PREFACE

Reclamation Project within Manila Bay

In May 2019, during the Science Policy and Information Forum on the Sustainability of Manila Bay at the Philippine International Convention Center (PICC), the Philippine Reclamation Authority (PRA) presented the proposed and approved reclamation projects.

This document

This Integrated Coastal Zone Management (ICZM) Planning Framework is consistent with the overall vision and goal of having a sustainable and resilient Manila Bay. Specifically, this document provides guidance on how to identify and design development projects that are feasible in Manila Bay and are consistent with the overarching goal of promoting the sustainability and resiliency of Manila Bay.

This document complies with the Terms of Reference of the Formulation of the Manila Bay Sustainable Development Master Plan (MBSDMP) which is distinct from the Reclamation and Development Plan (RDP) that is stipulated under Executive Order 74 (2019).

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ICZM PLANNING FRAMEWORK FOR MANILA BAY

The Manila Bay Sustainable Development Master Plan (MBSDMP) is a master plan for the development of Manila Bay and its immediate coastal zone together with its larger catchment areas, as the influence sphere. It will guide decision-makers in the assessment and approval of programs, activities, and projects that are consistent with national, regional and local policies.

The Integrated Coastal Zone Management (ICZM) Planning Framework for Manila Bay is the Overall Guiding Framework of the MBSDMP. It adopts a holistic and integrative approach in addressing the complex social and ecological issues in the Manila Bay Coastal Area. Further it seeks to engage the participation and cooperation of all stakeholders to realize the overall goal of having a “Sustainable and Resilient Manila Bay” by balancing and harmonizing the sectoral objectives (environment, economic, social, cultural and recreational).

PRACTICAL APPLICATION

The ICZM Planning Framework sets the parameters by which the proposed developments under MBSDMP is to be designed and implemented. In support to the AmBisyon Natin 2040: Matatag, Maginhawa, at Panata ng Buhay, the MBSDMP ICZM Planning Framework can also be used as:

- Basis for updating of CLUPs/Zoning ordinances of coastal LGUs in a manner that will harmonize the socioeconomic development goals of the LGUs and Manila Bay;
- Basis for LGUs in determining the best/suitable uses of municipal waters within its jurisdiction;
- Framework to guide in resolving use of areas commonly claimed by two or more LGUs;
- Framework for resolving conflicting uses of Manila Bay;
- Framework for the evaluation of unsolicited land reclamation proposals;
- Framework for identification of areas where building activities may or may not be allowed;
- Basis for implementing measures to mitigate adverse impacts of existing and prospective uses of, and practices/activities in Manila Bay and coastal areas; and
- Guide for the private sector in identifying and developing potential projects.
Manila Bay
Coastal Zone
Catchment Area

Sierra Madre Mountain Range
Bataan Mountains
Caraballo Mountains

Catchment Area
Coastal Zone
Manila Bay
Coastal Zone
Catchment Area
KEY PRINCIPLES

The key principles governing the ICZM Planning Framework are as follows:

Sustainability
The ICZM Planning Framework is to ensure uninterrupted delivery of Manila Bay ecosystem services.

Precautionary
The ICZM Planning Framework is to adopt measures or decisions to guard against uncertain hazards to the Manila Bay ecosystems and its communities.

Optimization of multiple uses
The ICZM Planning Framework is to ensure optimum balance of ecological and socio-economic goals in the management and development of Manila Bay and ideally of Manila Bay Region.

Participatory
The ICZM Planning Framework is developed through engagement of concerned LGUs, NGAs, private sector, and other key stakeholders in making decisions on the use of Manila Bay.

Multi-disciplinary
The ICZM Planning Framework is developed through engagement of experts from various disciplines related to the management and development of Manila Bay.

MANAGEMENT ZONES WITHIN PROTECTED AREAS

The DENR Administrative Order No. 2008-17 (Annex C) amended Section of the DAO No. 25 Series of 1992 and provided criteria in the identification and procedures in the delineation and/or demarcation of management zones within protected areas. The coverage of the administrative order is on all protected areas under the National Integrated Protected Areas System (NIPAS) except for those protected areas which have already been covered by specific enabling laws. For Manila Bay, the nine (9) categories of management zones in the DAO 25, S. of 1992 were reduced into two (2) classifications, namely: Multiple Use Zones (MUZ) and Strict Protection Zones (SPZ).

