DRR Mission Report

Manila Bay Master Planning

to achieve sustainable and inclusive management and development of Manila Bay

January 2015
Final Report DRR Mission

Cover page image: courtesy of DRR photographer Jos van Alphen

Document title	DRR Mission Report Manila Bay Master Plan - Towards Integrated Management and Development of Manila Bay
Document short title	DRR Mission report Manila Bay
Status	Final Report DRR Mission
Date	January 2015

PREFACE AND ACKNOWLEDGENT

The DRR-Team worked in close cooperation with the National Economic Development Authority (NEDA). The team thanks Ruben Reinoso (assistant director general NEDA), Eric Planta (director IS staff NEDA), Kathleen Manguna (assistant director IS Staff NEDA), Ms. Coy Ronces Valles and other NEDA staff for their kind hospitality and for arranging the program to meet the various government institutions and other stakeholders. The team is also grateful for the time that all persons listed in Annex B spent with us to discuss the proposed approach covered in this report. Likewise, the DRR-team would like to thank Dr. Arne Jensen, Dr. Robert Jara, Mr. Joop Stoutjesdijk, Mr. Rey Ancheta, Mrs Marion Derks (ambassador), Mrs Eileen Rose Tirona-Vizmonte and Mr. Roel Martens for their valuable input.

Unfortunately, the time spent in Manila (6th to the 21st of August 2015) was too short to meet all relevant stakeholders and fully capture the complexity and magnitude of the problems. Hence, this report is a brief compilation of all available insights gained and the publicly available information collated during the mission.

By means of this mission report a more structured approach towards master planning in the Philippines is presented. To support this, a stepwise planning approach is described based on international best practices and blended with lessons learned on current planning efforts based on the current World Bank project for major river basins in the Philippines 'IWRM Planning Tools and Guidance'.

SUMMARY

The DRR-Team was requested to support the Philippine Government, through NEDA, in devising a framework for sustainable and inclusive management and development for Manila Bay. The aim is to move from adhocracy (stand-alone and often unsolicited projects) to a systematic master planning approach for Manila Bay addressing management and development of the Bay from the short to the long term.

Decision making is currently devolved to Local Government Units (LGUs) or conducted within silos in Government Agencies. When significant decisions such as the development of large infrastructure projects need to be made the possible social, environmental and economic impacts must be studied adequately; otherwise such activities can have irreversible consequences, may impose significant costs to economy, landscape and environment and may exclude future development opportunities. To make informed decisions on the future management and development of Manila Bay, a coordination and cooperation structure is required between the decision makers and stakeholders including the effective utilisation of potential value capturing mechanisms. Stakeholders include various public entities,, , private sector organisations, NGOs, and civil society... At best, each Government Agency and LGU has their own plan(s), which have been developed more or less in isolation of other interests. In spite of the substantial and profound economic and other benefits from the Bay and the many problems besetting the area, there is no overarching plan or supervising entity that is responsible and accountable for its management and development. The total Manila Bay catchment generates some 53% of the country's domestic product and is host to some 25 million people. It is generally believed that there is an urgent need for a coherent and integrated collaboration to enable the implementation of interventions that will ensure sustainable growth in the currently heavily degraded Manila Bay area.

The DRR mission has provided support for a structured master planning approach that should pave the way to set clear and widely accepted priorities for the Manila Bay catchment. The approach will provide a solid framework for planning, financing, investment and implementation of effective, feasible and sustainable interventions now and for the future. This in turn will lead to minimizing threats and maximizing opportunities and at the same time an increased state of welfare and an improved investment climate, and as such contribute to the national policy ambitions to achieve inclusive growth.

In the DRR mission report a structured Integrated Water Resources Management (IWRM) planning approach was introduced as recently established in a World Bank funded project for the major river basins in the Philippines. The necessary investments involved in infrastructure (harbours, roads, airport, etc.), flood protection, water supply reservoirs and land reclamations involve billions of pesos and determine the future use of Manila Bay and its surrounding areas. Therefore decision making on the selection, financing, planning and implementation of these large investment programs demands a longer term perspective that is related to the technical life time of these projects (50-100 years). Future uncertainties need to be considered in the design of structural measures, and the potential gains need to be acknowledged by appropriately facilitating the combination of various public and private functions of infrastructure investments. This implies adaptive management and allows for coherent procedures for issuing concessions for business investments (e.g. related to land reclamation, ports, tourism, etc.) on the one hand and on the other hand public tenders for planning & construction of infrastructure investments.

The master planning process should include a transparent process of solicitation of proposals from public and private parties. This way, functions of infrastructure and other necessary investments can be combined to serve multiple purposes (win-wins) and offer alternative financing opportunities. A systematic appraisal procedure for such proposals should be part of the formal planning process. Private sector expertise needs to be facilitated within the planning process to enable knowledge sharing, for example by Swiss Challenge procedures and other Early Contractor Involvement tendering techniques.

The mission report also includes an outline for a Terms of Reference (ToR) as guidance for a more dedicated ToR by the possible implementer and/or financer / procurement entity. It is proposed that NEDA, with support from DENR-MBCO, will lead the strategic master planning activities. During this first phase of the planning process an institutional assessment will be carried out to advice on the implementing organisation for the action planning phase.

The World Bank proposed to have the master planning process included in the proposed loan arrangement for urban drainage.

CONTENTS

ANNEXES

A Risks and challenges
B Report of activities / minutes of meetings
C Project review and approval process
D Some International Lessons Learned
E Value added tendering

LIST OF ABBREVIATIONS

CHED	Commission on Higher Education
BCDA	Bases Conversion & Development Corporation
BFAR	Bureau of Fishery and Aquatic Resources
CSW	Completed Staff Work
CWA	Clean Water Act
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DepEd	Department of Education
DILG	Department of Interior and Local Government
DOH	Department of Health
DOST	Department of Science and Technology
DOTC	Department of Transport and Communications
DPWH	Department of Public Works and Highways
DRR	Dutch Risk Reduction
DTI-BOI	Department of Trade and Industry - Board of Investments
ECC	Environmental Compliance Certificate
EIS	Environmental Impact Statement
EO	Executive Order
GOCC	Government Owned or Controlled Corporations
HLURB	Housing and Land Use Regulatory Board
IA	Implementing Agreement
IEE	Initial Environmental Examination
ICC	Investment Coordination Committee
IRR	Implementing Rules and Regulations
JV	Joint Venture
LGU	Local Government Unit
LLDA	Laguna Lake Development Authority
MBCO	Manila Bay Coordinating Office
MBEMP	Manila Bay Environmental Management Project
MMDA	Metro-Manila Development Authority
MWWS	Metropolitan Waterworks and Sewerage System
NB	NEDA Board
NEDA	National Economic Development Authority
NGA	National Government Agency
NHA	National Housing Authority
NPC	National Power Corporation
NRDC	National Resources Defense Council
NWRB	National Water Resources Board
PAMB	Protected Area Management Board
PCG	Philippine Coast Guard
PER	Project Evaluation Report
PIA	Philippine Information Agency
PPA	Philippine Ports Authority
PPP	Public Private Partnership
PRA	Philippine Reclamation Authority
PEZA	Philippine Economic Zone Authority
PHIVIDEC	Philippine Veterans Investment Development Corporation
PNP	Philippine National Police
PPA	Philippine Port Authority
PRRC	Pasig River Rehabilitation Commission
RA	Reclamation Agreement
RBCO	River Basin Control Office
RDC	Regional Development Council
RIZLAQUE	Rizal-Laguna-Aurora, Quezon
SMBA	Subic Bay Metropolitan Authority
WD	Water District
WQMA	Water Quality Management Area

This page is intentionally left blank.

1 RATIONALE

1.1 Background

On the 8th of May 2015 the National Government of the Philippines, through the National Economic and Development Authority (NEDA), sent an official request to the Dutch Government (DRR facility) to assist with the crafting of a Terms of Reference for an inclusive Master Plan for Manila Bay. Upon approval, a Dutch Risk Reduction (DRR) team visited Metro-Manila from the 5th to the 21st of August, 2015.

The DRR-Team was requested to support the Philippine Government in devising a framework for management and development for Manila Bay. The aim is to move from adhocracy (stand-alone and often unsolicited projects) to a systematic master planning approach for the management and development of the bay from the short to the long term: the Manila Bay Master Plan (MBMP). Likewise, institutional arrangements are needed to assure pro-active implementation of the plan. This is considered essential in making decisions related to future project/programme development within the area. The master planning process should include a transparent process of solicitation of proposals from public and private parties to combine functions of infrastructure and other necessary investments to serve multiple purposes (win-wins) and likewise look for alternative financing opportunities. It is generally believed that there is an urgent need for a coherent and integrated collaboration to enable the implementation of interventions that will ensure sustainable growth in the currently heavily degraded Manila Bay area.

In this respect, it should be realized that the total Manila Bay catchment generates some 53% of the country's domestic product and is host to some 25 million people (DENR, 2015).

This scoping mission report aims at:

- Determining the focus of the MBMP;
- Outlining the methodology and advise on how the MBMP can be prepared, including the consideration of international best practices; and
- Incorporating an approach based on IWRM concepts and in line with the recommendations for all Philippine major river basin management plans (reference is made to the current World Bank project 'IWRM Planning Tools and Guidance').

During the kick-off meeting at NEDA (August 6, 2015) it was agreed that the MBMP exercise should pave the way to:

- A more structured implementation framework and a more cost-efficient and coherent investment plan of necessary water management and development projects and programs;
- An improved institutional setting addressing overall Manila Bay management and development, including procedures for concessions, solicited proposals and tenders;
- Sustainable development and optimal integration of spatial planning and water management, based upon a sound knowledge of the functioning of the system, the various users demands and accurate risk assessments;
- Improved state of preparedness and increased resilience to disasters.

Such a comprehensive, collaborative planning approach will help the Philippine Government to set clear and widely accepted priorities. The approach will provide a solid framework for planning, investment and implementation of effective, feasible and

sustainable interventions now and for the future. This in turn will lead to minimizing threats and maximizing opportunities and at the same time an increased state of welfare and an improved investment climate, and as such contribute to the national policy ambitions to achieve inclusive growth.

1.2 The challenges and potential way forward

Challenges
Manila Bay is the transitional area (or delta) between the river-dominated catchments of especially Pampanga and Pasig rivers, and the open South China Sea. The use and environmental quality of Manila Bay is largely determined by the presence of Manila Metropolitan area in the coastal plain, its 25 million inhabitants and related economic activities. Successive changes in and around Manila Bay are largely due to the intertwining impacts of continued industrialization, unrelenting increase in population and the incessant human activities catering to the livelihood and habitation (House Bill no. 4029; representative Enrique T. Garcia Jr.). Related industrial waste discharges and discharges of untreated domestic wastes from drainage and sewer outlets are directly degrading the overall environment of Manila Bay and those impacts are manifested in the continued deterioration of the water quality and ecology within the bay (see Annex A). Additional problems identified in Manila Bay include: coastal erosion and siltation; coastal flooding, salinity intrusion, overexploitation of fishery resources; degradation of habitats; and loss of biodiversity. The latter two are related to the destruction of the remaining patches of mangroves for aquaculture, reclamation of intertidal areas for housing development, road construction and salt pans, continuous dredging and increasing state of pollution (solid waste, domestic and industrial wastewater and oil spills).

Climate change (inducing sea level rise, associated with increased typhoon intensity and leading to altered temperature and precipitation) and continued subsidence due to ground water extraction will aggravate these challenges in the future.

Decision making is currently devolved to Local Government Units (LGUs) or conducted within silos in government agencies. As significant decisions are to be made regarding e.g. the development of large land reclamation projects or a new airport in the bay, it should be realized that when not addressed properly and studied adequately, such activities can have irreversible consequences, may impose significant costs to economy, landscape and environment and might exclude future development opportunities. To make informed decisions on the future development of Manila Bay, a coordination and cooperation structure is required between the decision makers (National Government Agencies and Local Government Units) and stakeholders (such as sector representatives, NGOs, private sector and investors). At best, each Government Agency and LGU has its own plans, which have been developed more or less in isolation of other interests. In spite of the substantial and profound economic benefits from the Bay and the many problems besetting the severely degraded area, there is no overarching plan or supervising entity that is responsible and accountable for its management and development. This is further confirmed by the 2008 and 2010 Supreme Court decisions on Manila Bay (G.R. No. 171947-48 or the Mandamus on the Manila Bay clean up) that show at least 14 government departments and agencies (i.e. the mandamus agencies) having direct responsibilities and functions needed to enforce actions towards the clean-up of inlands and rivers that drain to the Bay and of the Bay, itself.

The agencies listed by the Supreme Court do not yet include the various provinces, towns and cities, water districts and regional development councils in the Manila Bay watershed. Counting them individually would yield close to 200 LGUs and water

authorities that should perform general and specific tasks aimed at protecting and cleaning their immediate environment and eventually the Manila Bay.

The master planning process (see Chapter 4) will have to result in a common strategy and make recommendations towards the best future institutional and administrative setting for management and development of Manila Bay.

The potential way forward

To achieve inclusive growth of Manila Bay, careful decisions have to be made regarding future developments and related investment programmes. This can be achieved by adopting the IWRM approach, as referred to in Figure 1.1. IWRM involves applying knowledge from various disciplines (dealing with the natural system, the socio-economic system and the institutional system) as well as the insights from diverse stakeholders to devise and implement efficient, equitable and sustainable solutions to water and development problems. As such, IWRM is a comprehensive, participatory planning and implementation tool for managing and developing water resources in a way that balances social and economic needs, and that ensures the protection of ecosystems for future generations. More specific for coastal zones this concept of IWRM is known as Integrated Coastal Zone Management (ICZM).

IWRM and Manila Bay

- The Natural System, when considering Manila Bay, deals with the system of the bay, the adjacent coastal zone, embankments, etc. and all related man-made infrastructure
- The socio-economic system relates to water using and water related human activities as environment and habitat protection, shipping and navigation, fisheries and aquaculture, recreation and tourism, industries and human settlements.
- The institutional system is the system of administration, legislation and regulation & licensing, including the authorities responsible for the management of the natural system and implementation of laws and regulation.

Figure 1.1 Integrated Water Resources Management

As Integrated Coastal (Zone) Management for Manila Bay values the same principles as adopted in the IWRM process (catchment), it is believed that the current World Bank project can be used to guide the process (which is consistent with the earlier Manila Bay River Basin concept by RBCO). ICZM usually refers to a “dynamic and continuous process of administering the use, development and protection of the coastal zone and its resources towards common objectives of national and local authorities and the aspiration of different resource user groups” (Knecht and Archer, 1993). Key enabling conditions to promote IWRM and ICZM and key principles are similar. An additional challenge is to create within the IWRM-ICZM context conditions to solicit private sector proposals that can contribute ecologically, financially and socially to agreed development goals.

Apart from their attractiveness in terms of fresh water supply, access to transport routes and ecosystem services, the Manila Bay catchment is also vulnerable to extreme natural hazards and threats like storm surges, typhoons, floods, subsidence, salinisation and droughts. As a consequence these hazards can undermine efforts to achieve adequate

management and sustainable development. Climate change might further aggravate these hazards and threats. By managing these extreme conditions, IWRM can significantly contribute in reducing the damage, casualties and disruption that might be caused by these hazards while also supporting value capturing mechanisms. The Sendai Framework for Disaster Risk Reduction (DRR) 2015 -2030 (UNISDR, 2015) presents a framework that Governments through their administrations responsible for DRR (including the Philippines) have adopted to reduce disaster risks in the coming decades (see Box 1.1). A risk based approach, consisting of measures to reduce the probability of hazards as well as measures to manage the consequences, should be integrated/combined with the overall IWRM / ICZM approach.

