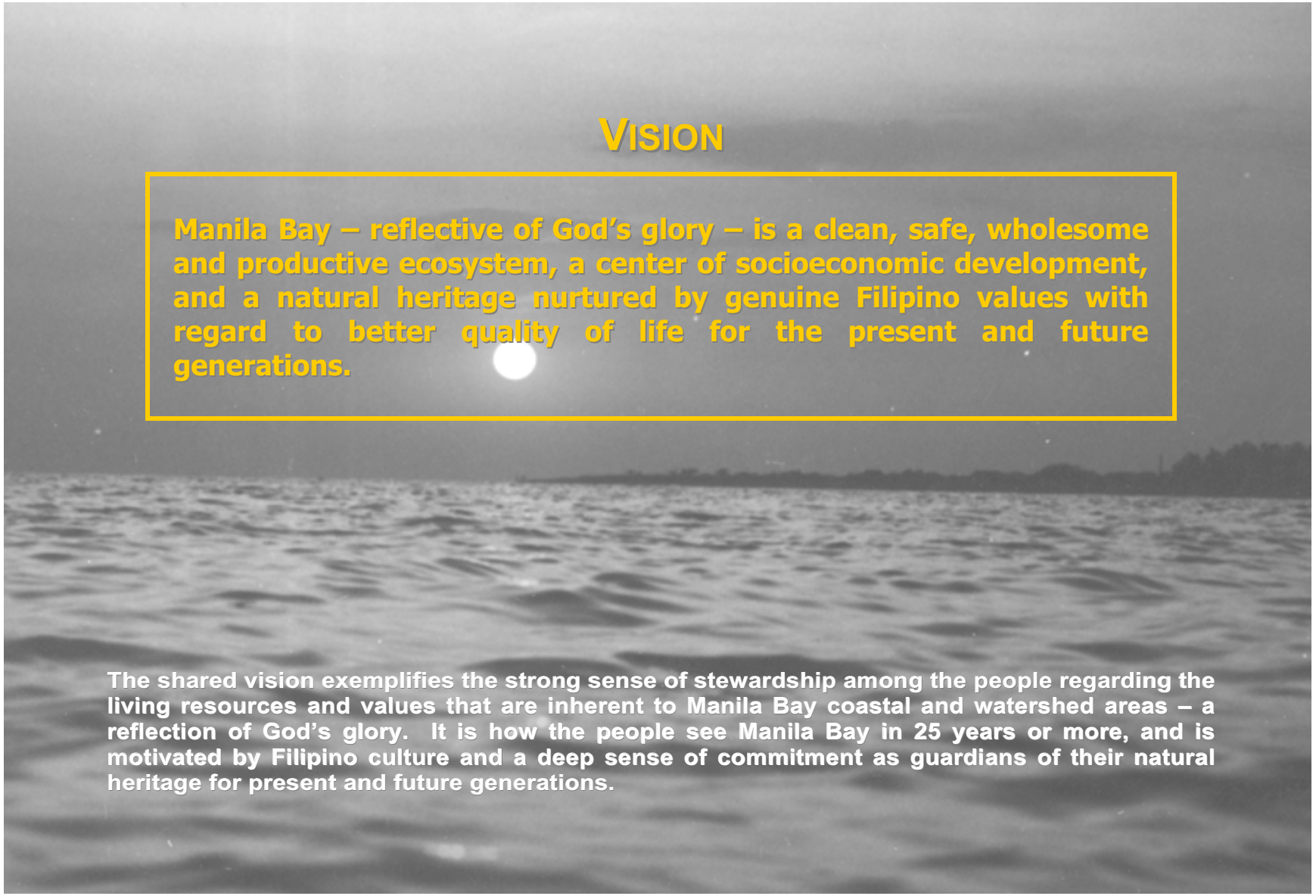
Governments will develop innovative partnerships to:

- Bring local government units and national agencies together to plan, develop and manage the marine and coastal resources of Manila Bay, and surrounding watershed areas in a fair and equitable manner;
- Facilitate the participation of civil society and other stakeholders;
- Mobilize the private sector to provide efficient and sustainable environmental solutions;
- Work collectively with the donor community and international organizations, addressing obligations under environment-related international conventions and agreements and benefiting the marine and coastal environment of Manila Bay.





The process of formulating the Manila Bay Coastal Strategy.



VISION

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

The shared vision exemplifies the strong sense of stewardship among the people regarding the living resources and values that are inherent to Manila Bay coastal and watershed areas – a reflection of God's glory. It is how the people see Manila Bay in 25 years or more, and is motivated by Filipino culture and a deep sense of commitment as guardians of their natural heritage for present and future generations.

MISSION

We, the Manila Bay stakeholders are collaborative partners in:

- **Rehabilitating, protecting and maintaining a healthy ecosystem in Manila Bay;**
- **Developing both terrestrial and water resources on a sustainable basis for the utmost benefit of present and future generations;**
- **Preserving social, cultural, historical and ecological values; and**
- **Formulating and implementing policies, plans, programs, laws and regulations with priority consideration given to those who depend on the resources and services provided by Manila Bay for their sustenance.**

We will undertake these actions with a genuine commitment, concerted effort and strong political will.

The mission statement expresses the immediate aim of the coastal strategy arising from the conviction of stakeholders to the shared vision. It is a statement of how the coastal strategy will be implemented and the vision achieved. Simply, the government, private sector and civil society will work in partnership.

The specific actions of the mission statement affirm the aims and functions of the stakeholders in achieving the shared vision. It is focused on the main environmental, economic and social issues, and oriented towards future goals within the coastal strategy.

Desired Changes and Outcomes

DESIRED CHANGES AND OUTCOMES

What is sought to be achieved by the shared vision and mission?

Institutional

- National coastal/marine (maritime) policy and supporting legislation adopted;
- Local governments with responsibility and capacity to manage their coastal and marine environment;
- An intergovernmental, interagency and intersectoral mechanism coordinating the implementation of the Manila Bay Coastal Strategy;
- Provincial, city and municipal interagency and multisectoral coordinating mechanisms set up to implement sustainable coastal development programs;
- A socio-economic development and environmental management master plan for Manila Bay;
- Major international environmental instruments ratified and implemented by the Government of the Philippines;
- Environmental management incorporated into economic development plans at national and local levels.