Multiple Use Zones (MUZ) are areas where settlement, traditional and/or sustainable land-uses, including agriculture, agroforestry, and other income-generating or livelihood activities may be allowed consistent with the Protected Area Management Plan of the protected area. The zone includes, among others, areas of high recreational tourism, educational, or environmental awareness values, and areas consisting of installation allowed under existing guidelines and of national significance/interest such as facilities/structures for renewable energy, telecommunications, and electric power generation.

Strict Protection Zones (SPZ) are areas consisting of natural areas with high biodiversity value, closed to all human activities except for scientific studies and/or ceremonial or non-extractive uses by the indigenous peoples. It may also include habitats of threatened species, or degraded areas that have been designated for restoration and subsequent protection.

Section 8 of the NIPAS Act stipulates a Buffer Zone that states "for each protected area, there shall be established peripheral buffer zones when necessary, in the same manner as Congress establishes the protected area, to protect the same from activities that will directly and indirectly harm it. Such buffer zones shall be included in the individual protected area management plan that shall be prepared for each protected area. The DENR
shall exercise its authority over protected areas as provided in this Act on such area and designated as buffer zones.”

In the paper of Shanks et al. (2003), “Propagule Dispersal Distance and the Size and Spacing of Marine Reserves”, it was presented that a reserve of 4 to 6 kilometers in diameter should be large enough to contain dispersing fish and invertebrate larvae and reserves spaced 10–20 km apart should be close enough to capture propagules released from adjacent reserved.

Green et al., (2014) in their paper “Designing Marine Reserves for Fisheries Management, Biodiversity Conservation, and Climate Change Adaptation” recommends the replication of protection of each major habitat within at least three (3) widely separated marine reserves to mitigate the loss due to risk of spreading.

Based on the above the buffer zones for critical habitats in Manila Bay shall be delineated as illustrated in Figure 1.

**AREAS FOR SPECIFIC FUNCTIONS**

There are areas in Manila Bay that were designated by law for specific purposes. These areas are:

- **Shipping Navigational Lanes (source: NAMRIA)**
- **Ports and Harbors (source: NAMRIA)**
- **Naval Bases (source: NAMRIA)**
- **Restricted Areas (source: NAMRIA)**
- **BFAR Marine Protected Areas (source: NAMRIA)**

**WATER CIRCULATION AND TIDAL MOVEMENT**

Inherent and critical to maintaining the ecosystems of Manila Bay is maintaining its water circulation and tidal movement. This is indicated in the study of Villanoy and Martin (1997) “Modeling the Circulation of Manila Bay: Assessing the Relative Magnitude of Wind and Tide Forcing”.

**PRODUCTION USE ZONES**

Production Use Zone (PUZ) refers to all areas outside the Strict Protection Zones (SPZ) where suitable human activities may be allowed. The subzones of the PUZ are:

- **Navigation Zone (NZ)** – covers areas designated by law as navigation lanes primarily for water transportation of products and people and related activities, including scientific and ceremonial or religious activities, and are closed to all other human activities including land reclamation and building of structures that will impede the safe movement of all authorized sea vessels.
- **Recreation Zone (RZ)** – covers beaches, beachfronts and adjoining coastal waters primarily designated for sunset watching,
swimming, other recreational and ecotourism related activities, scientific and ceremonial or religious activities.

- **Fishery Use Zone (FUZ)** – covers all areas within PUZ but outside NZ and RZ that may be used for fishing, aquaculture, including scientific, religious and other human activities that may not compromise the sustainability and accessibility of areas to fisherfolks.

- **Multiple Use Zone (MUZ)** – covers all areas within PUZ but outside of NZ, RZ and FUZ where land reclamation, building of structures and infrastructures may be allowed following strict implementation of EIA and other related laws and regulations governing such projects. This zone may also be used for other suitable uses described in other PUZ subzones.

**POTENTIAL DEVELOPMENTS**

The potential developments within Manila Bay can be grouped into three (3):

- **Protection projects** pertain to development works to protect the integrity of existing historical monuments, ports and transport routes, and ecosystems and natural habitats.

- **Restoration projects** pertain to development works to improve the area towards its original intent and purpose.

- **Improvement and upgrading projects** pertain to development works to improve the area towards achieving new objectives that may be beyond or different from the original intent and purpose. Land reclamation projects are included in this project category.