Box 1.1 Sendai Framework for Disaster Risk Reduction

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the 3rd UN World Conference on DRR in Sendai, March 18, 2015, as an outcome of stakeholder consultations and intergovernmental negotiations. It is aimed at the substantial reduction of natural and man-made disaster risk, by preventing new risk, reducing existing risk and strengthening resilience. Important guiding principles are:

- *the integrated and inclusive implementation of economic, structural, legal, social, cultural, educational, environmental, technological, political, institutional measures*
- *the primary responsibility of states to prevent and reduce disaster risk and all-of-society and all-of-state institutions engagement*
- *a regional approach to determine DRR related measures.*

The Sendai Framework for DRR also articulates the need for strengthening of disaster risk governance, including national platforms, accountability for disaster risk management at all levels, recognition of stakeholders and their roles, mobilization of risk sensitive investments to avoid the creation of new risk. More dedicated action needs to be focused on under lying disaster risk drivers, such as the consequences of poverty and inequality, climate change and variability, unplanned and rapid urbanization, poor land management and compounding factors such as demographic change, weak institutional arrangements, non –risk informed policies, lack of regulation and incentives for private disaster risk reduction investments, unsustainable uses of natural resources, declining ecosystems.

(source: www.unisdr.org/we/inform/publications/43291)

A key milestone in the application of IWRM/ ICZM for Manila Bay will be the drafting of a Manila Bay Master Plan (MBMP) that presents a holistic and long term vision on future developments and related public and private investments, interventions and management actions to be taken over time to achieve the vision and goals for the system. Such an inclusive Master Plan will provide an outlook on future challenges and opportunities and will also demonstrate, through scenario analysis, how those expectations might change depending on how some current uncertainties evolve in the future. A Master Plan should be subject to periodic revision given uncertainties about natural and socio-economic conditions in the future, and to enable the management of Manila Bay to take advantage of new developments in technology, data collection and/or societal values (and political priorities). This should be done using a participatory process and updated data and decision support tools (DSS).

1.3 Guideline to this DRR scoping report

Following the description on the system, users and institutional setting and the current problem setting, Chapter 2 will elaborate on the present and expected problems, challenges and added value of a MBMP. In Chapter 3 the focus and goals of the Master Plan are proposed and adaptive planning is introduced followed by an overview of existing planning efforts in the Philippines. Chapter 4 presents the stepwise planning approach in line with the Philippine major and principle river basins (World Bank project). In Chapter 5 practical issues on how to carry out the planning process are discussed. Finally in Chapter 6 a simple terms of reference is included that should be completed by the ultimate financer of the plan.

This page is intentionally left blank.

2 CHALLENGES AND OPPORTUNITIES FOR CHANGE

In the Manila Bay Coastal Strategy (2001) a concise description is given of the natural system (i.e. the bay, the catchment and the intertidal zone).

Like many other deltas in the world, Manila Bay faces large challenges regarding future developments, ecosystem preservation and adequate governance. For a proper understanding of the challenges and opportunities of the area and potential interventions, this chapter presents relevant background information on the three components of IWRM (i.e. the natural, socio-economic and institutional system).

2.1 Natural system

Manila Bay (see Figure 2.1), a semi-enclosed and fairly shallow bay facing the South China Sea, is one of the best natural harbours in the world. The bay is located at the southwest portion of Luzon Island, one of the major islands in the Philippines. 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 km and a water surface area of about 1,800 km^2.

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 m/km from the interior to the entrance and with an average depth of 17 m. At the entrance the depth is approximately 40m. The tide is predominantly diurnal with an average tidal range of 1.2 m during spring tide and 0.4 m during neap tide. Seasonal wind systems (i.e. the monsoons) and diurnal breezes affect the current pattern especially in shallow water.

The catchment area
Manila Bay receives drainage from approximately 17,000 km^2 of watershed consisting of 26 catchment areas (see Figure 2.2). The Manila Bay 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. The two main contributory areas in terms of discharge 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. Other major rivers discharging directly into Manila Bay are Talisay, Pasag, Meycauayan, Navotas-Malabon-Tullahan-Tenejeros, and Maragondon rivers. Freshwater inflow has been estimated at approximately 25 km^3 /year.

Intertidal Zone - Wetlands
Manila Bay is fringed by shallow intertidal mudflats and sand flats. It includes the extensive intertidal areas from the Balanga round the north and east shores of Manila Bay to Cavite City, south of Metro Manila. The total area includes 130,000 ha for Cavite and Bataan portions and 465 ha for the Cities of Manila, Pasay and Parañaque.

The relevant wetland types are: shallow sea bay, intertidal flats, estuaries and mangroves. Relicts of mangrove swamp survive, but most have been converted to large areas of aquaculture ponds and salt pans. Manila Bay is very important for its fish production that supports a large urban population along the periphery of the Bay. There are high concentrations of fish traps and extensive aquaculture within the open sea area, and aquaculture schemes cover about 70 km of the coastline. A salt pan industry at Cavite lies in the southeast of the Bay.

2.2 Socio-economic system

For the socio-economic system reference is made to the Manila Bay Coastal Strategy (2001) that identifies five main user functions related to water using and water related human activities in Manila Bay (see Figure 2.1 and Figure 2.2).

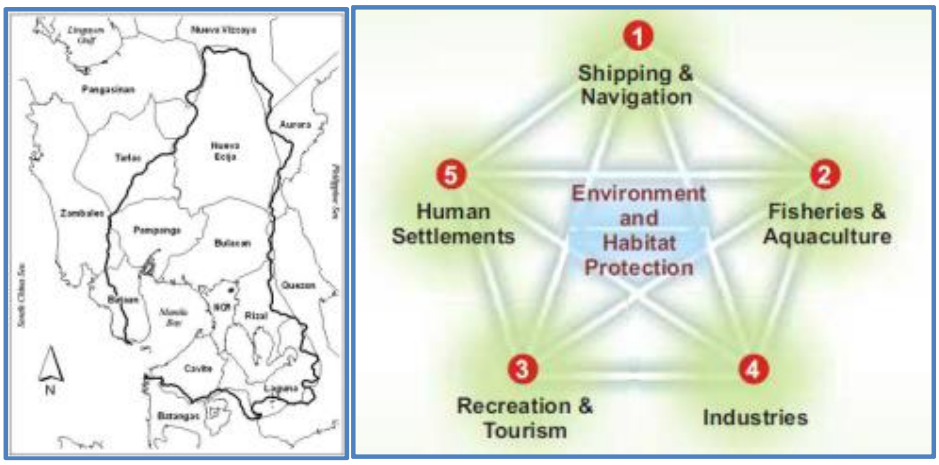


Figure 2.1 Manila Bay catchment area and user functions of the Bay (MBEMP)

Fishery and aquaculture
The entire Manila Bay was once a thriving fishing ground in the country; nowadays most fishing activity is generated from the Navotas Fishing Port. Over-fishing and pollution have caused a steady decline in fishery resources both in terms of quantity and composition of catch (PEMSEA, 2004). Commercial and Municipal fishery production in Manila Bay accounted for an average of 2.8% of total national commercial fishing production from 1987 to 1995. However, from 1987 to 1995, the share of commercial fishing production of the Bay has been declining at a rate of 0.08% every year (PEMSEA, 2006). Extrapolating this line, means that Manila Bay contributes about 2 % of total national commercial fishing production in 2015.

Bulacan, Pampanga and Cavite are one of the most productive aquaculture provinces in the country. This industry produces species like milkfish (22%), tiger prawns (47%), oysters (48%), and mussels (31%). It should be noted that the percentages refers to the share in national production of these species based on surveys from 1997 to 2001). These species are marine or brackish water species and therefore fit to be grown in the aquatic environment of Manila Bay (PEMSEA, 2006).

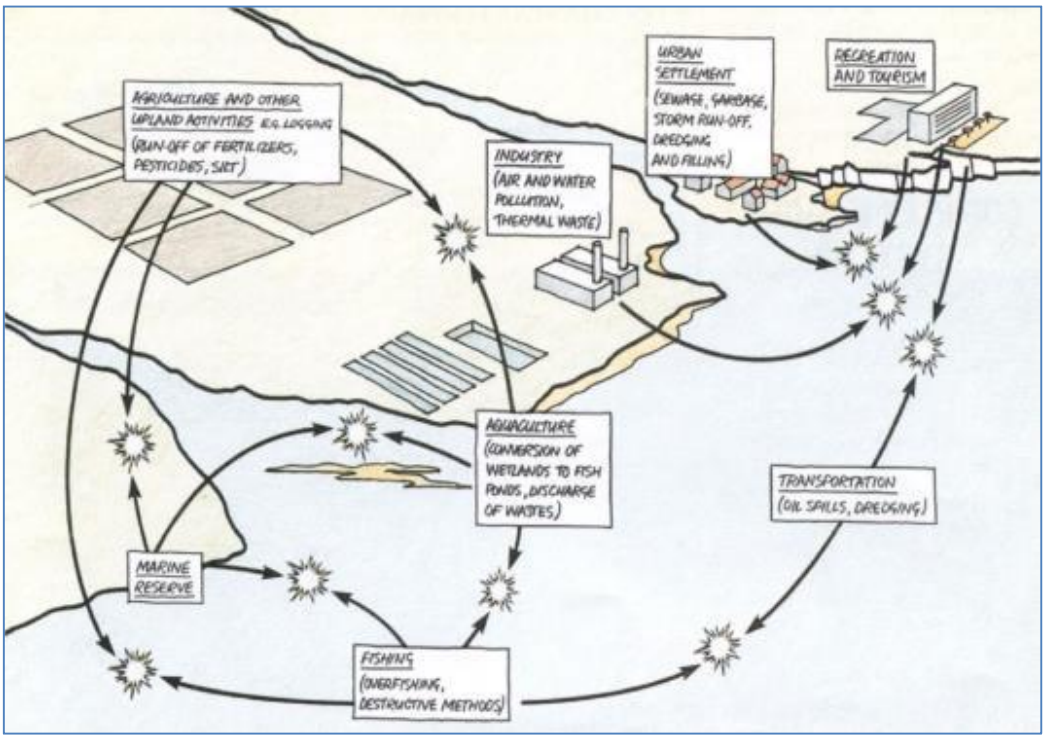


Figure 2.2 Complex user interactions (positive or negative) within the plan area

Shipping and navigation

Being in close proximity to Manila, which is the centre of economic activity in the country, Manila Bay locates one of the busiest shipping routes in the country. Because of this, ports and harbours are situated around the coastal area of the Bay. There are three major ports in Manila Bay: the Manila South Harbour, Manila North Harbour and Manila International Container Terminal (MICT). Manila South and North Harbours are both passenger and container terminals while the MICT is a container port (MBEMP, 2001).

Recreation and tourism

Specific areas around Manila Bay are tourist destinations, as Roxas Boulevard is known for its picturesque sunset with restaurants and hotels and a yacht club situated along the water front. In the north harbour a cruise terminal is located on walking distance from Intramuros, the old Manila City Center, and Rizal Park. The reclamations of Pasay City have developed into a place to recreate hosting theme parks, shopping malls, hotels/casinos and other waterfront developments. Another tourist destination is the Corregidor Island which is a historical Second World War II landmark found at the entrance to Manila Bay (MBEMP, 2001).

Industries

Manufacturing industries are found in industrial parks both in coastal and non-coastal areas of the Bay (MBEMP, 2001). Especially the northern part of the National Capital Region area is home to oil refineries, tanneries and jewellery manufacturing, food and beverage, textile, electronics, pharmaceutical, and plastics industries. Along the southern shoreline of Bataan several industrial sites for oil and gas related industries are located.

Human settlements
The population of the cities and municipalities within the Manila Bay catchment area is estimated at 25 million . Human settlements in Manila Bay consist of reclamations for residential and commercial purposes, and the expanding coastal cities. The reclaimed area (Bay City) along the coast of Manila Bay developed for residential and commercial purposes consists of approximately 1,500 ha. The area covers the stretch of Roxas Boulevard from the Cultural Center of the Philippines to the Coastal Road – Las Pinas area. The growing population and related economic development create an increasing demand for new land and reclamations.

Agriculture and other upland activities
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) contains several large irrigated areas and is also marked as the rice granary of the country. The Province of Bulacan is a major source of livestock and poultry for the Metro Manila area (MBEMP, 2001). Other upland activities are mining and hydropower and water source developments. The main water source of Metro-Manila, the Angat Dam, is one of the examples of upland activities of essential importance to the Philippines.

2.3 Institutional system

In the Philippines the government is organised on two levels: national and local, see Annex C. The national government has three branches: executive, legislative and judicial, while the LGUs are divided in four tiers: provincial, city or municipal, and barangay. With the advent of the Local Government Code (LGC) of 1991, and consistent with local autonomy and decentralization, provisions for the delivery of basic services and facilities were devolved from the national government to the LGUs. All these agencies and authorities now prepare their own plans with characteristic plan horizons (see Table 2.1).

Table 2.1: Governmental plans and the typical time horizons

Plan	Content	Time horizon (years)
National Development Plan	National goals	6 (updated mid-term)
LGU plan	Comprehensive municipal development plan	3
LGU plan	Comprehensive land use plan	10 - 15
National framework for physical planning	National land use	30 (updated mid-term)
River basin management plans	Major and principal basins (Pampanga, Laguna de Bay)	10 - 25
Sector plans	e.g. transport, tourism, agriculture, forestry, flood control, supply and sanitation, …	25 - 30

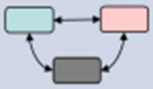
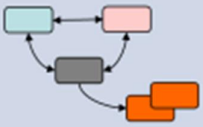
Table 2-2: Currently available plans dealing with (parts of) Manila Bay

Agency	Title Master Plan	Source
NEDA	National Development Plan 2011 - 2016	http://www.neda.gov.ph/?p=1128
NEDA	Regional Development Plan Region III (Central Luzon) 2011 – 2016	http://www.neda.gov.ph/wp-content/uploads/2013/10/RegIII_RDP_2011-2016.pdf
NEDA	Regional Development Plan Region IV-A (Calabarzon) 2011 - 2016	http://www.neda.gov.ph/wp-content/uploads/2013/10/RegIVA_RDP_2011-2016.pdf
NEDA / DOTC	Roadmap for Transport Infrastructure Development for Metro Manila and its Surrounding Areas (Region III and Region IV-A), 2014	http://www.neda.gov.ph/?page_id=5061
DPWH	Metro-Manila Integrated Flood Risk Management Master Plan, 2012	http://www.gov.ph/2013/06/19/dpwh-report-flood-management-master-plan-for-metro-manila-and-surrounding-areas/
DENR / MBEMP	Operational Plan for the Manila Bay Coastal Strategy, 2005	http://www.pemsea.org/publications/operational-plan-manila-bay-coastal-strategy-opmbcs
DoT	Tourism Master plan Metro-Manila, 2014	Not published
PRA	National Reclamation Plan, 2012	Not published
MWSS	MWSS 2014 Updated Master Plan	Not published
DILG	Not available	
BFAR	Not available	
PPA	Not available	
LLDA	Laguna de Bay Master Plan, 1995	http://www.llda.gov.ph/dox/ldbMP1995.pdf
MMDA	Not available	http://www.philstar.com/metro/2014/06/29/1340246/lawmaker-asks-mmda-show-devt-master-plan

There are sufficient policies, laws, rules and regulations in the Philippines that could provide the enabling environment for IWRM / ICZM in Manila Bay. These can empower all stakeholders to play their respective roles in the management and development of water resources. The fora and mechanisms, including information and capability building, have been created to establish the 'rules of the game' for stakeholder participation in water governance. The concern on environmental protection and sustainable development is e.g. stipulated in various Presidential Decrees, the NIPAS Act (National Integrated Protected Areas System), the Water Code, the Environmental Code, the Clean Water Act.. Moreover, national policy documents on sustainable development include the Philippine Strategy for Sustainable Development, Philippine Agenda 21, Ecosystems Agenda, the Philippine Strategy for Improved Watershed Resources Management, the Philippine Climate Change Act and international commitments such as the recent Sendai Framework for Disaster Risk Reduction (see section 1.2). Another significant feature is the mandate of various government agencies and the LGUs. These agencies with sometimes conflicting interests often have overlapping and/or ambivalent provisions.

In Table 2.3 the continuum of possible planning approaches and ways for project implementations are depicted. In the Philippines, the various National Agencies and LGU's usually consider stand-alone projects (structural or non-structural).