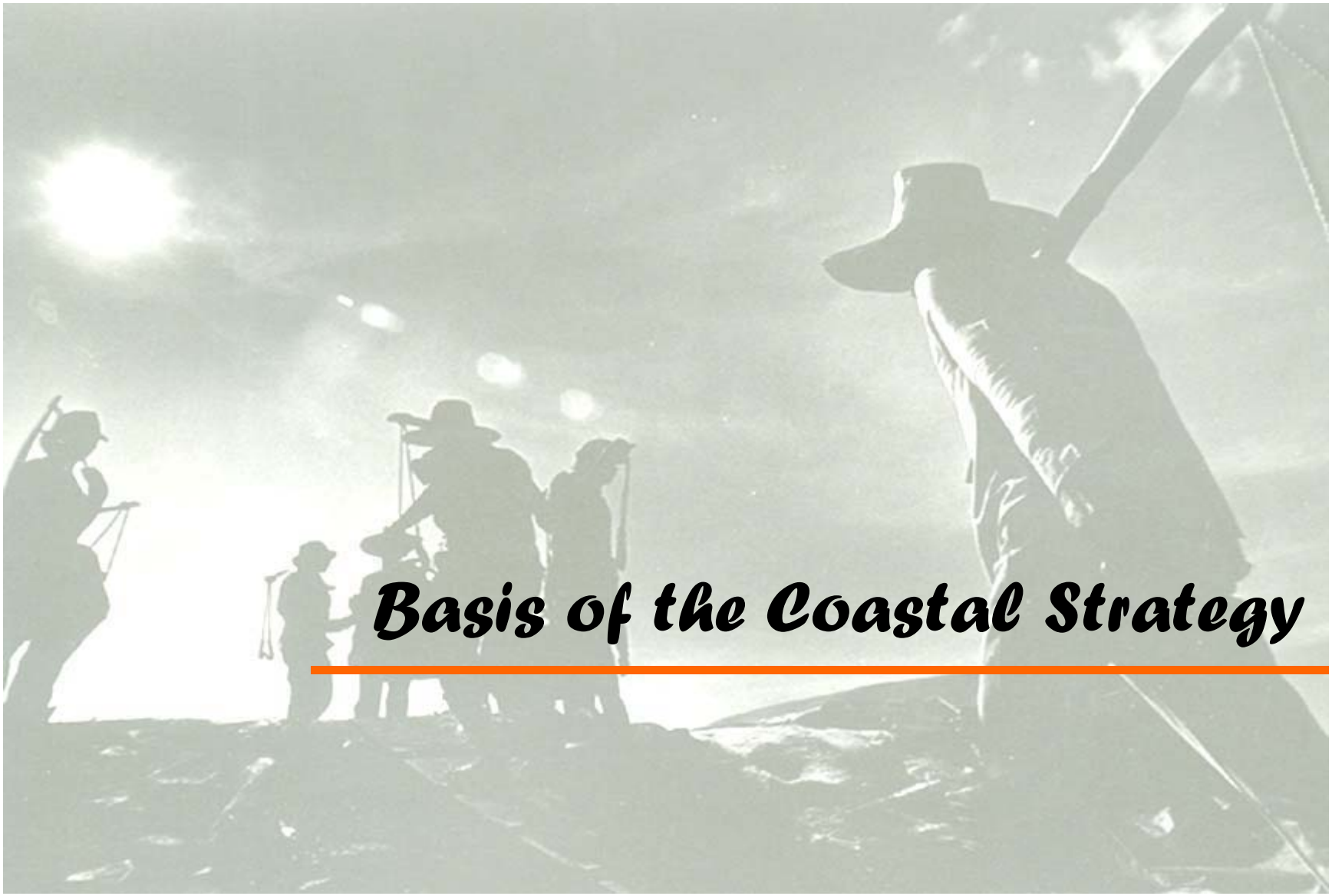
Operational

- Integrated coastal management and ecosystem management programs implemented respectively by local governments in coastal areas and river basins throughout the Bay region;
- Environment and Natural Resources Offices established at provincial, city and municipal levels to coordinate local action programs;
- Capacity building programs in place to strengthen skills in marine and coastal resource management;
- Cooperation between national and local governments on transboundary environmental problems, which cross administrative jurisdictions;
- Joint research and sharing of information for the management of coastal and marine resources in place;
- Scientific input to policy and decision-making at the local and national levels;
- Integrated implementation of international environmental instruments at national and local levels;

- Civil society fully engaged in planning, development and management of marine and coastal resources on a local and Bay-wide basis;
- A system of awards/recognition in place for stakeholders who provide outstanding contributions to the achievement of the shared vision for Manila Bay;
- Public-private sector partnerships established as a sustainable financing mechanism;
- Innovative economic instruments set up to change people's attitude and behavior toward the marine and coastal resources of the Bay.

Outcomes

- Recovery of water quality in polluted areas;
- Major degradation of habitats arrested and restoration undertaken;
- Municipal fisheries and biodiversity effectively protected;
- Rivers and coastal waters safe for public recreation;
- Access to a safe potable water supply by 100% of the households in the Bay area;
- Fisheries products safe for human consumption;
- Coastal areas able to achieve sustainable development goals;
- Systematic and safe management and disposal of toxic and hazardous wastes;
- Centralized sewage treatment facilities installed and operational in urban areas;
- Integrated solid waste management systems employed by LGUs throughout the area;
- Ports equipped with waste reception facilities;
- Ports implementing port safety and environmental audits;
- Industry achieving ISO 14001 certification;
- Protected areas established and managed by local communities;
- Effective intergovernmental, multisectoral response systems for oil and chemical spills implemented.



Basis of the Coastal Strategy

BASIS OF THE COASTAL STRATEGY

Partnerships

The Manila Bay Coastal Strategy has been developed by different stakeholders – public and private, local and national governments, non-government organizations, fisherfolk and farmers – in Manila Bay, and will be implemented by working together as partners.

Sustainability

The Coastal Strategy is designed towards building the capacity of the stakeholders to recognize and overcome constraints, create a 'win-win' situation in having a shared vision, and harmonize the values among the users and beneficiaries. This will give rise to the long-term commitment, self-reliance, consensus among the stakeholders, and active participation in the implementation of the action programs.

Synergy

The diversity of stakeholders – different sectors and users with varying perspectives, skills and expertise – is not a hindrance, but a source of strength and dynamism. The Coastal Strategy, by combining sector inputs and promoting Bay-wide interest, enhances effective planning, development and implementation, resulting in a synergistic effect towards the achievement of the common vision and shared mission.

National and local policies, plans and programs

The Coastal Strategy builds upon the direction of the national and local policies, plans and programs, consolidates sectoral initiatives, and provides a forum for interagency and multi-stakeholder information sharing and decision-making.

International conventions and agreements

The international conventions and agreements provide guidance for actions within the framework of the strategies.

Relevant International Conventions

Global Programme of Action
Agenda 21
Basel Convention
BCD
UNFCC
RAMSAR
CITES
Migratory Convention
World Heritage Convention
FUND
CLC
London Convention
UNCLOS
MARPOL 73/78
OPRC*

*To be ratified

Executing the Coastal Strategy

EXECUTING THE COASTAL STRATEGY

Who will execute the Coastal Strategy?

The Coastal Strategy requires everyone to do his/her own part. All stakeholders have their own role to play, at various levels and degrees.

National Government

- Establish an implementing mechanism, including national and local governments, regional authorities from national and local governments, regional authorities, the private sector, civil society, the media and academe, to coordinate the implementation of the Manila Bay Coastal Strategy.
- Delineate the roles of central agencies in the various action programs of the Coastal Strategy.
- Ensure that appropriate policies, and regulatory and economic instruments are in place.
- Institutionalize administrative and budgetary support, as well as planning and approval mechanisms that are consistent with the Coastal Strategy.
- Set-up and strengthen operational and enforcement mechanisms.
- Introduce a monitoring and reporting system to monitor the progress and effects of implementing the Coastal Strategy.
- Conduct capacity building in marine and coastal resource management.

Local Governments

- Develop and implement local plans of action in support of the Coastal Strategy
- Institutionalize local administrative and budgetary support, as well as planning and approval systems that are consistent with the Coastal Strategy.
- Forge partnerships with the private sector and civil society.
- Mobilize local stakeholders as stewards of the environment.
- Identify opportunities for economic development, which support the Coastal Strategy.
- Identify and integrate existing activities of LGUs into the action programs.
- Set-up monitoring and evaluation systems to monitor the progress and effects of implementing the Coastal Strategy.

Private Sector

- Exercise corporate responsibility with regard to sustainable development and use of the Bay's resources.
- Invest in the environment, and in development of opportunities that benefit the people and the environment.

- Work in partnership with the government and communities to implement the Coastal Strategy.

NGOs, POs, Civic Organizations

- Formulate and implement environmental information and education programs.
- Organize and mobilize communities and other sectors/ stakeholders to implement Action Programs.
- Strengthen linkages between environment and social programs (e.g., gender equity, poverty alleviation, alternative livelihood, youth education, and credit and extension services).
- Promote that the rights of indigenous people and marginalized groups in the development and management of the Bay's resources.
- Assist to raise funds in support of the action programs.

Academe

- Provide expertise and advice on relevant information at the national and local levels.
- Interpret monitoring data and R&D information for use by local stakeholders.
- Participate in policy- and decision-making processes at the local and national levels.
- Undertake research programs that address information gaps and uncertainties relevant to policy and management issues in the Bay.
- Assist to build local capacity through training and formal education.

Communities

- Get informed of the environmental issues and community responsibilities as stewards of the environment.
- Support and participate in the development and implementation of action programs.
- Volunteer as communicators/educators/advocates of the environment, such as in:
  - Bay watch
  - Early warning system
  - Environmental monitoring
  - Cleanup campaign
  - Tree planting
  - Fund-raising activities.

UN and International Agencies and Donors

Support the execution of the Coastal Strategy by providing technical/financial assistance including:

- Implementing capacity building prpgrams;
- Providing access to training and education opportunities;
- Supporting demonstration projects/preparation of working models; and
- Transferring experience from other regions

- Networking among sites and external support groups;
- Applying new technologies and approaches (e.g., IT, biotechnology);
- Strengthening effective implementation of international conventions;
- Forging partnerships between foreign investors, operating companies and local stakeholders; and
- Leveraging financing for environmental investments

Financial Institutions

Provide expert advice and assistance, such as:

- Sustainable environmental facilities and services;
- Soft loans;
- Grants;
- Loan guarantees;
- Bonds and securities;
- Green fund/environment fund; and
- Microcredit programs for microbusiness and smallscale enterprises involving local communities and marginalized groups

How to implement the coastal strategy?