Protection and restoration projects are designed to maintain and/or improve the quality of natural habitats and ecosystems. On the other hand, land reclamation, by its very nature, causes alteration of natural habitats and ecosystems in the bay. Hence, proposed new reclamation projects shall be subject to a robust impact assessment protocols.
3 MAJOR ZONES IN MANILA BAY

The major zones in the MBSDMP ICZM Planning framework were determined considering the following:

▪ Protection of areas that are critical to the restoration and sustenance of the functions of natural habitats,

▪ Maintenance of the functions of certain portions of Manila Bay as specified by law,

▪ Maintenance of the natural water circulation and tidal movement, and

▪ Provision of spaces for suitable economic, cultural, religious and educational activities.

Some or all the four (4) considerations above are not mutually exclusive and may apply to the same areas in Manila Bay. The areas covered under each of the three (3) major zones are summarized in Table 1.
STRICT PROTECTION ZONES (SPZ)

Covers remaining natural habitats critical for biodiversity conservation and sustainable fish stock biomass production, and areas that are identified for restoration and/or augmentation of existing natural habitats, that are closed to all human activities except for scientific and ceremonial or non-extractive uses by the indigenous peoples.

Habitats of threatened species, or degraded areas that have been designated for restoration and subsequent protection are included in this zone. These areas include fish sanctuaries, mangroves, coral reefs, mudflats, locally managed protected areas, marine key biodiversity areas, and a buffer zone of about 3-kilometer radius from the perimeter of the complex area to attain the 4-6 kilometers as described by Shanks et al. (2003) in “Propagule Dispersal Distance and the Size and Spacing of Marine Reserves”, and to maximize the protection of habitats where the majority of dispersing fish and invertebrate larvae are predicted to settle.
SPECIAL USE ZONES

These are portions of the Manila Bay with specific functions that are specified and protected by law. Human activities in this zones are also defined and limited by law. These areas include the shipping navigational lanes, ports and harbors, naval bases, restricted areas, and protected areas.

The shipping navigational lanes are areas designated by law as navigation lanes primarily for water transportation of products and people and related activities, including scientific and ceremonial or religious activities, and are closed to all other human activities including land reclamation and building of structures that will impede the safe movement of all authorized sea vessels.
PRODUCTION USE ZONES

These are zones primarily intended for economic and recreation purposes. As such, these zones are where suitable human activities may be allowed, thus outside the Strict Protection Zones (SPZ).
Table 2. Areas covered under each of the three (3) major zones in Manila Bay.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Strict Protection</th>
<th>Production Use</th>
<th>Special Use</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish Sanctuary (ha)</td>
<td>1,371</td>
<td>-</td>
<td>-</td>
<td>1,371</td>
</tr>
<tr>
<td>BFAR Marine Protected Areas (ha)</td>
<td>66</td>
<td>-</td>
<td>66</td>
<td>132</td>
</tr>
<tr>
<td>Marine KBAs (ha)</td>
<td>1,099</td>
<td>-</td>
<td>-</td>
<td>1,099</td>
</tr>
<tr>
<td>Mangroves (ha)</td>
<td>1,091</td>
<td>-</td>
<td>-</td>
<td>1,091</td>
</tr>
<tr>
<td>Coral Reefs (ha)</td>
<td>624</td>
<td>-</td>
<td>-</td>
<td>624</td>
</tr>
<tr>
<td>Mudflats (ha)</td>
<td>2,589</td>
<td>-</td>
<td>-</td>
<td>2,589</td>
</tr>
<tr>
<td>Buffer Zones (ha)</td>
<td>90,035</td>
<td>-</td>
<td>-</td>
<td>90,035</td>
</tr>
<tr>
<td>Capinpin Port (ha)</td>
<td>79</td>
<td>-</td>
<td>79</td>
<td>159</td>
</tr>
<tr>
<td>Shipping Lanes (km)</td>
<td></td>
<td>149,712</td>
<td>149,712</td>
<td>299,424</td>
</tr>
<tr>
<td>(Incoming and Outgoing Lanes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naval Bases (ha)</td>
<td>175</td>
<td>-</td>
<td>175</td>
<td>350</td>
</tr>
<tr>
<td>Manila Port Area (ha)</td>
<td>-</td>
<td>-</td>
<td>5,582</td>
<td>5,582</td>
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<tr>
<td>Restricted Areas (ha)</td>
<td>-</td>
<td>-</td>
<td>11,122</td>
<td>11,122</td>
</tr>
<tr>
<td>Fish Ports (location)</td>
<td>-</td>
<td>7</td>
<td>-</td>
<td>7</td>
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<tr>
<td>Fish Corrals (location)</td>
<td>-</td>
<td>1,081</td>
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<tr>
<td>Wetlands Fishponds (ha)</td>
<td>-</td>
<td>73,848</td>
<td>-</td>
<td>73,848</td>
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<tr>
<td>Total</td>
<td>97,130</td>
<td>73,848</td>
<td>17,024</td>
<td>188,002</td>
</tr>
</tbody>
</table>
LAND SUBSIDENCE