Table 2.3 Planning approaches

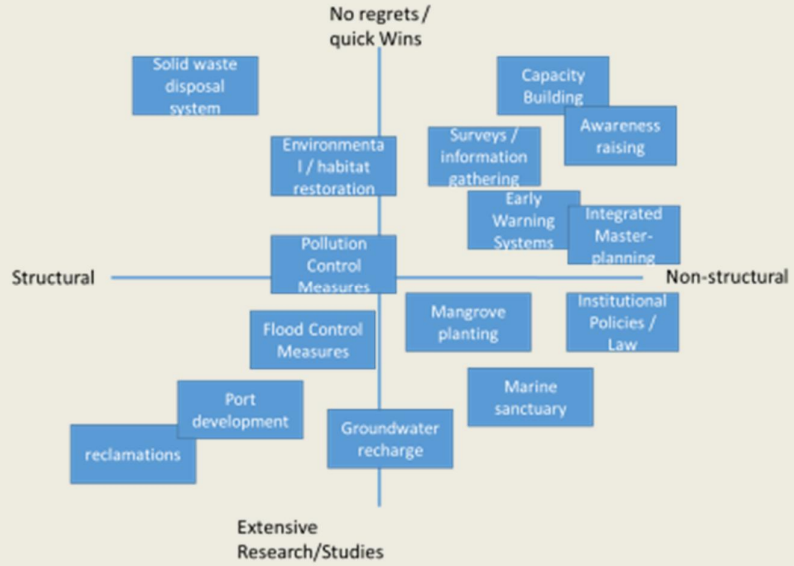
Stand-alone projects	Compilation of projects	Traditional master planning	Adaptive management
			
Project-based	Package of individual projects	Strategy as a blue print for the future	Dynamic strategy
		Optimized and integrated	Dealing with an uncertain future
Low regret?	Low regret?	No regret	No future regret
Immediate implementation	Immediate implementation	Implementation during planning period (±25 years)	Implementation during planning period (±100 years)
Short term	Short to medium term	Short to longer term	Short to long term

Compilations of stand-alone projects are considered to address the problems in larger areas (as detailed in the various River Basin Master Plans (RBMPs)) or covering different policy interests. This, however, means that no integration and optimization of these projects have been considered. As a result implementations may demonstrate over-design (making the implementations very costly) or under-design (which will not solve the problems adequately). Conventional master planning as a preferred strategy for a period of some 25 years, would show careful optimization and integration of the considered projects (as the technical, financial, socio-environmental and institutional implementation would be carefully examined).

The planned and expected investments involved in infrastructure (harbours, airport, transport roads), flood protection, water supply reservoirs and land reclamation involve billions of pesos and determine the future use of Manila Bay and its surrounding areas (see Tables 2.3 and 2.4). Therefore decision making on the selection, financing, planning and implementation of these large investment programs asks for a longer term perspective related to the technical life time of these projects (50-100 years) and incorporates future uncertainties in the design of structural measures. This implies adaptive management. In this respect non-structural measures, like early warning systems and capacity building are important, since they are more flexible to changing conditions and less expensive to implement and change. See Box 2.1 for an overview of structural and non-structural projects.

Box 2.1 Structural and non-structural projects

Developments or projects can be divided into structural and non-structural projects. Some of these projects are no-regret projects (i.e. useful projects usually based on proven techniques or approaches which have been applied successfully in similar conditions and with low risk of implementation) and projects that require further study to determine the impacts on the other functions within Manila Bay, and to allow judgement on the benefits and disadvantages within the existing Master Plan.



Examples of structural and non-structural projects

2.4 Structural projects

Structural projects for Manila Bay usually relate to flood control and drainage measures, coastal roads, shoreline improvements, port developments and land reclamations.

The need to reclaim land along the shoreline of the National Capital Region increases and given the rapidly increasing land prices many projects are now under consideration. As these projects are developed independently and do not consider other Bay developments and impacts on the bay at large the decision-making process is considered cumbersome (without guarantees for safe and sustainable implementations). In Tables 2.4 and 2.5 an overview of some existing and pipeline project proposals is depicted.

Table 2.4 Some examples of project developments

#	Project	Responsible Agency / party	Status
1	Manila Port	Philippine Port Authorities (PPA)	In progress: Berth 6 Extension (also called Berth 7)
2a	Bay City (Boulevard 2000) – CCP / CBP / Asia World City	PRA	Realised in the 90s
2b	Bay City (Boulevard 2000) – Centennial City	PRA	On hold - Supreme Court declared the JV agreement void
3	Navotas Coastal Protection Project	DPWH	Under construction?
4	Manila – Cavite Coastal Expressway Road	DOTC	Realised in 2013
5	Manila Yacht Club	Private	Realised since 1998
6	Navotas Fishing Port	PFDA (Philippine Fishing Port Authority)	Realised since 1976

Table 2.5 Some potential project developments

#	Project	Responsible Agency / party	Status
1	Sangley Point - Cavite	DOTC / PRA	Feasibility Study (expected Jan 2016)
2a	Pasay Reclamations	PRA	Feasibility Study
2b	Paranaque Reclamation	PRA	Submitted Feasibility Study to PRA for approval
3	Solar City	PRA	Submitted Feasibility Study to PRA for approval
4	New Manila Airport	PRA	Feasibility Study (unclear)
5	Manila Bay Flood Control, Coastal Defense, and Expressway Project	DPWH	Submitted for NEDA-ICC review

2.5 Non-structural projects

Non-structural projects are usually related to awareness raising, capacity building, information gathering and more governance and policy driven measures, like the development of a Master Plan, change of policies and early warning or other systems to

aid people in the operations of Manila Bay. These projects have a high no-regret character and can easily be implemented at national or local level, provided there is budget or financing available.

2.6 Institutional and legal issues for Manila Bay

According to a recent legal and institutional framework analysis study for integrated water quality management (DENR, 2015) there is a complex set of organizations tasked to perform specialized but related functions and responsibilities for the rehabilitation of Manila Bay (see Table 2.6). Likewise, there is a clear fragmentation of functions and responsibilities for Manila Bay. Each department or office performs (or must carry out) particular tasks, but there is no focal or take-charge office taking overall responsibility and accountability. The Department of Environment and Natural Resources (DENR) is mandated by law to be the "primary government agency responsible for the conservation, management, development, and proper use of the country's environment and natural resources". DENR also has "the power to promulgate rules and regulations for the control of water, air and land pollution", but it does not have the sole responsibility and authority, to enforce compliance with laws, considering the multiplicity of agencies likewise tasked to perform certain functions. In real and practical terms, DENR cannot compel other departments, to do their work vis-à-vis the protection of Manila Bay, without running into possible conflicts in priorities.

While the Supreme Court has agitated in 2008 and 2010 the "mandamus" agencies (see section 1.3) into action within specific deadlines, there is no guarantee that the Court's directives can be carried out as desired and on time. The DENR can only go as far as complying with its own 'assignment' but may not be capable of enforcing the Supreme Court instructions to the other government agencies. Another concern is the lack of adequate coordination mechanisms, and DENR has therefore founded a Manila Bay Coordination Office (MBCO) to coordinate and compile all activities and outcomes from the different agencies also ordered to act on the water quality improvement for Manila Bay. MBCO reports quarterly to the Manila Bay Advisory Committee (MBAC), that reports directly to the Supreme Court. So far the activities as reported by the agencies, has not resulted in an improvement of the water quality in Manila Bay.

Barriers for success for the management of Manila Bay by MBCO are:

- MBCO does not have a mandate to force the other agencies to act. Most actions need to be carried out by LGUs, but it is difficult, if not impossible, to align them.
- Clear targets on the improvement are lacking. MBCO claims this is because a clear baseline is lacking, which makes it difficult to set targets.
- MBCO lacks the data, information and tools to assess the impacts of measures on the water quality in Manila Bay.

Given the above, the World Bank initiated a paper on Review of the Legal and Institutional Frameworks for Integrated Water Quality Management'. The paper concludes that there is a need for a body or an office that can help orchestrate and operationalize agency plans and actions, look after agency programs and ensure that budgets are provided to implement plans and programs (see Chapter 5).

Table 2.6 Overview of Current Functional or Operational Responsibilities for Manila Bay

Policy and planning	Formulation of standards	Regulation and enforcement	Adjudication	Infrastructure development	Technical research	IEC
DENR	DENR	DENR	DENR	LLDA	DENR	DENR
LLDA	DOH	LLDA	LLDA	DPWH	DOST	LLDA
DOH	DA	DOH	LGUs	MWSS	DOH	DepEd
LGU		LGU	NWRB	PRRC	LLDA	CHED
DPWH		PRRC	DA-BFAR	LGU*		PIA
PRRC		MMDA	HLURB	MMDA		DILG
MMDA		DA-BFAR		WD		DOST
NEDA		NWRB		NHA		DOH
DTI-BOI		HLURB		PRA		
PEZA		PCG		PEZA		
PAMB		PEZA		NRDC		
DA		PNP		RIZLAQUE		
NWRB		PPA				
RIZLAQUE						

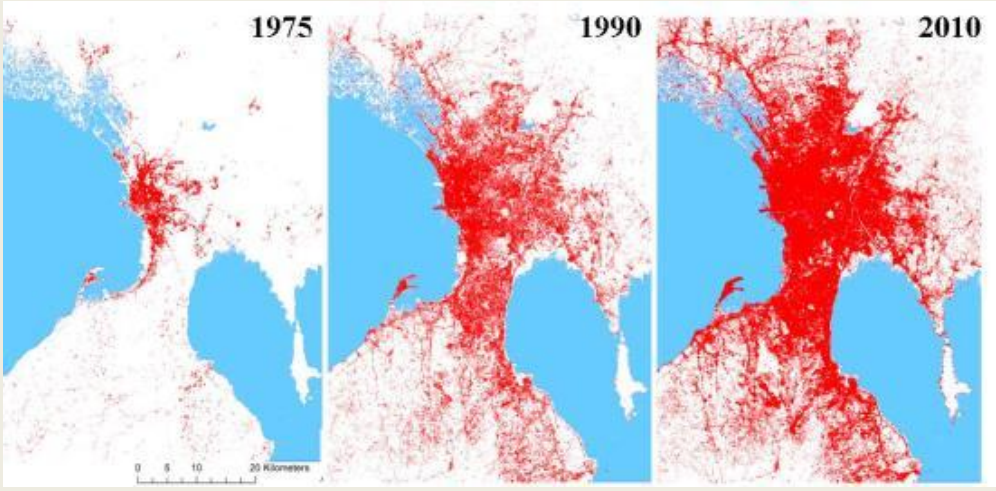
2.7 Challenges and Opportunities as Drivers of Change

Population growth, accelerating economic development, climate change (including natural hazards and sea level rise) and subsidence are considered the main drivers of change in the Manila Bay plan area. These developments pose additional demands on the available natural resources. Technological development can also be seen as a driver of change. It may, for instance, give better insights in the functioning of the bay and provide opportunities for more cost-efficient and innovative infrastructure or exploitation of previously untapped natural resources. Box 2.2 provides a general description of the main drivers of change in the Manila Bay area.

Box 2.2 Drivers of change

Economic development: The Manila Bay Catchment contributes about 53% in GDP (DENR, 2015) of which the area of Metro-Manila alone contributes to 37% of the GNP (PSA, 2015), and is expected to grow annually between 5% and 10%, resulting in larger demands to be met, higher values to protect, more energy to be generated and more goods to be transported. This may also lead to further infrastructure developments in and along the Manila Bay coastline (e.g. ports, airports, reclamations), and upstream developments (hydropower dams, mining activities, etc.), which are also recognized as important drivers of change for deltas.

Population growth: The Philippines grew 1.7 percent in 2015 (PSA, 2015), although there are distinct regional differences. Metro Manila itself grows with some 2.1% (see Figure below for an impression of the urban sprawl). The migration of people towards coastal Metro Manila urban areas results in higher pressures on the existing infrastructure and facilities. The number of people to be served and to be protected against natural hazards significantly increases.



Technological development: Innovations may open opportunities to enhance the functionality of infrastructure solutions, to extend the lifetime of infrastructure and/or to develop more cost efficient designs. Technology may for example lead to a better information gathering and information sharing, allowing people to better understand and monitor the status of Manila Bay. Additionally, technological development might lead to improved feasibility to move functions out of Metro-Manila due to improved transport facilities (e.g. port and airports).

Climate change / subsidence: There is general consensus that the rise in global temperature is inevitable, with its associated (local) impacts on sea-level rise (SLR), storm surges due to typhoons and the hydrological cycle (larger and more frequent droughts and floods, higher intensity of typhoons, etc.). The NCR and Bulacan / Pampanga area is subjected to extraction of groundwater that causes significant lowering of the delta elevation and as such higher vulnerability to SLR and storm surges. For Manila Bay the relative extreme sea level rise in 2050 is estimated to be 2.04 m, which is calculated based on the expected sea level rise (0.24 m) and the effects of land subsidence (80cm) (PEMSEA, 2012). Storm surges put an additional structural effort of 1 m to this.

There are a number of societal trends that affect the organization and outcome of the planning process (see Box 2.3). The challenge is to utilize the advantages of both these trends, while minimizing their undeniable drawbacks. This calls for a selective enhancement of governance structures, reflecting the scale, and an integrated and long-term perspective on more resilience and sustainable delta development.

Box 2.3 Trends in society

Risk aversion: Acceptance of risk is decreasing in our modern societies. Hence considerable efforts are made to reduce the probability of natural hazards impacting on the society. On the other hand, impacts on society increase due to population growth and economic developments along the coastline of Manila Bay, resulting in an even stronger call for protection against natural hazards in the future.

Participation: Involvement of stakeholders and citizens is important to promote societal support of development projects as well as maintenance of infrastructure. Planning may also benefit from the tacit knowledge of stakeholders. For the Philippines, this participation process is imbedded in the ECC process that is a pre-requisite for all infrastructural developments. It is expected that this participation process will become more and more important within the design process and approvals of projects.

Privatization: Public-private partnerships (PPPs) are becoming the modus operandi for many infrastructural projects and services. Involvement of the private sector has advantages, since it allows for a relatively fast implementation without high capital expenditure on the Government Balance. The risk of privatization, however, is a focus on the short term as well as a neglect of the public interest. The Philippines Government therefore needs to ensure all PPP Projects (solicited and unsolicited) contribute to the overall goals and targets as should be set in a Master Plan.

Decentralization: In the Philippines decentralisation is already put in practise with the Local Government Code 1991, providing LGUs an important role in land use planning and the right to develop their municipalities. This has advantages, since it brings bay issues closer to the local stakeholders involved. However, due to lack of national coordination for Manila Bay, there is a sincere risk of uncontrolled and/or chaotic developments that might not contribute to the overall goals and targets as will be set in a Master Plan.

Environmental/ Social concern: Concern about a changing climate and ongoing environmental degradation and social impacts has raised the awareness on the impacts of infrastructural projects. For Manila Bay this is most prominent in relation to the opposition against reclamation projects. It will therefore become more and more important for large infrastructural projects to address these concerns properly, and explain the expected impacts or outcomes to the society in a clear and transparent manner.

In order to understand how the drivers lead to changes in the pressures and state of Manila Bay, a multitude of relations between human activities, and physical and ecological delta conditions need to be accounted for. To provide insight into this complex system, a simplified structure is applied in the form of a Layer Model (see Figure 2.3; Marchand & Ruijgh, 2009). This Layer model (see Box 2.4) recognizes three

physical planning layers each with different but interrelated temporal dynamics and public-private involvement:

- **Occupation layer** (zoning of land use functions and livelihood elements such as fisheries, tourism activities, housing, industry, etc.);
- **Network layer** (road infrastructure, navigation channels, ports, reclamations, floodways, etc.); and
- **Base layer** (natural resources including resources (physical and ecological resources), and important habitats such as mudflats and mangroves).

Using the Layer Model, it becomes clear that there are three main response themes on which management and development of the bay could focus, i.e. the development and adaptation of land and water use (Occupation layer), the extension and revitalization of infrastructure (Network layer) and the management and restoration of natural systems (Base layer), see Figure 2.3.