- Any initiative to implement the Manila Bay Coastal Strategy, whether unilateral or coordinated, contributes to the eventual realization of the shared vision for Manila Bay.
- Concerned stakeholders and partners determine their respective roles and interests in relation to the action programs at the national, regional and local levels.
- Well-coordinated implementation of the Coastal Strategy at the national, regional and local level is the key to achieving the goals of the strategy systematically and within a given time frame.

The Strategies

THE STRATEGIES

- **PROTECT** human welfare and the ecological, historical, cultural and economic features of Manila Bay for the benefit and security of present and future generations.

- **MITIGATE** environmental risks that occur as a consequence of human activities in Manila Bay coastal areas and the surrounding watersheds.

- **DEVELOP** areas and opportunities in Manila Bay in consonance with environmental goals, policies and plans, thereby striking a balance between economic development and environmental management.

- **COMMUNICATE** with stakeholders regarding their rights and responsibilities, and issues concerning the coastal and marine environment, thereby ensuring their involvement and active participation in the development and implementation of environmental management programs.

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


Protect

PROTECT

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

Principles

- The state of the environment shall be protected from potential damages and irreversible changes since it provides the basis of human health and welfare, ecological well-being and the direction of future development.
- Natural habitats and features of ecological, geological, cultural and historical significance are irreplaceable assets, and shall be preserved and maintained for present and future generations.
- Biological diversity shall be protected and conserved to maintain the intrinsic value, as well as the ecological, economic and social values.
- The rights of indigenous people, coastal communities and other stakeholders shall be respected and observed to preserve national identity and integrity.
- Effective application of policies and laws shall ensure that the environment and the natural and cultural heritage are protected and preserved.

The Partners

- National government agencies
- Local government units
- Private sector
- Academe
- Indigenous communities
- NGOs, POs
- Religious organizations
- Civic organizations
- Farmers, Fisherfolk
- Communities

Objectives

1. Improvement of health and well-being of the coastal and non-coastal communities in Manila Bay.
2. Protection of natural features, and cultural, historical and religious sites.

Objective 1: Improvement of health and well-being of the coastal and non-coastal communities in Manila Bay

Action Programs

1. Upgrade and maintain the quality of health among the users and beneficiaries of Manila Bay by:

    - 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;

    - providing food security among coastal communities through fair and equitable access to adequate and safe supply of fish and seafood;

    - improving the level of nutrition among the children in poor communities through the barangay health centers; and

    - providing women and marginalized groups with access to information, counseling and services regarding health protection, family planning and nutrition.

2. Enjoin indigenous communities in planning and management of the resources of Manila Bay by:

    - protecting the rights of indigenous peoples against uncontrolled development and encroachment of ancestral lands and resources;

    - granting stewardship over the sustainable use of ancestral land areas and resources within the Manila Bay watershed; and

    - engaging indigenous communities as stakeholders in land- and sea-use planning processes, in recognition of the social and cultural importance of ancestral sites and traditional knowledge and practices.

3. Empower marginalized groups as partners in sustainable development and management of coastal and marine areas by:

    - engaging marginalized groups in waste and resource management initiatives at the community level;

    - building the capacities of fisherfolk and farmers in innovative approaches to sustainable fisheries, aquaculture and agricultural production;

- providing incentives and extension services for small-scale enterprises, which promote innovative approaches to sustainable production, and facilitate alternative livelihood opportunities;

- availing the right of all children to formal education at the primary and secondary levels; and

- participating in land- and sea-use planning and development, including alternative settlement areas for squatter communities and displaced groups.

4. Minimize impacts of natural hazards by:

- conducting a comprehensive survey, and re-establishing lot boundaries in lahar-affected areas;

- equitably sharing funds generated from quarrying and other related activities in lahar-affected areas for the benefit of the communities;

- formulating a disaster plan, and building local capacity to deal with contingencies for natural disasters;

- setting up guidelines, standards and enforcement mechanisms to ensure that buildings, infrastructure and other public facilities will be able to withstand natural calamities, such as typhoons, flooding and earthquakes; and

- undertaking infrastructure projects for control of floods, lahar flows, landslides and saltwater intrusion.

Mt. Pinatubo

Objective 2: Protection of natural features, and cultural, historical and religious sites

Action Programs

1. Improve and protect water resources by:

   - formulating and enforcing guidelines, criteria and standards for the classification of tributaries, and for specific or priority parameters;
   - adopting a river basin/watershed management approach for all major river systems;
   - integrating water resource development and management into the national and local economic development and land- and sea-use plans to address intersectoral issues in water use, and impacts of infrastructure and other activities on the quantity and quality of water resources; and
   - reviewing and strengthening the environmental impact assessment process and permit system, and economic instruments to represent the true value of water resources to consumers and beneficiaries (e.g., users fee, water tariff).

2. Implement holistic resource management to address overextraction of resources and destruction and conversion of habitats by:

   - applying an ecosystem management approach to all development projects;
   - developing a Bay-wide land– and sea-use plan;
   - implementing mechanisms to monitor and control destructive fishing practices and penalize violators;
   - formulating regulatory and economic instruments to curtail or eliminate destructive and unsustainable fishing and aquaculture practices, surface and open pit mining and quarrying, and illegal cutting and logging;
   - establishing natural parks, sanctuaries and protected areas; and
   - applying the sloping agricultural land technology (SALT) and sustainable agroforestry schemes in watersheds, and aqua-silviculture in coastal areas.

3. Protect and conserve biological diversity by:

   - establishing sanctuaries for fish, birds, etc. in selected areas;
   - establishing protected areas for critical habitats, and providing buffer zones around these areas;
   - organizing community-based management of coastal habitats of Bay-wide significance; and

- developing legal, economic and financial mechanisms to ensure the maintenance of sanctuaries and protected areas.

4. Integrate fisheries management into economic development and coastal management programs by implementing:

- the Fisheries Code, including strengthening of FARMCs as the local arm of the fisherfolk in the community;

- appropriate fisheries management plans, including indicators for monitoring and assessment, sustainable fish production, allowable catch limits for priority fish species, and extension services; and

- integrated programs to improve aquaculture and prevent over-exploitation of shellfish.

5. Safeguard areas with unique geological and geo-morphological features from damages by:

- setting priorities for conservation and management of these areas, including community participation;

- instituting planning procedures and guidelines to protect the essential character of these areas and prevent irreversible damages;

- executing eco-tourism guidelines, using information on carrying capacities of these areas; and

- implementing enforcement mechanisms to prevent conversion, destruction, encroachment and other development activities that may result in irreversible damage.

6. Protect and preserve cultural, historical and religious sites by:

- identifying and declaring significant historical and cultural sites as national icons, and developing the legal and financial mechanisms to ensure their protection and maintenance;

- conserving public land zones, and incorporating use and development schemes and enforcement systems; and

- enforcing laws and ordinances on vandalism, vagrancy, illegal encroachment and settlements in national parks and historical and cultural sites.


Mitigate

MITIGATE

MITIGATE environmental risks that occur as a consequence of human activities in Manila Bay coastal areas and surrounding watersheds.

Human activities, such as pollution discharges, uncontrolled development, and habitat destruction and conversion must be mitigated, controlled and managed over the long term. Damaged habitats and resources must be rehabilitated to ensure their values into the future.

Principles

- Threats, such as coastal and marine pollution from land- and sea-based sources, uncontrolled development, physical destruction and other human activities that cause damage, shall be mitigated and managed to ensure continuity of the values and benefits that the natural environment provides.
- Rehabilitation of key habitats/ecosystems is necessary in order to sustain the life support system of Manila Bay, for the benefit of present and future generations.
- Transboundary issues shall be identified and addressed through an integrated environmental management approach.
- User pay and polluter pay principles shall be pursued along with other economic instruments, as complements to environmental laws, regulations and ordinances.
- Guidelines, criteria and standards for ocean outfalls, effluent discharges and ocean dumping of wastes and other materials shall consider the cumulative effects on the coastal/marine environment and the health and well-being of the coastal communities.

The Partners

- National government agencies
- Local government units
- Shipping sector
- Ports and harbor sector
- Private sector
- Industries
- NGOs, Civic organizations
- Fisherfolks, farmers
- Recyclers, junk dealers
- Communities/households

Objectives

1. Management of sea-based activities that cause damage to the coastal and marine environment.
2. Reduction of adverse impacts from land-based activities.
3. Rehabilitation of damaged habitats and other significant natural, historical and cultural features of Manila Bay.