With the rate of land subsidence plus sea level rise at the north of Manila Bay, any flood protection measure or development project initiated now are likely to become dysfunctional within the next decades. With the rate of population growth and expansion in these areas, addressing the concerns of communities on being exposed to flooding has become more complicated and difficult to manage.

Based on the results of rapid assessment of the conditions of the coastal areas, the disappearance of the original coastline, unabated land subsidence and sea level rise, the need to draw a new coastline that will serve as the ‘Coastal Line of Defense’ (CLD) was deemed necessary. The CLD will be the basis for distinguishing:

- areas that can be developed and protected (based on cost-benefit analysis), and
- areas that are too costly to improve and protect in the long run—thus retreat is inevitable to ensure the long-term security of people exposed to flooding, and to avoid loss of investments in development and flood protection that are likely to be inundated in the future.

With this line, measures and developments above and below the CLD can be designed and implemented more appropriately and suited to the conditions onsite.
GUIDING PRINCIPLES ON DEVELOPMENTS WITHIN MANILA BAY

1. “Pangalagaan at panumbalikin ang ating ecosystem.”
   - Protect and Restore Existing Ecosystem. Protection and restoration projects in any zones, when necessary, shall be implemented.
   - This will be under the mandate of the Department of Environment and Natural Resources (DENR).

2. “Pangalagaan ang kanlungan ng mga isda at buhay ilang.”
   - Protect Habitat of Fishes, Migratory Birds, and Large Marine Mammals. No development project in zone is allowed that will cause alteration or permanent loss of mangrove, intertidal mudflats, coral reefs, marine protected areas, fish sanctuary, and marine key biodiversity areas, including shallow water surrounding marine complex areas (combination of mangrove, intertidal mudflats, coral reefs, marine protected areas, fish sanctuary, and/or marine key biodiversity areas).
   - This will be under the mandate of the BFAR and DENR-BMB.

3. “Panatilihin ang tanging gamit ng tukoy na lugar ayon sa batas.”
   - Sustain Use of Areas as Defined by Law. Development projects within the Zone 2 (zones defined by law) are allowed as per its intent and purpose as defined by law.
   - This will be under the mandates of the following: LGUs, PPA, MARINA, and PCG.

4. “Panatilihin ang likas na galaw ng tubig.”
   - Maintain Water Circulation and Tidal Movement. Any developments in any zones shall not significantly impede or alter water circulation and tidal movement that will have significant impact on the sustainability of Manila Bay’s critical habitat.
   - This will be under the mandate of the Department of Environment and Natural Resources (DENR).

5. “Tiyakin ang ibayo at maingat na gamit ng ating likas yaman.”
   - Optimize the use of available resources for greater benefits. Any development projects within Zone 4 are allowed. This includes potential change of economic activities in favor of better economic and financial outcomes.
   - This will be under the mandates of LGUs, DENR and PRA.
Assess the suitability of ongoing PAPs and proposed PAPs to the zone where the PAPs are being implemented and are being proposed to be implemented.

The assessment of all PAPs related to mangroves, key biodiversity areas, corals and mudflats in Strict Protection Zone, shall be under the responsibility of DENR BMB and EMB. For all PAPs related to fishery, fish sanctuaries and marine protected areas, the assessment shall be the responsibility of DA-BFAR.

In Special Use Zone, the assessment of PAPs related to navigation lanes, seaports, etc. shall be the responsibility of PPA, MARINA and PCG.

For PAPs related to fishery in Production Use Zone (PUZ), the assessment shall be the responsibility of DA-BFAR. All other PAPs in the PUZ shall be assessed by DENR-EMB. In all zones, the assessment of suitability of all ongoing and proposed PAPs shall be done by the concerned NGAs in close collaboration with concerned LGUs.


Implementing Rules and Regulation of Executive Order No. 146


Green et al. (2014) “Designing Marine Reserves for Fisheries Management, Biodiversity Conservation, and Climate Change Adaptation”


REFERENCE