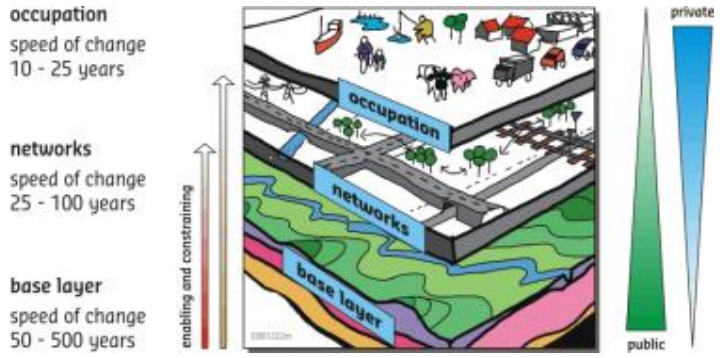


Figure 2.3 Layer model

Box 2.4 Layer model

The model indicates a physical hierarchy in the sense that the Base layer influences the other layers through both enabling and constraining factors. Unfavourable conditions (constraints) posed by the Base layer can to a certain extent be mitigated through adaptations in the Network layer or Occupation layer. For example, dykes can be constructed to protect low-lying land from flooding. However, these adaptations to the original physical geography of an area require investments and need to be managed.

The essence of the Layer model is the difference in dynamics and vulnerability between the layers, which results in a logical order in planning for the various layers. The layers enable and/or constrain activities in another layer. Apart from analysing the physical interactions between the layers, the model is also useful in positioning the roles of different actors, such as government agencies, private entrepreneurs and sector representatives and citizens. The government also has a key role in the protection and management of the Base layer. The development and maintenance of infrastructure in the Network layer is traditionally the responsibility of the government, but in the Philippines has shifted towards the private parties. Moving towards the Occupation layer the role and influence of the government becomes even more restricted/ facilitating and regulating and the influences of private parties and citizen's interests become more dominant.

The governance required for sustainable development extends over all three layers and is characterized by a mix of government responsibility and private or non-governmental actor roles. Although in the Base layer the role of the government is strongest, its management is often done in a rather fragmented way. Management responsibilities originate from a deep belief of stewardship to maintain the qualities of the system and

natural resources. However, the actual management instruments are sectorial and mostly partially effective or inadequate to stop degradation and quality loss. These instruments are legitimized through national (or international) laws and obligations and enacted in the form of licences, concessions and covenants. Figure 2.4 summarizes typical issues as a sequence of drivers, pressures, impacts, governance and responses, for each of the three layers.

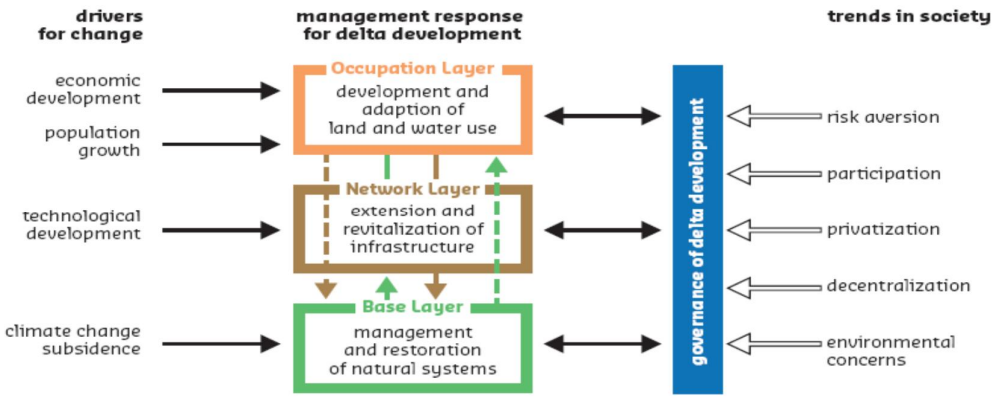


Figure 2.4 Management response for delta development

2.8 Need for adaptive planning

The management of Manila Bay is therefore an ongoing effort to balance the benefits and risks of living in such an area. This requires continuity in management, institutions and funding. One of the main challenges in the management of Manila Bay is how to handle uncertainty: to guarantee such areas as safe and attractive environments large investments in infrastructure are required as well as adequate maintenance. On the other hand, rapid socio-economic developments impose large uncertainty on the design conditions that should be applied (e.g. regarding drainage capacity or flood protection of reclaimed land), which are enhanced by climate change (e.g. sea level rise, increase in rainfall intensity and/or temperature changes).

In the Netherlands the Delta Program is being implemented (see Box 2.5), aiming to maintain the Netherlands as a safe and attractive place to live and work on the long term (up to 2100). For the Mekong delta a similar plan was finalized in 2013, the Bangladesh Delta Plan 2100 is under preparation and in Indonesia a new Jakarta Bay Master Plan is being prepared.

These plans have in common that they all:

- Start from a holistic long term vision, as a framework for policy objectives and regional specific adaptive strategies and related investment and maintenance programs;
- Are developed in a structured, step-by-step process in which relevant authorities, stakeholders, knowledge institutes (and private parties) are involved ("joint fact finding");
- Adopt a risk based approach, in which regional optimized combinations are pursued between measures that reduce the probability of hazards as well as measures that reduce consequences;

- Contain institutional arrangements to ensure continuity in long term implementation (funding, responsibilities, ownership) and
- Create opportunities for private parties to invest, execute measures and experiment with innovative techniques.

For general lessons learned and plan specific information reference is made to Annex D.

Box 2.5 Dutch Delta Programme

The Dutch Delta Programme aimed at maintaining the Netherlands as a safe and attractive country, today and in the future. As such, it is not an answer to a disaster, but a means to be optimally prepared using innovative solutions, such as the 'Room for the River' programme and the national 'Building with Nature' programme (see also Annex D). Through the Delta Programme the Dutch cabinet seeks to ensure that present and future generations are safe from water and that there will be sufficient freshwater in the centuries ahead. The Delta Programme is considered necessary to guarantee a safe business and investment climate. It is not only a condition for the economy, but also the condition to remain an attractive country; one in which it is pleasant to live, work and enjoy leisure time. The programme comes with a special Delta Fund, to guarantee long term financial stability and full focus on the important future water management issues, and a Government Commissioner for the Delta Programme (who is responsible for progress and coherence and provides an annual update to the Dutch Government). This new approach is based on integration of administrative horizontal and vertical divisions, which addresses financial and policy continuity with participation of all stakeholders. Developing adaptation pathways, as has been developed and set up during the Dutch Delta approach, is in fact policy analysis, with a particular focus on uncertainty about the future.

3 FOCUS AND GOALS OF THE MASTER PLAN

The proposed Master Plan for the Manila Bay area aims at finding sustainable solutions for often complex problems, recognising that the plan has to deal with multi-actor, multi-level, multi-sector and multi-system aspects and address short to long term management and development.

3.1 Current observations on master planning in the Philippines

In the next Chapter a more structured approach towards master planning in the Philippines is advocated.

Current observations regarding the existing river basin management plans in the Philippines (World Bank project, 2015) are as follows:

- None of the plans contain alternative strategies that decision makers can choose from. For all plans just one strategy is presented which contains the (ad hoc) wish list. Implementation of such a wish list could mean overspending or simply not achieving the objectives.
- Quantitative analysis of performance of water systems is often missing (present situation, future situation under changing conditions and it is not clear how much it will improve after implementing measures). As a result only present problems are addressed and plans contain just a long-list of measures (wish list).
- Most plans do not include an impact assessment of the proposed strategy (socio-economic, environmental impact). Therefore, it is unclear how much of the objectives will be achieved after implementing the plan.
- Most RMBP plans are not aligned with related plans (if available) such as urban development, transportation, flood risk management, climate change adaptation and ICZM.
- Description of participatory process is missing (incl. community empowerment, partnership development, capacity building).
- Recommended institutional frameworks (coordination, implementation) differ greatly and in most cases will not make any difference when it comes to effective plan implementation.
- Clear implementation plan is often lacking which outlines who does what, when and how it will be financed.
- Project approval processes are based on limited or incomplete information.

To support an adequate process toward the Manila Bay Master Plan a stepwise planning approach is described in Chapter 4 based on international best practices and blended with lessons learned on current planning efforts (based on the current World Bank project for major river basins in the Philippines 'IWRM Planning Tools and Guidance', 2015).

3.2 Contents of the Manila Bay Master Plan

The inclusive plan should be instrumental in linking economic planning and development projects (such as reclamations, coastal protection works, roads, etc.) to environmental and resource management goals for Manila Bay and combining social issues, such as poverty alleviation, food security, public health, with the rehabilitation and sustainable development of marine and coastal resources. As such, the plan will also serve as a screening framework for a wide range of projects on the local, regional and national

level and as an additional step to the ECC / ICC project screening (see Annex C). In addition it can act as a long term compass for future national or regional sector plans.

To be successful the MBMP should:

- Be based on the IWRM/ICZM concept;
- Address the challenges and relevant drivers of change;
- Adopt a risk based approach regarding extreme natural conditions;
- Include a long term holistic vision as a framework of adaptive strategies and flexible measures;
- Provide a model for long term financing of structural and non-structural projects
- Provide short- and medium term investment agenda's and management actions;
- Recognize the layer model to distinguish between public and private responsibilities and make use of combinations of functions of infrastructure and other necessary investments to serve multiple purposes (win-wins) and likewise look for alternative financing opportunities;
- Be supported by adequate institutional arrangements;
- Create opportunities for private investment parties.

To fulfil these objectives, it should be prepared in such a way that adequate implementation can be realised and a multi-stakeholder consultation process can be facilitated.

4 METHODOLOGY TO PREPARE THE MANILA BAY MASTER PLAN

4.1 Stepwise approach

The planning guidelines as currently under development for major river basins in the Philippines (World Bank initiated project "IWRM Planning Tools and Guidance") are considered as a supporting tool for the Manila Bay inclusive Master Plan development. It builds on international experience relevant for the Philippine setting. Moreover, it will support the identification of the sequential and parallel steps that need to be followed.

The guidelines includes 5 main steps in which the analysis should be carried out:

I Inception – sets the boundary conditions for the analysis
II Situation analysis – describes the present and future problems
III Strategy building – develops alternative strategies for decision making
IV Action planning – prepares investments
V Implementation – actual implementation of measures, monitoring and guidance.

The first three strategic planning steps are usually considered the Master Plan study, the last two refer to the operational action planning steps including implementation and monitoring.

Figure 4.1 Planning cycle: strategic and operational planning (orange = master plan; green = action plan)

A more elaborated process scheme is depicted in Figure 4.2. In the next sections the underlying activities are briefly described. In Chapter 5 the consequences for the Manila Bay planning exercise are discussed.

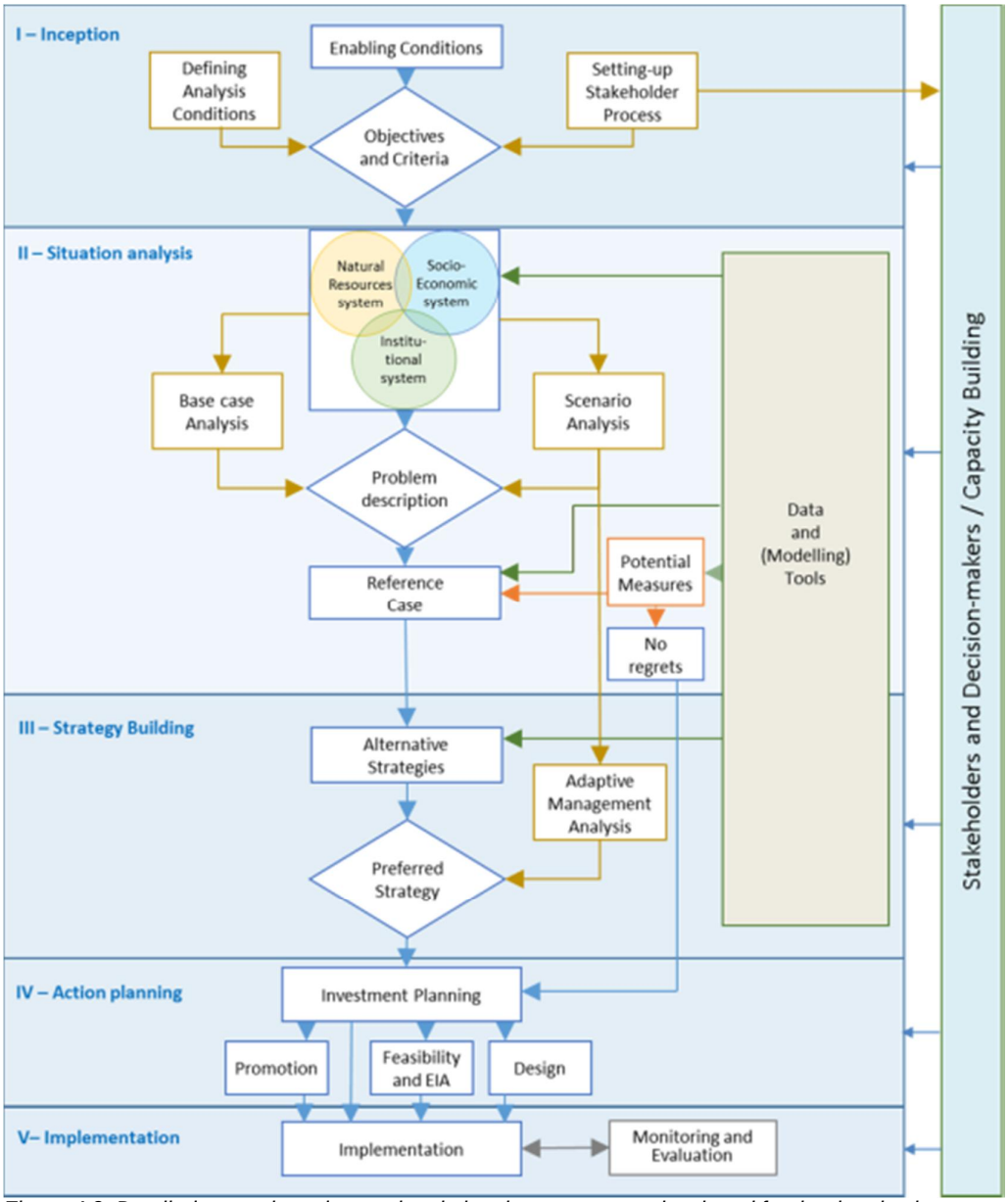


Figure 4.2 Detailed strategic and operational planning process as developed for the river basin master plans in the Philippines.

The five steps are presented in Figure 4.2 as a strict sequential process. However, in reality that will never be the case. Planning and decision making should be seen as an adaptive process in which anywhere and anytime, decision makers and involved stakeholder can assess the situation and options and determine the best way to proceed: either moving forward or coming back to a previous step. That can be done within the specific process of making a plan or in the process of cyclic planning. This is best illustrated by the spiral of (IWRM) planning presented in Figure 4.3 in which subsequent plans (e.g. each 3 to 6 years coinciding with the LGU or national

administration terms) build upon the previous version and include experience gained in the past period (and including new data, tool development and events).

Figure 4.3 Spiral of (IWRM) planning

4.2 Inception

It is important to stress that the development and implementation of a good plan will depend on the enabling conditions including political will and commitment, as well as cross-cutting issues, such as, partnership development, capacity building, community empowerment, data and information management, gender equality and alignment with other basin planning activities.

In the inception phase the following activities are foreseen: creating an enabling environment, setting objectives and criteria for the planning exercise, agree on the planning process. In order to successfully develop the plan it will be needed that certain conditions are being met. Most of these conditions are external to the planning activities. This means that they should have been set before the planning exercise starts.

The enabling environment relates to among others:

- National water legislation and national policies (and focal policy fields) that guide the planning process and enables enforcement;
- Existence of water institutions at national and regional level with qualified staff and funding;
- The availability of tools that enables informed decision making.

In addition the analysis conditions for the planning process need to be defined and agreed upon, such as:

- The base year for the planning process - the most recent characteristic year for which basic data on the present situation is available;
- The time horizon(s) for the study - which may include short term (e.g. 5 years), medium (e.g. 10 - 20 years) and long-term (>25 years);
- The discount rate to be applied in the economic analysis;
- Preferred plan updates.