Objective 1: Management of sea-based activities that cause damage to the coastal and marine environment

Action Programs:

1. Prevent operational and accidental pollution from shipping and port activities in Manila Bay by:
    - 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 spill 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.
2. Manage dredging and reclamation activities by:
    - 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 zonation system; and
    - assessing environmental risks of dredging and land reclamation within the context of ecosystem management and public benefit.

3. Control ocean dumping by:

   - 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.

4. Counter improper and uncontrolled aquaculture and mariculture by:

   - identifying areas for near- and off-shore aquaculture and mariculture activities, and integrating these areas into the land- and sea-use plan; 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.

Objective 2: Reduction of adverse impacts from land-based activities

Action Programs:

1. Mitigate and manage direct and indirect discharges of contaminants to water, air and land by:

   - setting agreed targets for the reduction of:

     ⇒ 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)

     ⇒ 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:

     ⇒ wastewater from industrial and municipal sources

     ⇒ solid waste

     ⇒ toxic and hazardous waste

     ⇒ agricultural (e.g., poultry and livestock) waste

Initiatives in Solid Waste Management

Barangay Quebiawan Community-based Waste Management Program, City of San Fernando, Pampanga

Barangay Quebiawan initiated a waste management project, in cooperation with San Miguel corporation, aimed at reducing solid waste and generating income for the community. The project embarked on composting, recycling and waste segregation.

After only a few months, the effect of the project includes reduced garbage volume, income generated from composting and widespread use of organic fertilizer. Also, people empowerment was promoted with the organization and mobilization of waste management council in the Barangay.

The project is being assisted by the DENR-EMB, the City Government of San Fernando and the Zero Waste Recycling Movement of the Philippines.

Ecocenter of Dasmariñas,Cavite

The Ecocenter is a project spearheaded by the Citizen's Brigade of Dasmariñas in collaboration with the Local Government of Dasmariñas. The Ecocenter operates near the public market of the municipality and services two villages, namely Villa Luisa II and San Agustin.

The Ecocenter promotes waste segregation, composting and reuse. It has two composting machines and a shredder.

- 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.

2. Prevent illegal intrusion/encroachment and human settlements along waterways and in ecologically critical areas 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;

   - relocating informal settlers to less critical upland and lowland sites;

   - providing alternative livelihood opportunities (e.g., tourism and recreation projects; resource management) for upland and coastal dwellers;

   - formulating, adopting and implementing comprehensive land- and sea-use plans; and

   - strictly implementing and enforcing policies, laws and regulations pertaining to squatting and trespassing, and maintenance of ecologically sensitive areas, waterways and critical habitats.

3. Control the indiscriminate use of pesticides, fertilizers and other chemicals by:

   - 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;

USED PAPER PROJECT

The Utilization Strategy and Enterprise Development (USED) for Paper Recycling Project is being implemented in Region 3, involving collection of all kinds of waste paper from different government offices, under the umbrella of the Regional Development Council. The collected papers are supplied for recycling to Trust International Paper Corporation, an accredited paper recycling plant located in Mabalacat, Pampanga.

Since 1997, 34,236 kg of waste papers was collected generating an income of about P155,000. Such volume actually saved 257 trees of pulpwood species that would have been cut.

Active member agencies of the project include DENR, DTI, NEDA, DOST, DECS, DA, DAR, DOT, PIA, POPCOM, DOH, DILG, NICA, CSC, NEA-REO, CDA, NFA, LTO, NSO, BIR, GSIS, HDMF(PAG-IBIG), COA, PPC and TESDA.

- implementing the integrated pest management approach in agricultural production, and adopting alternative technologies like organic farming and planting of insect repellant 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.

4. Institute policies and programs to curb uncontrolled development, which affect ecosystems, such as:

   - incorporating new planning schemes that will restrict development in and misuse of significant habitats and resources into national, regional and local development plans;

   - enforcing guidelines and regulations for road construction, construction sites and forestry to minimize erosion and sediment input; and

   - applying assessments to all new developments that take into account coastal character, hydrodynamics, geology, geomorphology and climate change considerations.

Objective 3: Rehabilitation of damaged habitats and other significant natural, historical and cultural features of Manila Bay

Action Programs:

1. Determine priority areas, and set up supporting programs with the participation of stakeholders for the effective implementation of:

    - reforestation and afforestation activities;
    - riverbank stabilization and dredging of silted waterways;
    - mangrove reforestation, and conversion of abandoned fishponds back into mangroves;
    - rehabilitation of mudflat areas to restore the 'capiz' or windowpane oyster industry; and
    - rehabilitation of Laguna de Bay in accordance with its use as fishing ground and source of water supply, and in coordination with the programs of Laguna Lake Development Authority (LLDA) and Mount Makiling Task Force.

2. Set in place appropriate legal and economic instruments to cover restoration and compensation for damages to habitats and biological diversity by:

    - formulating rules, and administrative and assessment procedures to implement cost recovery and damage compensation schemes, consistent with the CLC and FUND Conventions;
    - working out a process for the utilization of natural resource damage assessment for determining restoration and compensation values; and
    - implementing a contingency plan and guarantee fund to cover restoration and compensation costs in the event of accidental spills and discharges of oily, chemical and hazardous wastes and mine tailings.

3. Expedite the restoration and maintenance of important historical and cultural sites by:

    - designating them as priority areas for restoration, and instituting financial mechanisms; and
    - formulating and implementing guidelines on restoration procedures for historical and cultural sites to preserve the character of the sites and original structures.


Develop

DEVELOP

Develop areas and opportunities in Manila Bay in consonance with environmental goals, policies and plans, thereby striking a balance between economic development and environmental management.

Principles

- Economic development is of vital local, national and regional importance.
- In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it. (Agenda 21, Principle 4)
- The coastal and marine environments are long-term public assets, which shall not be sacrificed for short-term goals.
- The needs of the present generation shall not be met at the expense of future generations.
- Development plans and programs, which are sustainable and have the consensus of concerned stakeholders, shall have priority for development of coastal and marine areas.
- Fragile communities shall be given special consideration because of their vulnerability to development projects.

The partners

- National government agencies
- Local government agencies
- Shipping and ports sector
- Industry
- Fisheries sector
- NGOs, POs
- Fisherfolk, farmers
- Indigenous communities
- Financial institutions
- Intergovernmental institutions
- Donors

Objectives

1. A well-defined planning, approval and consultation process for developments of coastal and watershed areas of Manila Bay
2. Advancement of appropriate coastal and marine industries and commercial enterprises
3. A sustainable fisheries industry
4. Coastal settlements developed in accordance with the coastal character and use of coastal areas

Objective 1: A well-defined planning, approval and consultation process for developments of coastal and watershed areas of Manila Bay

Action Programs

1. Facilitate sustainable development of coastal areas by:
    - Completing a comprehensive, integrated land- and sea-use plan for the Manila Bay area;
    - Assessing the socio-economic value of Manila Bay and its development potential;
    - Completing an integrated socio-economic development/ environmental management master plan which fulfills the shared vision of stakeholders for Manila Bay;
    - Conducting consultations at the community level, to build consensus among local stakeholders on the proposed master plan;
    - Implementing an integrated environmental impact assessment and approval process for all major developments in Manila Bay, particularly for environmentally critical projects and environmentally critical areas;
    - Setting criteria and standards that provide clear guidance on the type and level of activities, buildings, infrastructure and services that are required in coastal areas throughout the Bay; and
    - Adopting development plans, criteria and standards at the central and local levels of government that complement the socio-economic development/ environmental management master plan for Manila Bay.

2. Align development opportunities with desired benefits to local residents and visitors by:

    - Improving people's enjoyment of the coast and its amenities through a network of parks and recreational areas, complemented by appropriate foreshore facilities and infrastructure;

    - Providing museums, visitor/tourism information and interpretation centers in strategic coastal locations around the Bay;

    - Strengthening public transport systems as the principal means of access within Metro Manila to coastal areas and services, including recreational sites, coastal park lands and scenic boat tours;

    - Upgrading road access to and scenic drives along the coast, allowing circuit trips around the coast which link to inland and hinterland areas;

    - Implementing suitable mechanisms for identifying, managing and sustaining sites of historical, cultural or natural significance, including provisions that reinforce traditional protection and management approaches;

    - Promoting eco-tourism as a medium for appreciating the natural and cultural environment of the Bay by local residents, visitors and tourists;

    - Augmenting recreational boating and water-based activities, including sporting and cultural coastal events;

    - Improving the environmental quality of ports and fishing harbors to serve as multi-purpose coastal spaces such as waterfront recreation and tourism venues; and

    - Increasing the visibility of the Bay through integrated planning and design of structures and economic activities in coastal locations.

Objective 2: Advancement of appropriate coastal and marine industries and commercial enterprises

Action Programs

1. Encourage appropriate industrial and commercial development in coastal areas by:

    - Designating specific coastal land and water areas for industrial and commercial development as part of a Bay-wide master plan;

    - Granting coastal waterfront use to new industries and enterprises that depend directly on access to coastal resources;

    - Requiring coastal and marine enterprises to provide the necessary infrastructure, facilities and services that are in compliance with the social, economic and environmental goals of the Bay;

    - Removing and relocating inappropriate structures and activities from non-designated industrial/commercial areas, as well as those that are not dependent on direct access to the marine environment;

    - Developing industrial estates inland and relocating coastal industry and commercial enterprises to such estates;

    - Applying innovative financial mechanisms to ensure that industrial and commercial users and beneficiaries of coastal and marine resources recognize the value, and pay proper compensation for their use; and

    - Establishing targets for cumulative and long-term benefits to the sustainable development of Manila Bay and local communities for any new coastal industry or large-scale expansion of an existing coastal industry or commercial enterprise.



Objective 3: A sustainable fisheries industry

Action Programs

1. Integrate fisheries management into coastal management programs at the local government level by:

    - Building the capacity of local governments to manage marine and coastal areas within their administrative jurisdiction, using an ecosystem management approach for the development and use of living and non-living resources;

    - Building the capacity of the local communities to manage marine and coastal resources within their areas of concern;

    - Applying appropriate measures to protect the rights and livelihoods of small-scale fishers and fish workers;

    - Implementing measures against destructive fishing methods and practices that result in loss of habitat and waste of fish catch;

    - Engaging fisherfolk and fisher associations to develop, adopt and apply a code of conduct for municipal and commercial fisheries operations in Manila Bay;

    - Applying appropriate fisheries and aquaculture technologies to bring about fish stock conservation and diversification of income and diet;

    - Promoting diverse and innovative approaches to fisheries management, involving commercial, municipal and recreational fishing, as well as cultural, conservation, trade and tourism purposes;

    - Utilizing appropriate indigenous/traditional knowledge and practices in fisheries management; and

    - Developing farm to market roads, related infrastructure, post harvest facilities and other extension services to raise the income of fisherfolk.

2. Implement no-catch fisheries protected areas by:

    - Agreeing on the selection criteria and process for identifying coastal areas which support regionally important fish stocks;

    - Incorporating no-catch fisheries protected areas into the overall master plan for Manila Bay, with due consideration to complementary land- and sea-use zoning schemes in the vicinity of such areas;

    - Adopting appropriate management regimes for no-catch fisheries protected areas, encompassing the various fisheries and providing an integrated approach to planning, development and use of the areas; and

    - Institutionalizing innovative administrative and legal arrangements with fisherfolk and indigenous communities to manage the protected areas.

Objective 4: Coastal settlements developed in accordance with the coastal character and use of coastal areas

Action Programs

1. Restructure existing settlements that are inconsistent with the shared vision for the health and well-being of coastal populations by:

   - Recognizing the presence of existing settlements, their character and the needs of the population in the formulation of urban development/urban renewal schemes in coastal areas;

   - Defining appropriate settlement areas within the land- and sea-use plan of Manila Bay, including the population capacity, appropriate housing types, infrastructure capacity, living opportunities and transportation networks;

   - Relocating informal settlers from areas where there are threats to human health and safety, or risks to sustainable use of marine and coastal resources; and

   - Refurbishing existing settlements of old and inappropriate subdivisions that do not meet the criteria and standards for buildings, infrastructure and services that are specified for coastal areas.

2. Plan future coastal settlements by taking into account:

   - The integrated socio-economic development/ environmental management master plan which fulfills the shared vision of stakeholders for Manila Bay;

   - The character of the coastal area;

   - The surrounding activities;

   - Population forecasts and settlement capacities;

   - Infrastructure capacities, and the required environmental facilities and services to maintain compliance with the social, economic and environmental goals of the Bay; and

   - Present and future land use options.

Communicate

COMMUNICATE

COMMUNICATE with stakeholders regarding their rights and responsibilities, and issues concerning the coastal and marine environment, thereby ensuring their involvement and active participation in the development and implementation of environmental management programs.

Principles

- People shall be made aware of the importance of the life support system of the coastal and marine resources and how their actions affect the capacity of the natural environment to provide ecological services and socio-economic values. By being well-informed about the environmental issues, as well as their rights and responsibilities, their commitment and participation in the development and implementation of environmental management programs will be insured and substantiated.
- People need to understand the relationship between human activities and the life-support system of Manila Bay.
- Public education and awareness regarding sustainable use, prevention of risks and continuous improvement of the environment are essential and have long-term social, cultural and economic impacts.
- Early public involvement and consensus building among the different stakeholders shall advance the climate of commitment, transparency of process and interagency and intersectoral cooperation.
- Appreciation of the importance of the preservation of the natural, historical and cultural sites shall be achieved through continuing education and information drive efforts.

The Partners

- National government agencies
- Local government units
- Non-government organizations/ people's organizations
- Civic organizations
- Media
- Religious organizations
- Private sector
- Industry
- Academe
- Communities/households
- Youth

- Sound policies and decisions shall be based on reliable, understandable and accessible scientific and technical information.

- Educational curricula regarding sustainable use, prevention of risks and continuous improvement of the environment shall be developed and applied.

Objectives

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 data/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

Target audience

- National and local governments, decision/policy makers
- Fisherfolk and farmers
- Women/women organizations
- Industries/business sector
- Parents
- Youth and school children
- Media
- Non-government organizations, peoples organizations and civic organizations
- Academe

Objective 1: Awareness and understanding of stakeholders of their rights and responsibilities, and priority issues concerning coastal and marine environment of Manila Bay

Action Programs

1. Conduct baseline surveys on the knowledge, attitudes, skills and practices of stakeholders/target audiences;
2. Formulate and implement communication and advocacy plans for various stakeholders/target audiences focusing on improved policies and management programs for the coastal and marine environment;
3. Develop and disseminate IEC materials through appropriate channels; and
4. Institutionalize IEC campaigns, such as:
    - Environmental consciousness week for the Manila Bay area;
    - Kontra Kalat sa Dagat (Bataan);
    - Sagip Katubigan (Navotas);
    - Bawas Basura Project and Kalingain, Sagipin at Linisin ang Ilog at Kapaligiran Natin (Malabon);
    - Clean and Green; and
    - Sagip Ilog (Cavite)

Objective 2: 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

Action Programs

1. Establish a media/information center and mini-library where stakeholders can easily access information on environmental management programs for Manila Bay.
2. Develop an information management and networking system to serve as repository of data to include among others, natural resources, environmental monitoring, historical and cultural features, demographic and institutional data.

Objective 3: Multisectoral stakeholders as partners in the planning and management of Manila Bay coastal and watershed areas

Action Programs

1. Provide opportunities for multi-sectoral stakeholders to participate in various environmental management programs by providing adequate information, training and support.
2. Establish a core of advocates coming from stakeholders to become partners in IEC activities.
3. Encourage other groups to be involved in various environmental management activities in Manila Bay.

Objective 4: Effective coordination and networking among stakeholders

Action Programs

1. Participate in tri-media network programs.
2. Establish a website on Manila Bay environmental management programs and projects.
3. Facilitate cross visits in demonstration sites where the stakeholders can learn from experiences gained by those demonstration sites.
4. Institutionalize community forums/meetings, public consultations, etc., where stakeholders can discuss the development and management of Manila Bay coastal and marine resources.

Objective 5: Stakeholders advocating environmental management in Manila Bay

Action Programs

1. Strengthen the capabilities of the core of advocates in implementing IEC activities.
2. Develop education and training programs for managers and technical staff in advocating environmental management.
3. Train and educate stakeholders to become partners in advocating environmental management in Manila Bay.
4. Enhance the effectiveness of formal and informal environmental education at all levels of education.

Examples of environmental advocacy groups in Manila Bay area:

- Baclaran Alliance of Youths and National Idealists (BAYANI)
- Lapian ng mga Mangingisda ng Parañaque (LAMPARA)
- Samahan ng mga Mangingisda ng Malusac, Pampanga (SMM)

Direct

DIRECT

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

Principles

- To protect and preserve the marine environment, the use of a full range of available management tools and financing options in implementing local or national programs of action, including innovative managerial and financial techniques, shall be promoted (modified version of the Washington Declaration).
- To achieve sustainable development and a higher quality of life for the people of Manila Bay, the national and local governments shall work together to reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies (modified version of Agenda 21, Principle 8).
- While managing resources sustainably, environmental policy shall take due account of those who depend on the resources for their livelihood.
- Sustainable development shall only be achieved by involving all levels of society in environmental management programs.
- An integrated ecosystem approach to managing watersheds and coastal areas shall be promoted to address environmental threats, reduce multiple-use conflicts and strengthen institutional capabilities and effectiveness.