An essential component of the planning exercise is the connection of the plan and its objectives to national development goals as well as with the internationally agreed goals. The general objectives as stated in the national policy documents have to be translated into a holistic long term vision and operational objectives for Manila Bay. Since MBMP will act as a framework for decisions on land use development and major investments in projects with long lifetimes, the time horizon should be set at some 25 - 30 years, with a view-through towards for instance the year 2100 (see section 4.4). Operational objectives should be specified in e.g. socio-economic terms which are meaningful to the decision makers and the stakeholders. For each objective a measurable evaluation criteria should be defined as a measure of how far the defined objectives have been achieved. If possible clear targets should be specified. Monitoring will then indicate in how far the objectives have been achieved. To incorporate sustainability as an objective, attention should be given to all aspects of sustainable development. Criteria should be laid down to assess the sustainability of developments and measures that may contribute to sustainable development should be identified. Political choices have to be made regarding these policy objectives, since the higher the ambition the larger the efforts and budgets involved.

In the inception phase the organizations (key decision makers / important stakeholders) needed for the execution of the planning exercise and the implementation phase need to be invited and necessary inputs in the process need to be discussed. In this way local knowledge and expertise can be included in the strategies, and acceptance to the proposed measures and commitment to the implementation will be improved. During regular workshops a larger group of stakeholders can be involved. Involving the key decision makers / important stakeholders in all five steps of the planning exercise should include four (idealized) phases:

- Common knowledge – the phase in which the decision makers / stakeholders generate a common level of knowledge about the subject;
- Divergence – the phase in which the various views of the decision makers / stakeholders are expressed;
- Convergence – the phase in which by means of analysis and discussion a common view is developed on how to proceed; and
- Decision making – formalization of that common view at decision making level.

These phases in each of these steps are illustrated in the rhombus approach depicted in Figure 4.4.

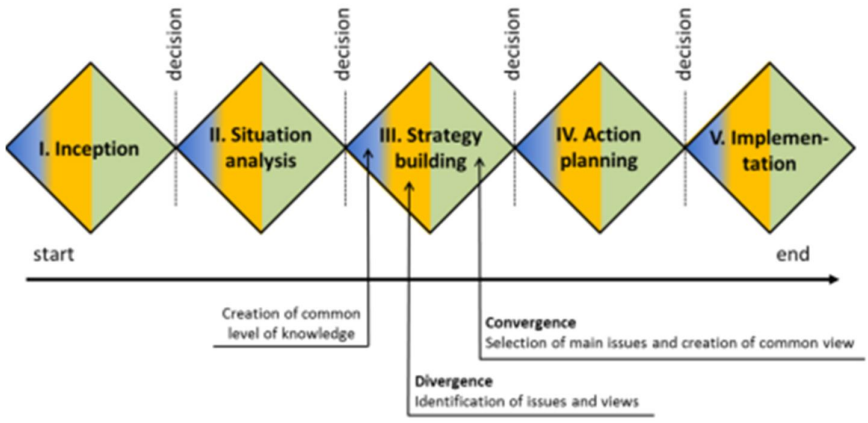


Figure 4.4 Divergence - convergence process in decision making

4.3 Situation Analysis

The plan should contain a complete description of all elements of the Manila Bay system: the natural system, the socio-economic system and the institutional system) and their dominant interactions. Moreover, the major problems and issues faced by the national and local authorities and stakeholders should be extensively described for the present situation (base case) and future situation (reference case). As the future situation is unknown, uncertainties need to be addressed by defining alternative scenarios that describe possible future conditions.

The problem description should be carried out based on the results obtained from the results of the base and reference case analyses in combination with the problems and issues perceived by the decision makers and stakeholders. Once the present and future problems are known measures can be identified (including 'no regret measures' that can immediately be implemented) that will address these problems (see Box 4.1). An inventory should be made of all possible measures (as building blocks for the strategy building).

Box 4.1 No regret measures

Measures which are considered as 'no regret' can move ahead without compromising the planning process. Characteristics of 'no regret' actions include:

- The action uses a proven technique or approach which has been used successfully in similar conditions;
- There are no irreversible consequences and future options remain open;
- Sufficient data is available to support implementation;
- The expenditure does not substantially limit the implementation of other actions and/or the action has high economic, social or environmental effects relative to its cost;
- The action is low risk and places a relatively small burden on available resources.

The problem analysis and evaluation of measures will require a computational framework. Such a computational framework can be simple (e.g. based on a spread sheet) or rather detailed by using advanced computer models or integrated decision-support systems.

4.4 Strategy building

A Manila Bay strategy can only be considered as a good and implementable plan if the proposed measures have been evaluated in terms of how much these measures will improve the present and future situation after these measures have been implemented. The steps to be taken in the analysis are illustrated in Figure 4.5. The left side of the figure deals with the present situation and the future developments that are quite certain such as population growth. The right side of the figure addresses future developments that are more uncertain such as climate change.

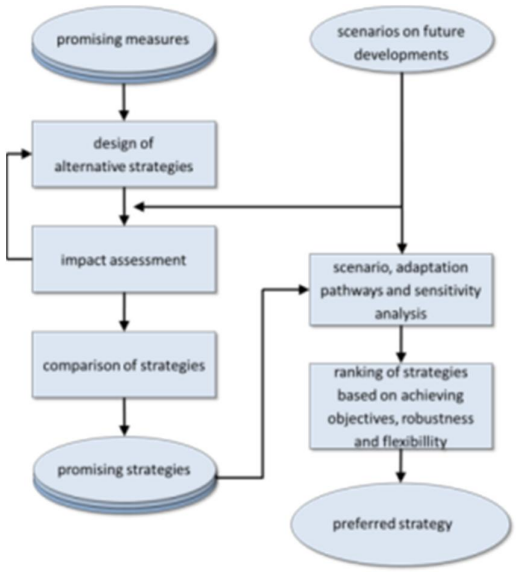


Figure 4.5 Development of alternatives

In this step promising measures are combined into strategies. Finding the best strategy is an art which requires a good understanding of the technical, economic environmental and social components. The promising alternative strategies are to be evaluated using the computational tools.

Particularly, these impacts will be expressed in terms of the criteria that are defined to measure in how far the objectives as stated in the Inception Phase (section 4.2) are being achieved. Such quantitative analysis of the performance of the strategy is crucial. The computational tools allow decision makers and stakeholders to assess the effectiveness of proposed alternative strategies (measures) in a more formalized way.

Comparison of strategies
Generally, there will not be a single strategy that is superior to all other strategies with respect to all criteria. That means that ann evaluation has to be carried out to rank the strategies and/or determine the preferred strategy. In general the comparison of alternative strategies can be done effectively by using score cards. They are understandable for the decision makers and stakeholders and enable a good comparison with the present situation and the objectives.

Because of the long term perspective these strategies have to be robust enough to handle future uncertainty. Scenarios, combining climate change and socio-economic trends, are applied to clarify the potential range in long term water challenges and to make this uncertainty manageable. To achieve the long term water related policy objectives despite future uncertainty, these strategies have to be adaptive regarding future developments in climate, population, knowledge etc. Adaptive strategies are clear in their objectives but flexible in their approach. They try to avoid “lock in” and “pathway dependency”, and keep options open to take future measures when necessary. Adaptive strategies benefit from flexible measures that are able “to speed up” or “slow down” when actual developments requires so. In that respect measures that are based on natural processes (like “building with nature”, see box in Annex D) are more flexible than structural measures built with concrete or steel.

Various methods have been developed that enable us to deal with the future uncertainties. For instance, the Dynamic Adaptation Policy Pathways (Haasnoot, et. al, 2013) identifies tipping points that determine in time when a certain policy or action is no longer acceptable and (another) action is needed. By exploring the possible actions adaptation pathways can be developed that will minimize the regret. This is illustrated in Figure 4.6.

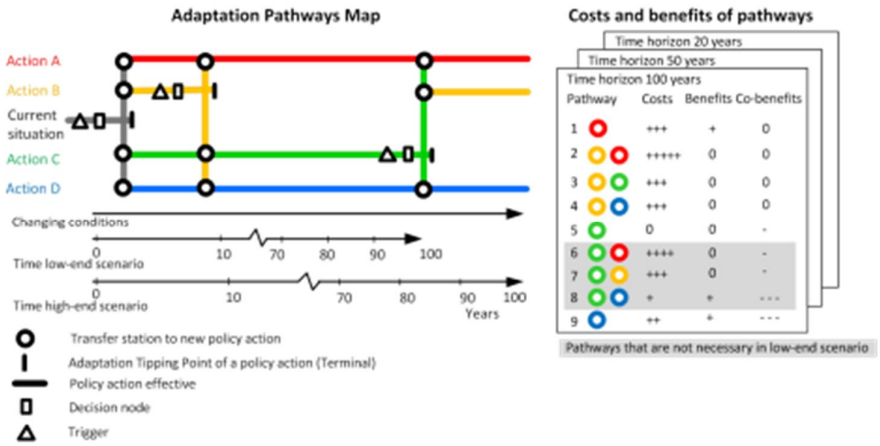


Figure 4.6 Adaptive pathways approach

Following an adaptive pathways approach as done for the Delta Plan in the Netherlands (section 3.2) basically means that two criteria can be added to the scorecard:

- Robustness: how robust is the strategy when the future develops differently than expected? Will the strategy then still achieve the objectives?
- Flexibility: how flexible is the strategy when it appears that the future develops differently than expected and we need to change the strategy?

Robustness and flexibility often have strong relations with costs. In order to comply with all possible futures, a robust strategy can be very costly (super levees, high pollution removal capacity by implementation of large treatment plants covering all sources of pollution, etc.). A flexible strategy (combination of smaller flood protection works, pollutant removal at hotspots only, etc.), enabling adjustments to future conditions, can also appear to be more expensive in the end. These are considerations that have to be taken into account when deciding about the preferred strategy.

Based on a scorecard (for example) decision makers and stakeholders can make an informed decision on the preferred strategy after having a good understanding of the functioning of the Manila Bay system and being aware of the pros and cons of the proposed strategies. The preferred strategy will depend on the timeline (e.g. short (5 years), medium (10-20 years) or long term (25 - 100 years)) that the decision makers have in mind.

Decision making in this step, leading to the Master Plan, is crucial and will require a lot of interaction with all stakeholders and decision makers (Figure 4.7). It can be expected that a lot of feedback loops will take place. By looking at the scorecards suggestions can be made to adjust the proposed strategies by adding or deleting measures. The decision making should result in the commitment of all key decision makers and stakeholders involved to implement the strategies.

Figure 4.7 Joint fact-finding and consensus building using a touch table / interactive GIS - modelling system

Clearly, in this stage all possible funding opportunities need to be identified, especially for necessary, but hard to finance, activities and projects. Larger development schemes will benefit from the favorable public-private partnership climate in the Philippines and can help to ensure that private investors contribute to the coverage of public costs. This will require solicitation of private sector proposals to take advantage of the strong private sector interests and options for value capturing. It may also help to sidestep the weakness of the bureaucracy, particularly in operations and maintenance, and free up more budgetary resources to other activities.

4.5 Action planning and implementation

Once the preferred strategy has been selected this strategy should be translated into concrete actions. Many authorities (in particular at LGU level) will have to be involved in the implementation and careful planning and coordination is required. Therefore it is advised to include them already in the strategy development phase. The Action Plan will have an 'open' and 'rolling' character, meaning that it is not static or prescriptive, and leaves room for individual stakeholders to further elaborate upon in relation to their own responsibilities. On the other hand the Action Plan should be concrete, by assigning clear responsibilities for carrying out the activities involved. It also includes the budgetary requirements for the implementation, including investments and recurrent costs.

The Action Plan translates the selected strategy in concrete actions. For each of these actions it should be clear:

- What: which concrete actions have to be carried out for each of the measures included in the strategy?
- Who: the decision maker / stakeholder that will be the prime responsible for carrying out the action and who will take the lead in the implementation;
- How: the steps to be taken and the consultative process involved;
- When: the time planning; and
- Financing: where should the money to implement the action come from?

What

A planning analysis is usually carried out at pre-feasibility level. A rough description of the measures will be included in the strategy and based on first estimates of costs and benefits an assessment is made. Depending on the type of measure, feasibility studies may be required before the measures can actually be implemented. Moreover, the Philippine project planning and approval process should be followed (see Annex D). Often these feasibility studies are combined with the detailed technical design of the measures.

Who and How

The Action Plan aims to stimulate the coordinated development and management of Manila Bay. The measures included in the plan will involve or affect many decision makers and stakeholders and all of them should be included in some way in the implementation process in order to guarantee a successful implementation and a sustainable benefit of the measure. In general the following roles can be distinguished:

- **Responsible**: the decision maker / stakeholder has the first responsibility for the implementation of the measure but will co-operate with and/or consult other stakeholders in this process.
- **Co-operate**: the decision maker / stakeholder has an important say in the implementation of the measure but is not the first responsible and is expected to work with other decision maker / stakeholders in this matter.

- **Consult**: the decision maker / stakeholder has an interest in the implementation of the measure and will be consulted by the first responsible. In certain cases permission will be needed before the implementation can take place.

A coordinating body or structure is necessary to supervise the implementation of the MBMP between many organizations within their own responsibility.

When
The Action Plan should also specify the timing of the implementation. When will (the preparation of) the implementation start and when will the implementation be finalized. This information is needed for the overall investment plan / annual budget preparations but also because some measures will depend on each other.

Financing – investment plan
An important, if not the most important, part of the Action Plan is to determine how it will be financed. The sources of the financing will largely depend on the type and size of the measure. As many of the plan components relate to clear governmental tasks, most of the finances will come from public sources. That can be from the national budget (possibly supported by donor funds) or from local (LGU) budget. In some cases private funding can be considered in PPP constructions. Combining of functions of infrastructure will allow for developing such PPPs to maximise private sector contributions and minimise the burden on the public budget. PPPs in particular are also attractive when there is a good possibility for payment by the stakeholders of the services that will be provided.

The investment plan should also address how the recurrent costs (operation and maintenance) of the implemented project will be recovered. Preferably this should be done based on fees to be paid by the people that benefit from the project.

Social marketing
During the planning process it is important to find ways to increase the influence of groups that favor the implementation of any project but lack influence, to change the attitude of influential groups that are opposing this project, and to use the positive attitude of influential groups that are in favor of the project. In Figure 4.8 the influence-interest matrix is presented highlighting the strategy towards project acceptability or appreciation and therefore smooth implementation.

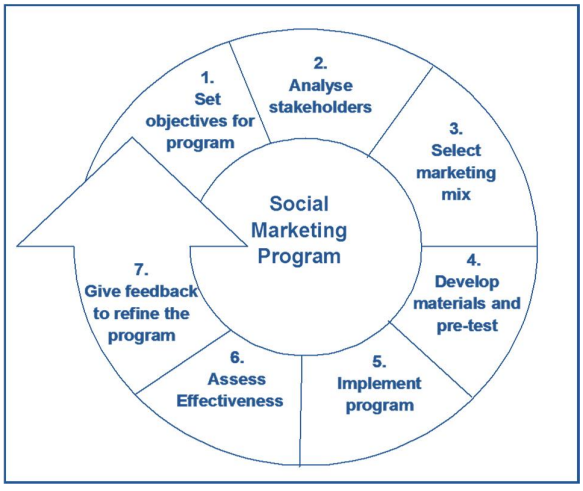


Figure 4.8 Social marketing approach

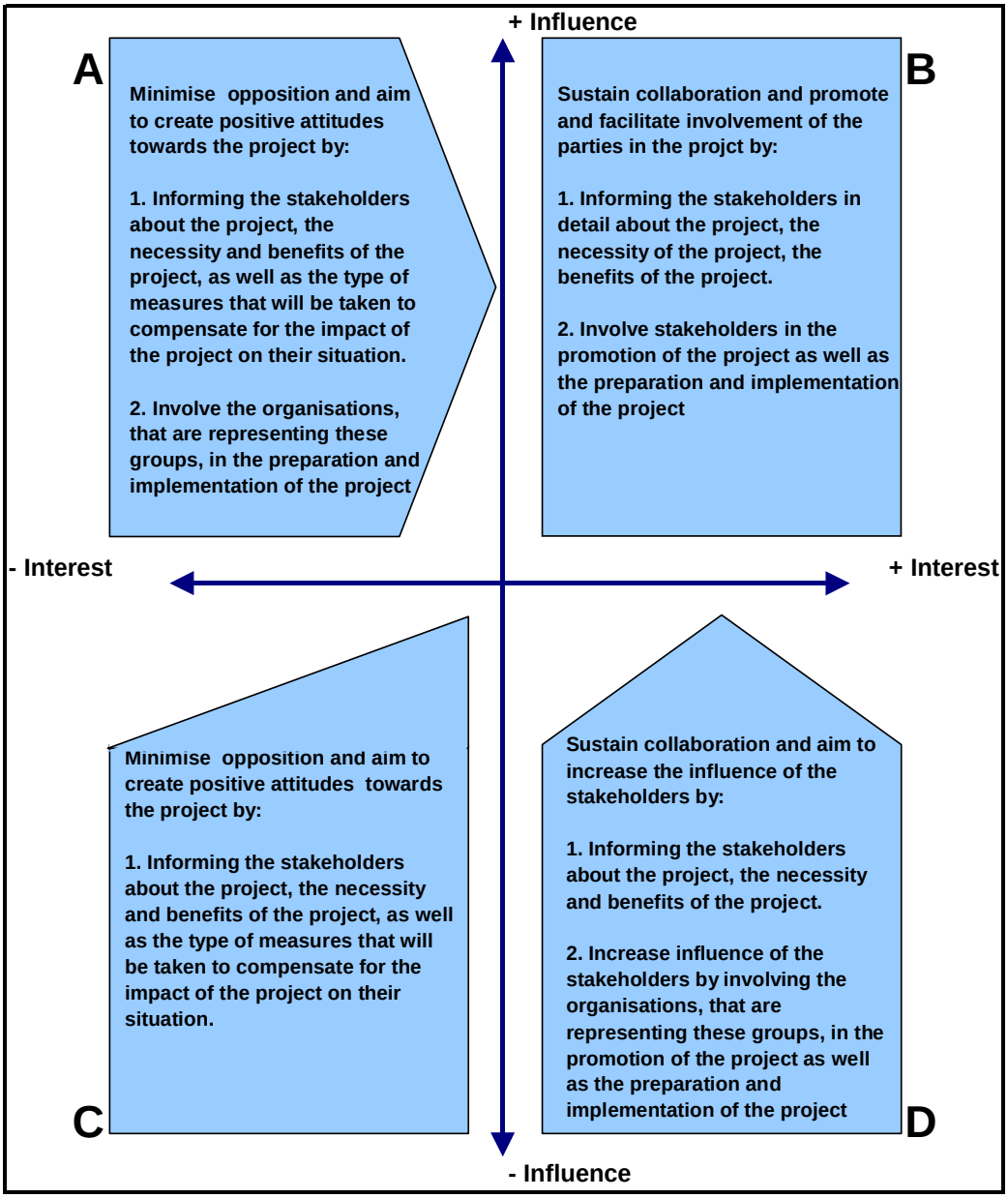


Figure 4.9 Social marketing approach and underlying strategy

To create maximum awareness, enthusiasm and support for selected projects within the Action Plan the selected stakeholder groups need to be provided with the right information on the project, making them enthusiastic for the project by involving a selection of stakeholders in project preparation and implementation.

Hereto, a mix of marketing options are available such as:

- Mass one-way communication for the general public (such as newspapers, radio, television plus more traditional media in the more rural areas);
- Selective one-way communication for selected stakeholders groups (direct mail, brochures with more specific information dedicated for the selected group); and

- Personal two-way communication between the project promoter and selected stakeholders groups (education method, outreach method or more risky word-of-mouth method).

4.6 Evaluation / Progress Assessment

Regularly (e.g. once every 3 to 6 years) a monitoring report should be compiled about the progress made in implementing the measures of the Action Plan as well as the effectiveness of these measures in terms of the objectives they aim to achieve. The question to be addressed is if the implemented measures indeed solve the problems. Insufficient progress or effects should lead to an adjustment of the Action Plan.

This page is intentionally left blank.

5 TOWARDS THE MANILA BAY MASTER PLAN?

5.1 Introduction

The previous chapters indicate that the future developments in and around Manila Bay are likely to result in conflicting interests between the different users of the bay and further deterioration of the base layer (water system). The current state already has come to a level that for Manila Bay the sustainability of the ecosystem is seriously threatened (and therefore also all the other functions of the bay). NEDA has recognised that due to the scattered responsibilities of the agencies within Manila Bay, a sustainable and inclusive management of the bay has been lacking over the past decades. Moreover, several initiatives within Manila Bay are proposed from several government agencies and the private sector, which at this moment are difficult for NEDA to judge upon their merits and contribution to the sustainable development of the bay. This is further complicated as with unsolicited proposals, knowledge and data collected during the project developments stay with the private proponents and their consultants.

Therefore, and as agreed with NEDA a Master Plan needs to be developed for the Manila Bay area and its immediate coastal zone covering the interests of all relevant sectors that use the Manila Bay area to perform their functions. Adhocracy needs to be replaced by a fruitful public-private interaction which generates solicited proposals and provides a basis for shared knowledge and data on the basis of transparent procedures (e.g. Swiss Challenges).

However, considering Manila Bay area and the immediate coastal zone as plan area should also deal with the wider catchment area as the influence sphere. In order to achieve the objectives set for the bay and coastal zone, necessary measures will have to be specified for the catchment area as well (meant for inclusion in specific catchment area plans).

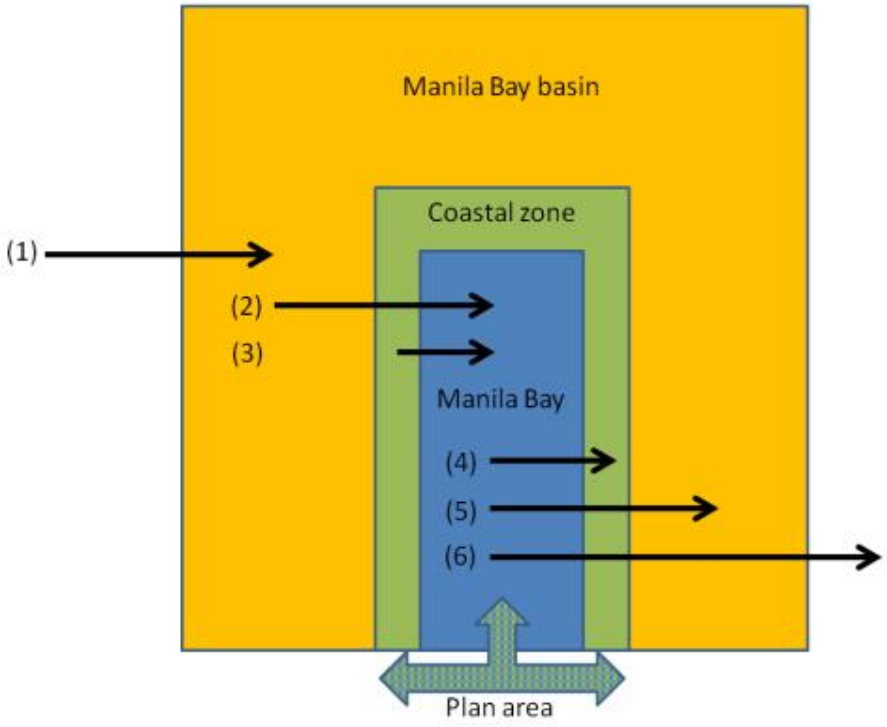


Figure 5.1 Schematic plan area

In Figure 5.1 the relation between Manila Bay area and its coastal zone with the outer catchment and beyond is described. The numbers in this figure refer to:

1. Drivers of change that influence the Manila Bay basin as a whole (e.g. climate change, migration, national development goals)
2. Influence of the surrounding river basins on Manila Bay (e.g. water pollution, solid waste, reservoirs, irrigation)
3. Influence of the immediate coastal zone on Manila Bay (e.g. population pressure, etc.)
4. Influence of Manila Bay on the immediate coastal zone (salinity intrusion, flooding, land reclamation, etc.)
5. Influence of Manila Bay on the basin (salinity intrusion, reduce urban heating, flooding, fisheries / food supply)
6. Influence of Manila Bay on the Philippines (GDP, bird sanctuaries, etc.)

The Manila Bay Master Plan is intended to act as a framework for the preparation and implementation of:

- a long term national vision with regard to the use and development of the Manila Bay area (and as such providing boundary conditions for basin and sector plans);
- local land use and development plans (prepared by LGU's and approved by HLURB);
- investment projects and maintenance efforts from national agencies and private components.

It was also agreed with NEDA that the planning process should not be limited to the master planning stage only. The process should include both strategic and operational activities (i.e. the full planning cycle as presented in Figure 4.1).

5.2 Required activities and expertise

For the development of a Master Plan for Manila Bay the stepwise approach is suggested as outlined in Chapter 4. Chapter 4 gives an elaborate explanation about the different steps within the planning cycles. The process is divided in two components;

- Component 1 "Strategic Planning – Master Plan" – resulting in the Manila Bay Master Plan and
- Component 2 "Operational planning - Action Plan".

This Chapter will therefore focus on the more practical aspects of the project, the planning and expertise required for these activities.

Component 1 – Preparing a Master Plan

Component 1 includes the development of the Master Plan and consists out of the first three steps of the methodology as presented in Chapter 4; the inception phase, situation analysis and a strategic analysis. In the inception phase the following activities are foreseen: creating an enabling environment, setting objectives and criteria for the planning exercise, agree on the planning process. Based on the above activities a work plan should be made for the (remainder of the) study, specifying the detailed activities that will be carried out and the process that will be followed to interact with the decision makers and stakeholders. This also means that writing the Terms of Reference for subsequent planning phases (see Chapter 6) is quite challenging and should include some flexibility.

To prepare the Master Plan and judge upon the different strategies, reliable information and data is essential. However, due to the immediate need for a Master Plan, the master planning process should not be initiated after all necessary information has been collected. Moreover, several government agencies (e.g. DENR and PRA) gather information and are in the process of developing DSS-tools to assess the specific aspects of Manila Bay. It is not the intention of the master planning to prepare new 'overarching'" tools, but the process should make use of the ongoing activities and integrate the information and results coming out of these tools. It is therefore advised that in the situation analysis, the Consultants, that need to be appointed for such a planning process, will use only available data and existing tools already available from the different agencies. Moreover, an information gap analysis will be performed, that will guide the responsible agencies to carry out the necessary surveys to fill these gaps, and at the same time develop their existing (DSS) tools to understand the underlying natural system of Manila Bay better and its interactions with involved water systems and users. The intension is to gradually update the Master Plan during Component 2 once the information and improved DSS-tools become available from the responsible agencies.

In this strategy building step promising measures are combined into strategies. Finding the best strategy is 'an art' which requires a good understanding of the technical, economic environmental and social components as developed in the earlier steps. During the process towards the final Master Plan alternative strategies will be assessed together with all relevant stakeholders, eventually resulting in a preferred strategy for Manila Bay. For the assurance of a long-term commitment of all stakeholders, it is essential to set-up an institutional setting that supports the agreed strategy (see section 5.3).

It is expected that component 1 will be completed within 16 months from the kick-off of the project. This is relatively fast for a master planning process. This planning is only feasible under the assumption that the Consultants will use available data and tools from the governmental agencies, and the Philippine Government will provide full access to data, information and tools. Likewise, local capacity and support by a counterpart team is expected. When no or only limited information is available on specific sectors / topics, assumptions need to be made that will be updated once the additional surveys are carried out and/or more tools have been developed by the responsible agencies.

The team should consist of a wide range of experts covering all sectors that have a stake in Manila Bay (see section 2.2). Also the team should include several specialists on water related topics: covering e.g. water resources, water quality and ecology, flood control and coastal engineering. Lastly, the team should include expertise on the application of existing (DSS-) tools to support to strategic planning process. The team leader should have extensive international experience in the development of Master Plans, and should be familiar with the complex Philippine institutional setting.

It is recommended to include an advisory boards with representatives from various stakeholders groups.

Component 2 – Action Plan / Fine-tuning Master Plan

Component 2 includes the Action Plan and consists of the last three steps of the methodology as presented in Chapter 4; the investment planning, implementation and evaluation of the progress. The scope of work for the Consultants, however, will be limited to support of the leading government during the "investment planning" only, since the implementation and monitoring of the progress are long-term processes and considered government responsibilities. It is recognised that the leading organisation under component 2 will need to build-up capacity quickly, and will need support to

accomplish this task efficiently. Therefore a capacity building program will have to be developed under component 1 that will address this issue (see section 5.4).

The Action Plan involves quite some stakeholders on all different levels (from LGUs to National level), and also should address the private sector initiatives. The Consultants will be responsible to support and guide the process to come to an acceptable and doable Action Plan. As described in Chapter 4, the Action Plan is not static or prescriptive, and leaves room for individual stakeholders to further elaborate upon. However, the Action Plan should also be concrete by assigning clear responsibilities for carrying out the activities involved. It also includes the budgetary requirements for the implementation, including investments and recurrent costs like maintenance and operations. Parallel to the development of the Action Plan, a communication plan (social marketing) will need to be developed get ownership from the wider public on the scheduled activities.

The survey results and upgraded (DSS) tools should be available during Component 2. It will be the Consultants task to update/fine-tune the Master Plan once more information and knowledge comes available. This may lead to a different perspective on the preferred strategy and subsequently the Action Plan. By the end of component 2 it is expected that an updated Master Plan is agreed upon with all stakeholders.

It is expected that component 2 will be completed in a time span of 14 months. This means that the total master planning project will last for 30 months.

5.3 Organisation and institutional requirements

Currently there is no single entity or organisation responsible and accountable for the management of the Manila Bay area. The successful implementation of a Master Plan shall therefore be supported by an adequate institutional setting. This might be one of the existing agencies taking the lead, or for example a new Manila Bay Development Authority, as long as it can guarantee a successful implementation and continuity in policy by a clear mandate and funding. The first steps in the planning process will have to be used to work out the best institutional setting for Manila Bay.

The master planning process under component 1 should result in the commitment of all key decision makers and stakeholders involved to implement the strategies. Commitment from the key decision makers on the strategy needs to be translated in actual (legal) mandates for specific agencies to act upon the agreed actions. Therefore, parallel to the master planning process, the appointed Consultants will be tasked to guide and drive the process to set-up an adequate institutional framework to implement and monitor the Master Plan as efficiently as possible.

It is expected that at the end of Component 1 (after 16 months), a decision is made by the Philippine Government on the final institutional arrangements that ensures well-coordinated action planning and an effective implementation. During the Action Plan the actual details and embedding in the institutional setting need to be arranged. Considering that this can take several years, the activity it not considered part of the scope of work for the Consultants. Instead is expected that it is coordinated by the responsible organisation (identified under component 1 of the project).

The strategic part of the inclusive Master Plan study (component 1) should ideally be coordinated by NEDA. The role of NEDA as responsible authority for formulating coordinated policies, plans and programs is undisputed and acceptable to all NGA's and LGUs. Given the important role of the DENR in the conservation, management, development and proper use of the country's environment and natural resources the

DRR-team advises to include the Manila Bay Coordinating Office (MBCO) as technical coordinating partner during this phase.

5.4 Need for capacity building

As explained in section 5.2, it is considered essential to develop a program for capacity building that supports the government agencies for the implementation of the Master Plan. Therefore a capacity building program will be developed under component 1. The actual execution of the program under component 2 is excluded from the scope of work from the Consultants at this stage, since the inputs can only be determined at the end of component 1, once the institutional framework has been agreed upon.