The Partners

- National government agencies
- Local government agencies
- Industries/business sector
- Non-government organizations/ people's organizations
- Civic organizations
- Academe
- Communities
- Religious organizations
- Indigenous communities
- Intergovernmental institutions
- Donors

Objectives

1. Appropriate institutional mechanisms and arrangements in-place allowing multi-sectoral stakeholders to contribute to environmental goals within a strategic framework

2. National government effects the implementation of relevant policies, controls and incentives

3. Local governments effectively managing marine and coastal resources within their administrative jurisdictions

4. Partnership arrangements serving as the foundation for sustainable development in Manila Bay

Objective 1: Appropriate institutional mechanisms and arrangements in-place allowing multi-sectoral stakeholders to contribute to environmental goals within a strategic framework

Action Programs

1. Establish a clear and holistic approach in managing the marine and coastal resources of Manila Bay by:

    - Adopting the Manila Bay Coastal Strategy as the guiding framework;

    - Delineating the roles and responsibilities of levels of government, government agencies, industry and the private sector, civil society, international agencies, intergovernmental bodies, donors and financial institutions in implementing the Manila Bay Coastal Strategy and committing the different players to achieve specified goals in the action programs;

    - Implementing integrated socio-economic development and environmental management master plan, detailing an integrated land- and sea-use zonation scheme for existing and future developments in the marine, coastal and watershed areas of Manila Bay;

    - Implementing the master plan at all levels of government, upon consultation among levels of government, government agencies, regional authorities, the private sector, NGOs, POs, academe, communities, religious groups and marginalized sectors of the population; and

    - Creating an implementing mechanism including national and local governments, regional authorities, the private sector, civil society, the media and academe to coordinate the implementation of Manila Bay Coastal Strategy.

2. Ensure that the Manila Bay Coastal Strategy will be pursued and achieved over the longer-term by:

    - Institionalizing the mechanism through national legislation;

- Setting up an operational body with an appropriate level of skilled human resources and funding;

- Integrating national and local government development programs into the Manila Bay Coastal Strategy;

- Establishing a Manila Bay Environment Fund, aimed at leveraging environmental investments and stewardship at the local government and community levels, and sourced from user fees, fines and penalties levied on users of the Bay's resources, as well as donations, grants and endowments provided by foreign and domestic programs; and

- Building the awareness and capacity of stakeholders to fulfill their obligations as environmental stewards of Manila Bay's coastal and marine resources and surrounding watersheds.

Objective 2: National government effects the implementation of relevant policies, controls and incentives

Action Programs

1. Formulate and translate national policies, plans and programs into desired management outcomes for Manila Bay by:

    - Consolidating the administrative, legal, operational and reporting requirements of international conventions and agreements related to the marine and coastal environment, into a comprehensive framework of national environmental policies and programs;

    - Reviewing existing laws and regulations to detect conflicts, overlaps and gaps;

    - Prioritizing and lobbying for the country's accession to relevant international environmental conventions and agreements;

    - Sponsoring strategies and programs for improved implementation and multisectoral coordination of operations at the local and national levels, such as oil spill contingency planning and response, liability and compensation for environmental damages, integrated enforcement and monitoring of environmental laws and regulations, and integrated environmental monitoring;

    - Developing and implementing a national coastal policy to reinforce the values of healthy marine ecosystems and the associated benefits to the citizens of the Philippines;

    - Securing specific agreements with each Province and Regional Authority in the Manila Bay watershed area regarding the establishment of appropriate programs and schedules for managing water quality in major rivers and coastal areas;

- Establishing an integrated environmental monitoring and enforcement program involving intergovernmental and interagency technical cooperation and sharing of facilities, services, human resources and information;

- Empowering local governments with the responsibility and capacity to manage marine and coastal resources within their administrative jurisdictions;

- Building the capacity of local governments to operationalize the integrated coastal management system;

- Forging partnerships with industry, the private sector and civil society that vest responsibility and ensure commitment to national policies and goals for protecting and managing marine and coastal resources;

- Providing economic or market-based instruments (e.g., user pay principle) to complement legal and administrative mechanisms (e.g., carrying capacity); and

- Establishing a comprehensive environmental information system, including mapping and forecasting functions, to enable stakeholders from all sectors of society to fully appreciate the spatial, legal, economic, environmental, social and cultural features of Manila Bay.

2. Establish well-defined property rights system to ensure optimal and equitable access to the natural resources by:

   - Determining appropriate property rights regime in key habitats, and in bioprospecting;

   - Forming cooperative agreements on bioprospecting; and

   - Reviewing indigenous people rights and ancestral domain policy, and formulating a system for protecting intellectual property rights over traditional medicine and practices.

Objective 3: Local governments effectively managing marine and coastal resources within their administrative jurisdictions.

Action Programs

1. Implement a systematic and sustainable environmental management framework and program as part of each local government unit around Manila Bay by:

    - Applying an integrated coastal management (ICM) program within each coastal province, city and municipal government around the Bay;

    - Strengthening the local governments' roles and capabilities in integrated environmental impact assessment for new developments;

    - Integrating community-based resource management agreements and programs (e.g., fisheries; marine protected areas) under the ICM programs of the local governments;

    - Developing and adopting a local government coastal strategy, land- and sea-use zoning scheme; and

    - Establishing an interagency, intersectoral council in each province, city or municipality, comprised of representatives, as appropriate, from the various, barangays, civil society groups, industry, consortium and cooperatives (e.g., Fisheries and Aquatic Resources Management Council), academe and media in the area, tasked with overseeing/coordinating local planning, development and action programs for achieving the goals of the local coastal strategy;

    - Operationalizing Environment and Natural Resources Offices at the provincial, city/municipal levels, with responsibility for executing and/or coordinating the implementation of the local council's policies and decisions, as well as monitoring and evaluating the progress and effectiveness of the coastal strategy; and

    - Modernizing the 'Bantay-Dagat' (coastal/bay watch) at the local government level, and its integration with environmental monitoring and management.

2. Institutionalize environmental management programs at the local government level by:

    - Adopting legal, economic, and administrative instruments at the local government levels in support of the ICM framework and process;

    - Applying innovative financial mechanisms and market-based instruments to ensure that local users and beneficiaries of coastal and marine resources recognize the value of such resources and compensate accordingly;

    - Building local capacities pertaining to environmental management including ICM, community-based management of coastal resources, fisheries management, biodiversity conservation, integrated waste management and sustainable tourism;

- Forging partnerships with local communities, religious groups, industries, the private sector, indigenous peoples and marginalized groups in the area to participate in the planning, development, and management of coastal and surrounding watersheds; and
- Linking local scientific/technical institutions with other stakeholders in the community to provide scientific advice and input into the planning and decision-making processes.

Objective 4: Partnership arrangements serving as the foundation for sustainable development in Manila Bay

Action Programs

1. Develop partnerships with local and foreign operating companies, investors, international agencies, donors and financial institutions by:
   - Seeking new and additional sources of technical and financial assistance through national, bilateral and multi-lateral technical assistance programs to develop environmental investment opportunities;
   - Promoting opportunities for investment in developmental activities and environmental facilities and services that are in accordance with the coastal strategy and vision for Manila Bay, and offer long-term benefit to local communities in the immediate area; and
   - Adopting a public-private partnership (PPP) financing mechanism as an alternative to traditional approaches of planning, developing, financing and operating environmental facilities and services.
2. Enjoin local industry and commercial enterprises to contribute to the implementation of the Manila Bay Coastal Strategy by:
   - Developing voluntary agreements geared towards identifying targets for increased efficiency in the use of marine and coastal resources, the reuse and recycling of production residuals and the reduction in waste discharge per unit of economic output;
   - Formulating and adopting a code of conduct for industrial and commercial enterprises in order to promote best environmental practice in Manila Bay;
   - Sharing technological know-how, expertise and skills in cleaner production, safety, environmental management and emergency response among stakeholders;
   - Conducting self-audits on industrial plants and commercial operations to ensure compliance with all relevant environmental laws and ordinances;
   - Formulating, adopting and implementing an environmental management system within industrial plants and commercial operations and achieving ISO 14001 certification;

- Preparing and adopting a Bay-wide contingency plan and oil spill response system involving the shipping and petroleum industries, the private sector, local governments and relevant agencies of the national government; and

- Participating in community awareness and education programs.