To facilitate the implementation of the Master Plan a capacity building program typically includes training of staff in among others the following fields:

- IWRM / ICZM master planning;
- Monitoring, data analysis and modelling;
- Project implementation;
- Maintenance and operations;
- Project monitoring and evaluation
- Procurement expertise dealing with various financing models.

5.5 Initial set-up ToR

In Chapter 6 an initial set-up for a ToR is drafted including the main components of a sustainable and inclusive Master Plan. The final ToR will depend on the procurement requirements from the implementing organisation. The activities mentioned under the previous sections are integrated in an overall planning that covers the activities of component 1 and 2, and result in a total project duration of 30 months. In Chapter 6 a suggested time input for the different experts is also presented for the scope of work of the Consultants.

5.6 Financing opportunities

The activities to arrive at a sustainable and inclusive Master Plan for Manila Bay will also need to be financed (estimated costs are 200 – 250 million PhP, assuming tools are available and surveys will not be necessary as part of the plan study). Table 5.1 presents an overview of the different options for funding. Please note that optional DRR funding is relatively limited and in no way can cover costs for the Master Plan. Possibly, a bridging study could be defined covering for example parts of the inception phase and situation analysis (to initiate the data collection and tool development).

Table 5.1 Follow-up options

Financing option	Remarks
Inclusion in upcoming proposed World Bank loan on Urban Drainage in Metro Manila	The World Bank confirmed that the master planning can be included in the loan arrangement. It is not sure yet when the master planning can start as this will depend on the proposed loan arrangement. The proposed loan partners may be different from the preferred implementing organisation(s) for Manila Bay. This approach will imply international tendering.
European Union	EU expressed some interest to become involved in the master planning process. This approach will imply international tendering.
Water Global Practice (World Bank)	The Trust Fund may not be able to cover a full Master Plan. Details of the Trust Fund are not yet clear.
Follow up DRR project (as bridging)	The DRR follow–up options are financially limited and cannot cover a full Master Plan study. Nevertheless it may cover the inception phase and part of the situation analysis as bridging phase while other funds are secured. It can be explored whether DRR financing can be considered as co-financing for a larger project for the Dutch water sector.
NEDA funding (DBM)	Local tendering (with 60% local and 40% international input), which may not result in the required international expertise.
Loans from JICA or ADB	The process to get approval for a new loan will take 1.5 to 2 years. This approach will imply international tendering.
Dutch infrastructure funds DRIVE and Develop2Build	Most likely these funds cannot cover study components.
Private Sector (e.g. Investors, Filipino Developers and / or Dutch companies)	It is considered unlikely that they are willing to provide support for the full costs of the planning process. Moreover, the process may then be ear-marked to be biased towards the private sector.

6 TERMS OF REFERENCE OUTLINE FOR AN INCLUSIVE MASTER PLAN FOR MANILA BAY

This chapter gives the outline for a Terms of Reference for the inclusive Master Plan for Manila Bay. The final implementing or financing agency will have to make the text dedicated to its interests and procurement rules and regulations (internal tender procedures and contractual conditions) to complete the proposal package.

6.1 Rational for the planning process

1. Manila Bay is influenced largely by the intertwining impacts of continued industrialization, unrelenting increase in population and the incessant human activities catering to the livelihood and habitation. All these developments in and around Manila Bay result in conflicting interests and shared opportunities among the different users of the bay. The current situation however has come to a level that it seriously threatens the sustainability of the ecological habitat (and therefore also all the other functions of the Bay).

2. The main challenges identified in Manila Bay include: discharge of untreated domestic and industrial waste, coastal flooding, salinity intrusion, overexploitation of fishery resources, degradation of habitats, and loss of biodiversity. Changes in the environment like, climate change (inducing sea level rise, associated with increased typhoon intensity and leading to altered temperature and precipitation), and continued subsidence due to ground water extraction aggravate these challenges in the future.

3. In spite of the substantial and profound economic and other benefits from Manila Bay and the ongoing degradation of the environmental system arising from human activities along its coasts and inward, there is no single entity or organisation that is responsible and accountable for its management. This is further confirmed by the 2008 and 2010 Supreme Court decisions on Manila Bay that show the involvement of at least 14 government departments and agencies to address the water pollution issues. The agencies listed by the Supreme Court did not include yet some 200 LGUs (provinces, towns and cities, water districts and regional development councils) in the Manila Bay Catchment Area.

4. Considering the institutional complexity and the socio-economic importance of the Manila Bay region for the Philippines (the Manila Bay catchment generates some 53% of the country's domestic product and is host to some 25 million people), it is decided to develop an inclusive Master Plan and a supporting institutional framework to secure commitment and action on the implementation on the long-term.

6.2 Scope of Services

5. The scope of the services under these Terms of Reference, to be carried out by a team of national and international consultants, is to prepare a Master Plan and Action Plan for the entire Manila Bay area. The Manila Bay Project Area, i.e. plan area, is defined as Manila Bay and the immediate coastal zone (inter-sectoral) with the larger catchment as the influence sphere. The inclusive Master Plan should be instrumental in linking economic planning and development projects (such as reclamations, coastal protection works, roads, etc.) to environmental and resource management goals for Manila Bay and addressing social & ecological issues (poverty alleviation, food security, public health; biodiversity), through the rehabilitation and sustainable development of marine and coastal resources with public and private resources. As such, the plan can also serve as a screening framework for a wide range of projects on the local, regional and national level.

6. The project is divided in two components; component 1 strategic planning leading to the “Master Plan” and Component 2 Operational planning leading to an “Action Plan and Fine-tuning of the Master Plan”. The expected total duration of the services is 30 months.

7. As interaction with the stakeholders is of critical importance during the services, dissemination of the status and results of the services at regular intervals has to be included, for which a clear communication plan will have to be developed. Dissemination will include workshops with stakeholders to agree on the proposed Master Plan and Action Plan. Interaction with stakeholders will also have to address the risks and negative impacts of inaction.

8. Parallel to the master- and action planning process, the consultant is tasked to guide and support the process to set-up an adequate institutional framework to implement and monitor the Action Plan as efficiently as possible. It is necessary that at the end of Component 1, a decision has to be made by the Philippine Government on the final institutional set-up and the government agency that will take responsibility for the implementation during the interim period. During Component 2 it is expected that the government will further drive this process themselves.

9. To supervise the MBMP preparation process the Government intends to set up two levels of steering committees, one high-level committee at the policy-making level with representation of all major agencies and stakeholder organizations that are involved in Manila Bay (decision makers and stakeholders). A second steering committee will be at the technical level, comprising senior staff of agencies involved in the management of Manila Bay, to guide the consultants in their work. The overall aim of the steering committees is to avoid that the planning process is conducted in isolation and to ensure effective participation / ownership and contribution from all stakeholders, including private investors. The high-level committee is expected to approve the Master Plan and to get the necessary buy-in from the government, politicians, and the population at large as the blueprint for future management and development in and around Manila Bay.

6.3 Specific Activities to be carried out under the Services

Component 1: Master Plan

10. Inception. The four main activities are: (i) to create the enabling conditions for the planning exercise, i.e. ‘organize’ the planning exercise, (ii) to set-up the stakeholders involvement process, (iii) to define the analysis conditions, and (iv) to define the socio-economic objectives that the Master Plan should support.

11. Situation Analysis. The Master Plan should contain a complete description of the Manila Bay water system and coastal zone. Moreover, the major problems and issues faced by the national and regional authorities and stakeholders should be extensively described for the present situation (base case) and future situation (reference case). Future scenarios need to be described and analysed and an overall problem description needs to be provided. Potential measures should be formulated and screened and no regret measures need to be identified and presented to possible implementers.

Strategy Building. In this phase coherent combinations of potential measures need to be developed to satisfy the objectives as defined in the first step. Close interaction with the decision makers and stakeholders is needed to develop strategies that are fully supported. Several alternative strategies need to be developed out of which the

preferred strategy can be selected. The master planning process should result in the commitment of all key decision makers and stakeholders involved to implement the strategies.

12. The master planning process should include a transparent process of solicitation of proposals from public and private parties to combine functions of infrastructure (incuding operations and maintenance) and other necessary investments to serve multiple purposes (win-wins) and likewise look for alternative financing opportunities. A systematic appraisal procedure for such proposals should be part of the formal planning process and mobilization of private sector expertise for that purpose need to be facilitated (e.g. by Swiss Challenge procedures and other Early Contractor Involvement tendering techniques).

13. Commitment from the key decision makers on the strategy needs to be translated in actual (legal) mandates for specific agencies and LGUs to act upon the agreed actions. Therefore, parallel to the master planning process, the appointed Consultants will be tasked to guide and drive the process to set-up an adequate institutional framework to coordinate the action planning and have it implemented.

14. By the end of component 1 it is considered essential to develop a program for capacity building that supports the government agencies and LGUs for the implementation of the Master Plan during component 2. Therefore a capacity building program will need to be developed under component 1. The actual execution of the program under component 2 is excluded from the scope of work from the Consultants at this stage, since the inputs can only be determined at the end of component 1 once the institutional framework has been agreed upon.

Component 2: Action Plan / Master Plan Fine-tuning

15. Action Plan. Once the preferred strategy has been selected this strategy should be worked out into concrete actions. This means that technical optimization of measures (optimally addressing the objectives), cost-benefit analysis, and socio-environmental assessments at pre-feasibility level need to be included. Many authorities will have to be involved in the implementation and careful planning and coordination is required. The Action Plan will have an ‘open’ and ‘rolling’ character, meaning that it is not static or prescriptive, and leaves room for individual decision makers to further elaborate upon in relation to their own responsibilities. On the other hand, the Action Plan should be concrete, by assigning clear responsibilities for carrying out the activities involved. It also should include the detailed budgetary requirements for the implementation, including investments and recurrent costs.

16. During this phase the Master Plan needs to be updated using the data and information collected in the previous planning period and making use of the upgraded tools / decision-support systems. The updated Master Plan needs to be agreed upon by the decision makers and key stakeholders.

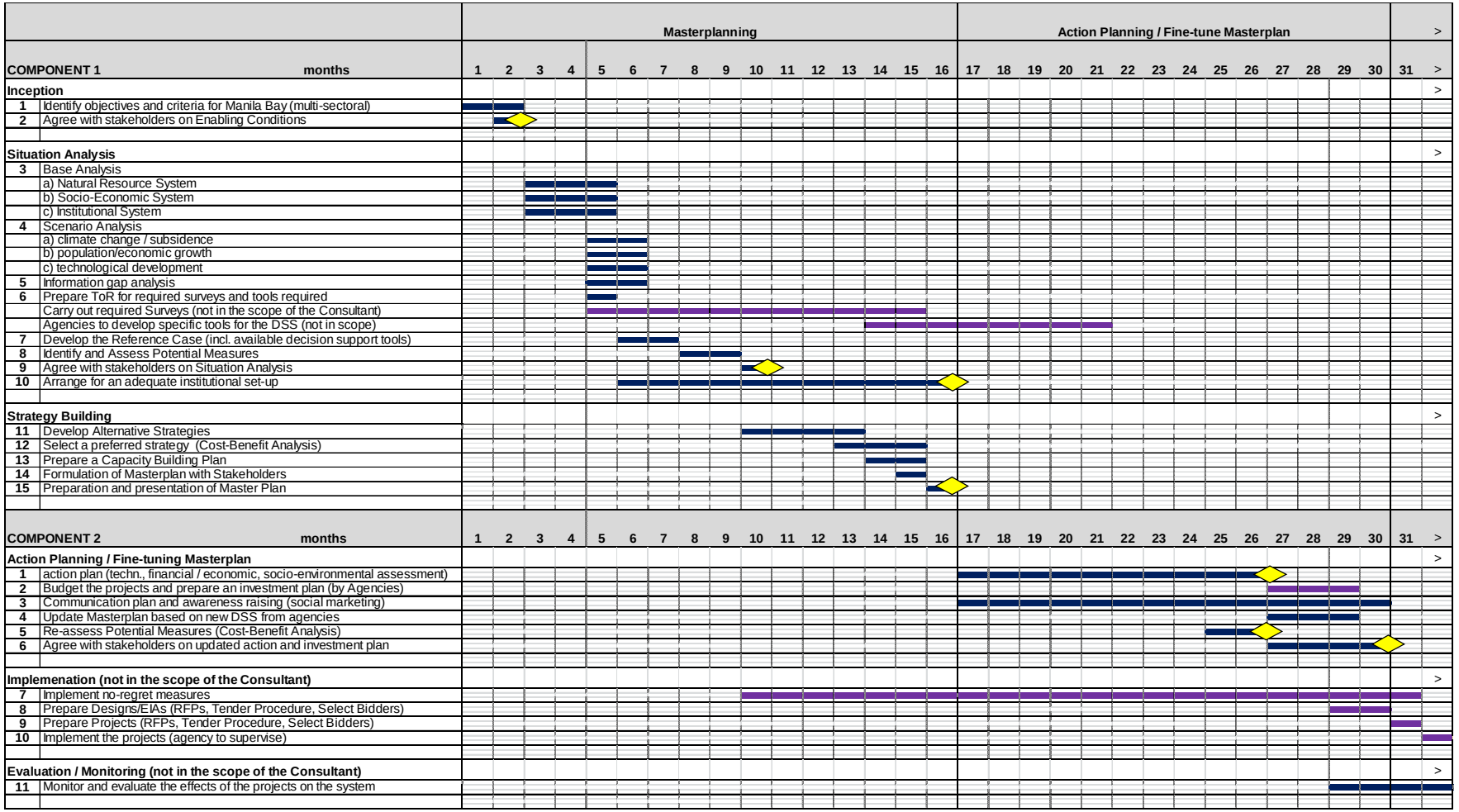
17. Parallel to the development of the Action Plan, a communication plan (social marketing) will need to be developed to inform the wider public on the planned activities.

6.4 Planning and Reporting

18. An indicative schedule has been prepared as guidance to the consultants for their proposal. The consultant will have to prepare their own schedule for the evaluation of their proposal.

19. The schedule for various reports to be issued by the consultants is given below. The consultants will prepare all reports in English language in MS Office format and provide an electronic copy and ten hard copies of each report to the implementing agency.

Reports Component 1	**Months from start of Services**
Inception report	End of 2nd month
Situation Analysis Report (agreed with stakeholders)	End of 8th month
Strategy building	End of 14th month
Final draft Master Plan report	After 15 months
Report on the institutional set-up.	End of 15th month
Capacity Building Plan	End of 15th month
Final Master Plan report (incorporating comments from the implementation agency)	End of 16th month
Reports Component 2	**Months from start of Services**
Action Plan / Investment Report	End of 26th month
Updated final Master Plan report (incorporating comments from the implementation agency)	End of 28th month
Updated Action Plan / Investment Report (incorporating comments from the implementation agencies)	End of 30th month


Masterplanning
Action Planning / Fine-tune Masterplan
COMPONENT 1
months
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Inception
1 Identify objectives and criteria for Manila Bay (multi-sectoral)
2 Agree with stakeholders on Enabling Conditions
Situation Analysis
3 Base Analysis
a) Natural Resource System
b) Socio-Economic System
c) Institutional System
4 Scenario Analysis
a) climate change / subsidence
b) population/economic growth
c) technological development
5 Information gap analysis
6 Prepare ToR for required surveys and tools required
Carry out required Surveys (not in the scope of the Consultant)
Agencies to develop specific tools for the DSS (not in scope)
7 Develop the Reference Case (incl. available decision support tools)
8 Identify and Assess Potential Measures
9 Agree with stakeholders on Situation Analysis
10 Arrange for an adequate institutional set-up
Strategy Building
11 Develop Alternative Strategies
12 Select a preferred strategy (Cost-Benefit Analysis)
13 Prepare a Capacity Building Plan
14 Formulation of Masterplan with Stakeholders
15 Preparation and presentation of Master Plan
COMPONENT 2
months
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Action Planning / Fine-tuning Masterplan
1 action plan (techn., financial / economic, socio-environmental assessment)
2 Budget the projects and prepare an investment plan (by Agencies)
3 Communication plan and awareness raising (social marketing)
4 Update Masterplan based on new DSS from agencies
5 Re-assess Potential Measures (Cost-Benefit Analysis)
6 Agree with stakeholders on updated action and investment plan
Implemenation (not in the scope of the Consultant)
7 Implement no-regret measures
8 Prepare Designs/EIAs (RFPs, Tender Procedure, Select Bidders)
9 Prepare Projects (RFPs, Tender Procedure, Select Bidders)
10 Implement the projects (agency to supervise)
Evaluation / Monitoring (not in the scope of the Consultant)
11 Monitor and evaluate the effects of the projects on the system

6.5 Access to Data and Tools

20. The Government of the Philippines will have to give the consultants full access to all available data and information relevant to their task as per government rules. The data shall include, but not be limited to, sector development plans, reports prepared by the government relating to management of Manila Bay, hydro- and meteorological data, water quality data, demographic data, topographic maps, data on operation and maintenance of existing infrastructure, and relevant ordinances, legislation, regulations and administrative orders. The consultants will have to include the development and application of the necessary decision making tools for the analysis in their proposal. At the time of commencement of the planning process (DSS) tools may be available from PRA, LLDA and DENR. Input from Agencies need to be included in the consultants proposal as alternative for development and application of the tools by the consultant.