3. Strengthen the role of NGOs, POs, communities and marginalized groups as partners for sustainable development of Manila Bay by:

    - Developing consumer awareness and participation programs aimed at women, emphasizing their critical role in achieving the changes necessary to reduce waste generation and avoid unsustainable use of marine and coastal resources in Manila Bay;

    - Establishing alternative livelihood training and development for women, including access to credit and grants for the start-up of micro-enterprises;

    - Providing resource centers for women, to serve as a foundation for capacity and awareness building, and for mainstreaming their participation in ecosystem management, public health protection, control of environmental degradation and sustainable development programs at the local community, municipal/city, provincial and national levels;

    - Expanding educational opportunities for children and youth, including the development of education programs on the environment and environmental stewardship at the primary and secondary school levels;

    - Mobilizing communities in the Manila Bay area through schools and local health centers so that children and their parents are sensitized to the roles and responsibilities of the individual and the community in the Coastal Strategy;

    - Incorporating the concerns of children, including access to a healthy environment, natural resources, food, housing and recreation, into the development plans for Manila Bay;

    - Appointing a special focal point for indigenous people and their communities, to draw upon their active participation in resource management and development of coastal areas in Manila Bay;

    - Seeking and channeling non-governmental organizations inputs into the planning, development and management process at the Bay-wide and community levels, especially in the fields of education, capacity building, poverty alleviation, youth education, environmental protection and resource rehabilitation;

    - Identifying means to include and expand the roles of NGOs in formal and informal education and public awareness; and

    - Providing access to available information and data to stakeholders at the community level to facilitate effective contribution to design, implementation and evaluation of action programs under the Manila Bay Coastal Strategy.

4. Combine scientific input and traditional knowledge into decision-making processes and environmental management programs by:

   - Forging partnerships between scientists and local governments, to encourage information and knowledge sharing in the development and implementation of ICM programs;

   - Supporting scientific research that advances knowledge of ecosystem management, environmental risk assessment/management, carrying capacity, quality-of-life indicators, etc., and provides input to decisions on sustainable economic development; and

   - Involving indigenous people and scientists in the gathering and interpretation of information on habitats and biological diversity in Manila Bay, including the development and implementation of appropriate restoration programs.

Monitoring the Strategy

MONITORING THE STRATEGY

A series of indicators have been developed to assess progress regarding implementation of the Manila Bay Coastal Strategy. The indicators provide a systematic method for each stakeholder group to track its movement toward management arrangements, systems and processes identified in the strategy.

The desired outcomes and changes to be achieved by the vision, strategies and objectives of the Coastal Strategy for Manila Bay can be classified into three broad categories, namely:

- **Institutional activities**, including the individual and collective policy, legal and administrative actions of central and local governments, in accordance with the coastal strategy;
- **Operational activities**, describing the measures taken by stakeholders to halt, mitigate, adapt to, or prevent damage to the environment caused by natural processes and human activities, as defined in the Manila Bay Coastal Strategy; and
- **Environmental state**, referring to the quality and quantity of natural resources, and the state of human and ecological health. Indicators in this category reflect the ultimate benefits derived as a consequence of the coastal strategy, and are chosen by considering biological, chemical and physical variables and ecological functions.

One of the early initiatives of Manila Bay Coastal Strategy implementation involves the stakeholders confirming/ agreeing on these indicators, the desired targets or reference values for each indicator and the protocols for assessing them. In the interim, the following institutional and operational indicators may be employed in monitoring the Manila Bay Coastal Strategy. Changes and additions will occur to the indicators over time, as monitoring and reporting systems develop and as the capacity of the various stakeholders at the national, local and regional levels increases.

National

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
National: Institutional			
a) National coastal/marine policy			
• Under development			
• In place			
b) Accession to ten (10) key international environmental instruments			
• Under development			
• In place			
c) Implementing the mechanism for the Manila Bay Coastal Strategy			
• Under development			
• In place			
d) Socio-economic development and environmental management master plan for Manila Bay			
• Under development			
• In place			

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
National: Operational			
a) Manila Bay coastlines with land- and sea-use zonation scheme			
Length of coastline (km):			
• Under development			
• In place			
b) Ship waste reception facilities in ports			
% of ports/harbours with licensed facilities and services			
• Under development			
• In place			
c) Protected areas with environmental management programs			
Total marine area (km^2):			
• Under development			
• In place			
d) Intergovernmental , multisectoral contigency plan and oil spill response system			
• Under development			
• In place			

Regional

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Regional: Institutional			
a) Intergovernmental environmental management mechanisms for major river basins			
No. of river basins:			
• Under development			
• In place			
Regional: Operational			
a) Catchment areas with ecosystem management plans			
Total catchment areas (km^2):			
• Under development			
• In place			

Local

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Local: Institutional			
a) Interagency, multi-sectoral councils established at local levels			
No. of coastal and non-coastal LGUs:			
• Under development			
• In place			
b) ENR Offices			
% of LGUs			
• Under development			
• In place			
d) Integrated land-and-sea-use zonation scheme			
% of coastal municipalities/ cities			
• Under development			
• In place			

Local

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Local: Operational			
a) Length of coastlines with ICM programs			
Length of coastline (km):			
• Under development			
• In place			
b) Multi-sectoral coastal management plans adopted at local levels			
% of coastal municipalities:			
• Under development			
• In place			

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Local: Operational			
c) Sewage treatment			
% of urban population with treatment facilities:			
• Under development			
• In place			
d) Drinking water			
% of population with access to safe water supply:			
• Under development			
• In place			
e) Waste management			
% of population with garbage collection and licensed disposal facilities:			
• Under development			
• In place			

Private Sector

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Industry/Private Sector: Institutional			
a) Multi-sectoral voluntary agreements			
No. of agreements:			
• Under development			
• In place			

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Industry/Private Sector: Operational			
a) ISO 14000 certification of industries and private enterprises			
No. of certifications:			
• Under development			
• In place			
b) Public-private sector joint ventures at the local level			
No. of joint ventures			
• Under development			
• In place			

Civil Society

Indicator description	Current Status	Milestone Target 2005	Milestone Target 2015
Civil Society: Institutional			
a) Membership on national and local planning and management bodies			
% of planning and management bodies:			
• Under development			
• In place			

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Civil Society:Operational			
a) Economic development plans incorporating conservation areas and opportunities for local communities/groups			
No. of plans:			
• Under development			
• In place			
b) Local capacity building/ retraining programmes in sustainable economic enterprises and activities			
No. of local programs:			
• Under development			
• In place			

Academe/Scientific Community

Indicator description	Current Status	Milestone Target 2005	Milestone Target 2015
Academe/Scientific Community: Institutional			
a) Membership on national and local planning and management bodies			
% of planning and management bodies:			
• Under development			
• In place			

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
Academe/Scientific Community: Operational			
a) Research and development programs in Manila Bay supported by national/international programs (US $)			
• Under development			
• In place			
b) No. of graduates from short term training programs on environmental/coastal management			

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Annexes

Annex 1

SUMMARY OF STAKEHOLDER CONSULTATIVE WORKSHOPS CONDUCTED FOR THE FORMULATION OF MANILA BAY COASTAL STRATEGY

Level of consultation	Workshop module/design	Region/Province/City/ Municipality covered	Date conducted
City/municipality level	Presentation of Manila Bay situation Presentation on Manila Bay Environmental Management Project Workshop on values and threats, desired outcomes, vision and mission setting, strategies, principles, objectives, action programs, roles and responsibilities and institutional mechanisms Plenary sessions (presentation and evaluation of outputs)	Hermosa, Bataan	September 1-30, 2000
		Orani, Bataan	
		Samal, Bataan	
		Abucay, Bataan	
		Balanga, Bataan	
		Pilar, Bataan	
		Orion, Bataan	
		Limay, Bataan	
		Mariveles, Bataan	
		Parañaque	Oct 18-19, 2000
		Navotas and Malabon	Oct. 24-25, 2000
		Las Piñas	Nov. 14-15, 2000
		Pasay	Nov. 21-22, 2000
		Manila	Dec. 12-134, 2000

Level of consultation	Workshop module/design	Region/Province/City/ Municipality covered	Date conducted
Provincial level	Presentation of Manila Bay situation Presentation on Manila Bay Environmental Management Project Workshop on values and threats, desired outcomes, vision and mission setting, strategies, principles, objectives, action programs, roles and responsibilities and institutional mechanisms Plenary sessions (presentation and evaluation of outputs)	Region 3	
		• Bataan	Oct. 17-18, 2000
		• Bulacan	Oct. 26-27, 2000
		• Pampanga	Nov. 5-6, 2000
		• Tarlac and Nueva Ecija	Nov. 28-29, 2000
		Region 4	
		• Cavite	Oct. 24-25, 2000
		• Laguna	Nov. 21-22, 2000
		• Rizal	Jan. 15-16, 2001

Level of consultation	Workshop module/design	Region/Province/City/ Municipality covered	Date conducted
Regional level	Consolidation of the outputs from cities/ municipalities (for NCR) and provincial (Regions 3 and 4) consultation • Values and Threats • Desired outcomes • Vision and Mission • Strategies • Principles • Objectives • Action programs • Roles and responsibilities • Institutional mechanisms	• NCR	April 6, 2001
		• Region 3	January 24, 2001
		• Region 4	February 28, 2001
National level	Presentation of Manila Bay situation Presentation on Manila Bay Environmental Management Project Workshop on values and threats, desired outcomes, vision and mission setting, strategies, principles, objectives, action programs, roles and responsibilities and institutional mechanisms Plenary sessions (presentation and evaluation of outputs)	All national agencies involved in the management of Manila Bay area	Nov. 20-21, 2000
Baywide	Review of the consolidated Manila Bay Coastal Strategy	NCR, Regions 3 and 4, national agencies	July 17, 2001

Annex 2

GLOSSARY OF TERMS

Ancestral lands — Lands occupied, possessed and utilized by individuals, families or clans who are members of indigenous communities/indigenous peoples since time immemorial, by themselves or through their predecessors in interest, continuously to the present except when interrupted by war, force majeure or displacement by force, deceit or stealth; including claims to lands that have been devolved to individuals such as residential lots, rice terraces, paddies or tree lots, indigenous corporate claims belonging to families or clans such as private forests and swidden farms and communal claims belonging to a community within a defined territory.

'Bantay Dagat' - strategy that provide for swift public action to stop destructive fishing practices and illegal commercial fishing in municipal waters (http://www.sdvillage.ph/coastal/ bantaydagat.htm).

Biodiversity – or biological diversity refers to the variability among living organisms from all sources, including *inter-alia*, terestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (DAO 20, S 1996).

Bioprospecting – or prospecting refers to the research, collection and utilization of biological and genetic resources, for purposes of applying the knowledge derived therefrom for scientific and/or commercial purposes.

Carrying capacity - The population of a given species that can be supported indefinitely in a defined habitat without permanently damaging the ecosystem upon which it is dependent (http://dieoff.com/page13.htm).

Civil society - This includes national or local non-governmental organizations (NGOs) organized for the advancement of particular purposes that relate, directly or indirectly, to an area (e.g., coastal area); an organized group of persons living in a particular area who unite for a common purpose (people's organization, POs). POs are distinguished from NGOs in that the former are mass-based, as opposed to NGOs, which usually have external support. NGOs include conservation and advocacy organizations, as well as local civic organization. Less organized groups such as subsistence resource users, landowners, ethnic groups are also included.

Coastal and marine area – The area and resources starting from the point on land where it interacts with the sea and the sea interacts with the land, up to the point at sea where human activities affect it.

Commercial Fishing - the taking of fishery species by passive or active gear for trade, business or profit beyond subsistence or sports fishing to be further classified as:

1. Small scale commercial fishing - fishing with passive or active gear utilizing fishing vessels of 3.1 gross tons (GT) up to twenty (20) GT ;

2. Medium scale commercial fishing - fishing utilizing active gears and vessels of 20.1 GT; up to one hundred fifty (150) GT; and

3. Large scale commercial fishing - fishing utilizing active gears and vessels of more than one hundred fifty (150) GT.

Community – The people or entities in a particular area, not formally organized but with common interest particularly in relation to specific issues.

Corporate responsibility – The duty and accountability of corporations, or any group of people organized for the purpose of conducting business, to the community and all that they affect.

Ecotourism – Tourism focusing on environmental and cultural resources and usually based on conservation theme (Cicin-Sain and Knecht, 1998).

Economic instruments – mechanisms in a form of market-based incentives that work through price signals, thereby affecting costs and benefits of alternative actions, hence influencing decisions and behaviors of individuals, firms and governments, so that environmentally superior options are chosen; designed to serve as alternative to or complement legal or regulatory mechanisms.

Ecosystems management approach – Management of ecosystem values and uses recognizing the interactions of the environment and responding to signals from the ecosystem to control anthropogenic activities and uses.

Environmental risk assessment – The process to estimate the likelihood of harm being done to human health and/or ecosystems through factors emanating from human activities that reach their target via the natural environment.

Environmental risk management – The application of identified management interventions to address environmental concerns identified through the environmental risk assessment process.

Fisherfolk - people directly or personally and physically engaged in taking and/or culturing and processing fishery and/or aquatic resources.

Indigenous peoples/communities — A homogenous society identified by self-ascription and ascription by others, whose members have continuously lived as a community on communally bounded and defined territory, sharing common bonds of language, customs, traditions and other distinctive cultural trains, and who, through resistance to the political social and cultural inroads of colonization, became historically differentiated from the majority of Filipinos.

Integrated coastal management – A natural resource and environmental management framework which employs an integrated, holistic approach and an interactive planning process in addressing the complex management issues in the coastal area.

ISO 14000 – a set of international standards for improving the environmental performance of organizations. It includes the new standard for environmental management systems (EMS) called ISO 14001 (www.trst.com/articles.htm).

Land- and sea-use plan – a plan addressing the multiple-use conflicts in water and terrestrial areas.

Land-based activities – Activities occurring primarily on land.

Manila Bay area – refers to Manila Bay and its 17,000 km^2 watershed covering the National Capital Region and provinces of Bataan, Pampanga, Bulacan, Cavite, Laguna, Rizal, Tarlac and Nueva Ecija.

Municipal fishing - refers to fishing within municipal waters using fishing vessels of three (3) gross tons or less, or fishing not requiring the use of fishing vessels.

Municipal waters - include not only streams, lakes, inland bodies of water and tidal waters within the municipality which are not included within the protected areas as defined under Republic Act No. 7586 (The NIPAS Law), public forest, timber lands, forest reserves or fishery reserves, but also marine waters included between two (2) lines drawn perpendicular to the general coastline from points where the boundary lines of the municipality touch the sea at low tide and a third line parallel with the general coastline including offshore islands and fifteen (15) kilometers from such coastline. Where two (2) municipalities are so situated on opposite shores that there is less than thirty (30) kilometers of marine waters between them, the third line shall be equally distant from the opposite shore of the respective municipalities (RA 8550).

National Integrated Protected Areas System — As defined in the NIPAS Law, the classification and administration of all designated protected areas to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent possible.

Non-government organization – A non-profit group or association organized outside of institutionalised political structures to realize particular social objectives or serve particular constituencies.

People's organization — A group of people, which may be an association, cooperative, federation, or other legal entity, established by the community to undertake collective action to address community concerns and need and mutually share the benefits from the endeavor.

Pollution – the introduction by human, directly or indirectly, of any substance or energy into the environment which results in such deleterious effects as harm to living resources, hazards to human health, hindrance to human activities, impairment of the quality of the environment and reduction of amenities.

Private sector – Collectively, people or entities conducting business for profit.

Protected area - refers to a geographically defined area designated or regulated and managed to achieve specific conservation objectives; refers to identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation.

Reception facilities - a physical system ashore or afloat used for receiving discharges of oil, refuse and other types of wastes from ships for appropriate disposal.

Stakeholders – Persons or entities who, directly or indirectly, positively or negatively affect or are affected by the policies relating to, or activities or phenomena in, a certain area.

Sustainable development – Development that ensures the continuance of natural resource productivity and a high level of environmental quality, thereby providing for economic and social development to meet the need of the present and future generations.

Tenurial instruments – agreements, contracts or grants by which an individual, group of individuals or organization are given guaranteed peaceful possession and use of specific area and the resources found therein. They cannot be altered or abrogated without due process.

Terrestial – area pertains to land.

Transboundary – Involving more than one administrative unit (e.g., province, municipality or city), or having significance for more than one administrative unit due to shared or migrating species, impact of activities, etc.

Watershed — Land drained by a stream or fixed body of water and its tributaries having a common outlet for surface run-off.

Zonation/ zoning scheme – a management or regulatory instrument to address issues arising from multiple-use of a land or body of water by various sectors and stakeholders.