6.6 Indicative staffing Requirements

21. The consultants are free to propose staffing plans to carry out the services. The following is a compulsory set of key staff that will be evaluated.

International Staff	Estimated number of MM Component 1	Estimated number of MM Component 2
Team Leader / ICZM expert	16 months	14 months
Policy Analysis expert	6 months	4 month
Planning and zoning expert	8 months	6 months
Economist	8 months	6 months
Water Quality and Ecological Expert	6 months	4 month
Coastal Engineering / Flood Control Expert	6 months	4 month
Governance expert	3 months	1 months
DSS Tool Expert / modeller	6 months	6 months
ICZM training specialist	3 months	1 months
Procurement & licensing expert		4 month
Total	62 months	50 months

Domestic Staff	Estimated number of Man-months Component 1	Estimated number of MM Component 2
Deputy Team Leader	16 months	14 months
ICZM Expert	8 months	3 months
Water Quality Expert	8 months	3 months
Coastal / Flood Control Expert	8 months	3 months
Modelling and GIS Specialists	10 months	6 months
Environmental Specialist	4 months	3 months
Socio-economic Specialist	4 months	2 months

Coastal engineer	2 months	4 months
Cost-engineer		4 months
Institutional Specialist	6 months	-
Water Lawyer	4 months	-
Communication and Public Participation Specialist /	6 month	4 months
(Planning) specialists from different sectors (ports, reclamation, industry, fishery, tourism)	18 months	6 months
Total	94 months	52 months

6.7 Recruitment of Consultants

22. The consultants will be recruited using the quality based selection procedure (QBS) according to the tender procedures of the implementing agency. The short-listed firms are strongly encouraged to associate or make joint ventures with eligible national consulting firms and institutes with ample experience in the Manila Bay area for carrying out this assignment.

This page is intentionally left blank.

7 REFERENCES

Best Value Group (www.bestvalue-group.nl).

DENR (2006). Initial valuation of Selected Uses and Habitats and Damage Assessment of Manila Bay. Quezon City, Philippines: Department of Environment and Natural Resources (DENR)

DENR (2015) Review of the Legal and Institutional Frameworks and Options Moving Forward. Quezon City, Philippines: Manila Bay and Tributaries Integrated Water Quality Management Project

Dreschler, M. (2009). Fair competition: how to apply the 'economically most advantageous tender' (EMAT) award mechanism in the Dutch construction industry. PhD Thesis, Delft University of Technology.

Duren, J., & Dorée, A. (2008). An evaluation of performance information procurement system (PIPS). (http://doc.utwente.nl/61476/1/performance_information.pdf)

Haasnoot, M., Kwakkel, J.H., Walker, W.E., Ter Maat, J. (2013). Dynamic adaptive policy pathways: A method for crafting robust decisions for a deeply uncertain world. Global Environmental Change, 23, pp. 485-498

Kashiwagi, D. (2015), Information Measurement Theory + Best Value Standard

Kashiwagi, D. Kashiwagi, J., (2011), Malaysian Construction research Journal Vol8/no.1/2011. Case study: PiPS in the Netherlands.

Marchand, M. and T. Ruijgh – van der Ploeg, 2009. Reframing integrated water management for urbanized deltas: a combined approach of spatial planning and governance to analysis and design. Paper presented at the Conference People and the Sea, (V): living with uncertainty and adapting to change July 9th- 11th 2009, Amsterdam.

MBEMP (2001) Manila Bay Coastal Strategy. Quezon City, Philippines: Manila Bay Environmental Management Project (MBEMP)

MBEMP (2005) Operational Plan for the Manila Bay Coastal Strategy. Quezon City, Philippines: Manila Bay Environmental Management Project (MBEMP)

Pekka Pakkala (2002). Innovative Project Delivery Methods for Infrastructure - An International Perspective. Finnish Road Enterprise, Helsinki, p. 32.

PEMSEA (2004). Manila Bay: Refined Risk Assessment. Quezon City, Philippines: Manila Bay Environmental Management Project (MBEMP) of the Department of Environment and Natural Resources (DENR)

PEMSEA (2005). Manila Bay: Initial Risk Assessment. Quezon City, Philippines: Partnership in Environmental Management for the Seas of East Asia (PEMSEA).

PEMSEA (2012). Integrating Climate Change and Disaster Risk Scenarios into Coastal Land and Sea Use Planning in Manila Bay. Quezon City, Philippines: Partnership in Environmental Management for the Seas of East Asia (PEMSEA).

Plehn.B, Hiring an External Advisor Hydrology at Water Board De Dommel (http://cibw117.com/journal/index.php/performance-info-and-value/article/viewFile/64/62)

PSA (2014). GNP numbers available at: https://psa.gov.ph/ Philippine Statistic Authority

Rijt, J., van de & Santema, S. (2012). The best value approach in the Netherlands: A reflection on past, present and future. Journal for the Advancement of Performance Information & Value, 4(2).

Rijt, J. van de, Witteveen, W., Vis, C., Santema, S. C. (2011). Best Value at the Directorate General for Public Works and Water Management in the Netherlands: A Case Study of the Procurement of Infrastructure Projects worth $1,200M. Journal for the Advancement of Performance Information and Value, 3 (1), 90-100.

Rijt, J. van de & W. Witteveen (2011). Guest Editor's Introduction to the Special Issue: Best Value Procurement in the Netherlands. Journal for the Advancement of Performance Information and Value, 3 (1), 1-5.

Stewart,B: Warren,H: Sullivan, K: (2015) Canada Best Value Movement and the University of Alberta (http://ksm-inc.com/wp/wp-content/uploads/2015/01/22-Canada-Best-Value-Moevement-and-The-University-of-Alberta.pdf

UN-ISDR (2015). Sendai Framework for Disaster Reduction 2015-2030, Geneva, Swiss: UN-ISDR

VeenendaaL van, S; Witteveen,W. (2011).Tender Environmental Impact Assessment Extra Discharge Capacity Afsluitdijk , PBSRG 2011, Journal for the Advancement of Performance Information and Value. (http://cibw117.com/journal/index.php/performance-info-and-value/article/viewFile/63/61)

Witteveen, W., & van de Rijt, J. (2013). Possible Barriers to a Successful Further Diffusion of the Best Value Approach in the Netherlands: Observations of Major Misunderstandings on the Concept and Theory. Journal for the Advancement of Performance Information & Value, 5(2).

ANNEX A – RISKS AND CHALLENGES

According to the Manila Bay Coastal Strategy MBEMP (2001) there are a great number of risks and challenges in Manila Bay, see Table A1. According to current reports the situation has only further deteriorated (e.g. PEMSEA's 'Total pollutant loading study in the Laguna de Bay – Pasig River – Manila de Bay watershed of 2013 and DENR's state of the River reports, see Figure A1).

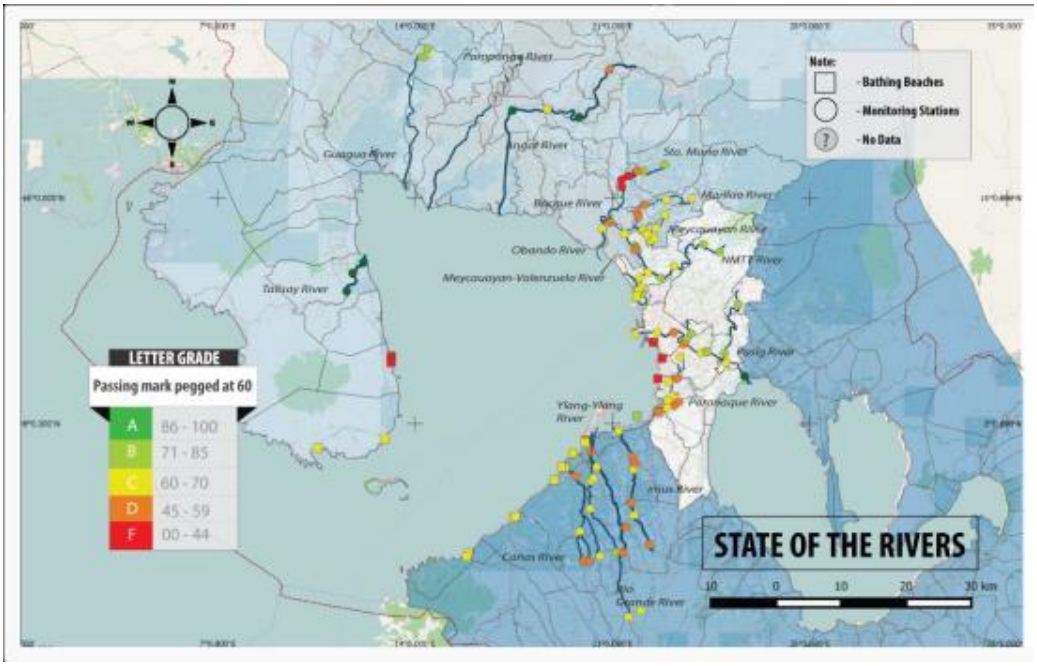


Figure A1 State of the Rivers entering Manila Bay (DENR, 2014)

Table A1 Risks and challenges

*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.*	
Concerns	**Implications for Manila Bay**
• Domestic sewage discharged to Pasig River from 11 major areas in Metro Manila. • Other major contributors of organic loading to Manila Bay include the Bulacan, Pampanga and Cavite River Systems. • Nutrient concentrations are increasing in the eastern part of the Bay, especially near Bulacan, Pasig, and Parañaque Rivers. • Heavy metals and pesticides are contaminating sediments and seafoods. • The red tide phenomenon, which is caused by the bloom of harmful algae, is causing paralytic shellfish poisoning	• 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

(PSP) in humans through consumption of contaminated shellfish. • 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.	attract tourists and generate tourism revenues. • 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 for 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 for 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	• 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 o Infrastructure development o Compensation o Restoration o Welfare

most prominent non-metallic mineral deposits are the quarry deposits of sand and gravel.	
Siltation and sedimentation	
Concerns	**Implications for 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 for 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 for 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.	• Dislocation of people. • Livelihood, commercial activities impeded. • Possible changes in shoreline position,

• 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.	bathymetry, clogging of river mouths and consequent flooding. • Measures to protect infrastructure and communities along the coast.
Sea leve rise	
Concerns	**Implications for 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 for 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.

ANNEX B – REPORT OF ACTIVITIES / BRIEF MINUTES OF MEETINGS

Location / Person / organisation	Activities / issues addressed
August 5, 2015	
World Bank office, Manila **Hotel Manila**	Meeting Team leader with World Bank in Manila – discussion on the possible follow-up of the DRR scoping mission Arrival DRR-Team members, informal meeting DRR-Team
August 6, 2015	
NEDA Office manila, kick-off meeting with NEDA Infrastructure Department **Present on behalf of** NEDA • **Ass. DG. NEDA Mr. R. Reinoso** • **Ms. Kathleen Mangune, Dir. IS Staff (IS=InfraStructure)** • **(3) NEDA IS Staff members** **On Behalf of NL Embassy** • **Ms. Eileen Tirona-Vizmonte**	• introduction NEDA representatives • Introduction by Ms Eileen Vizmonte (RNE) about Dutch motives to support the Government of the Philippines • Introduction DRR-Team, DRR facility and scoping mission by DRR-Team leader • ADG Reinoso expressed appreciation for support Dutch Government and: ▪ Explained NEDAs expectations of the scoping mission. The final aim is to formulate a holistic Development & Management Master Plan for the Manila Bay area. 'Policy drives Strategy'. ▪ NEDA offers to arrange logistics like working space for DRR-Team in NEDA Infrastructure office, to act as liaison with other Agencies, to organise meetings/workshops if required ▪ 4 No of NEDA/IS staff assigned to support DRR-Team ▪ Ms. Mangune will act as focal person for DRR-Team
Meeting room Hotel **DRR-Tteam**	Kick off DRR-Team, evaluate discussion with NEDA, determine the scope of work, the strategy to be followed, exchange of collected information from preparatory work in the Netherlands (internet searches, local knowledge, reports, information from other relevant sources), strategy, splitting the work, planning scoping mission.
August 7, 2015	
NEDA office, Manila	Informal meetings with assigned NEDA staff, desk study, internet searches, draft table of content for the DRR Scoping Report.
August 8, 2015	
Manila, DRR-Team	Full day site visit. Visit Laguna de Bay, Mangahan floodway, northern lakeshore dike and Labasan Pumping Station, Lupa Arenda, Coastal Road Manila Bay / Roxas Blvd, Old Manila (Intramures), North Port area, Navotas Fish Port, Manilla Ocean Park.
August 9, 2015	
Hotel, DRR-Team	Desk research, internet searches, studying reports on Manila Bay, Development plans, preparation lay out reporting, preparation lay out ToR, Study mandates of different Government Departments, Government Agencies, approval process reclamation and other infrastructural projects.
August 10, 2015	
NEDA Office, DRR-Team	Desk research, internet search, studying reports on institutional framework Government Philippines, reports on Manila Bay Development plans, preparation lay out reporting, Study mandates of different Government Departments, Government Agencies. Preparation presentation Delta Plan, Preparation presentation for NEDA staff (August 11).

August 11, 2015	
Meeting PRA, NEDA, DRR-Team **Present:** **On behalf of PRA** • **Mr. Atty. Joselito Gonzales, AGM** • **Ms. Elizabeth Mendoza, Manager Environmental Man. Dpt.** • **Mr. Ed Destora, Engineering Dpt.** **On behalf of NEDA** • **Elmer Dorado** • **Vykman Gasco** • **Omarcaliph Tiblani** **DRR-Team**	Subjects: • Presentation DRR mission / team, • activities and plans • Position / role PRA • Planned reclamation projects in Manila Bay • Manila Bay development Plan • Supreme Court mandamus (2008/2011) • Available information and information gaps. • PRA's role in reclamation project review and approval.
Meeting **Wetlands International Philippines.** **Mr. Arne Erik Jensen** **DRR- Team**	Discussed wetland conservation and protection of endangered species in the Manila Bay area. What NGO's to consult with respect to the environmental problems around Manilla Bay? Remarks made by Mr. Jensen: • Wrongful landscape management is for a large extend responsible for most hazards (more than floods and typhoons. • He observed at PRA growing interest for the environment, but PRA still wants to reclaim as much as possible. • Advise to speak with WWF (Joe Palma, CEO.) • Manila Bay still is top 5 wetland area in Philippines, but it's not clear which wetland area is still left and in what condition. • DENR (re)planted on massive scale mangroves, but with very limited success (wrong trees, wrong place, only some 15% success rate) and with little consultation and coordination with other relevant stakeholders.
August 12, 2015	
NEDA Office	Reporting, Desk research, internet search, preparation reporting and ToR, Meeting with Erik Planta (Dir.) and Ms. Coy Roncesvalles of IS staff NEDA, discussing planning and development mandates of different Governmental Agencies, departments and Offices.
August 13, 2015	
	Desk research, internet search, studying reports on Manila Bay, study and discuss organisational structure for (National and Regional) development planning in the Philippines , reporting, preparation, Study mandates and relevant Executive Orders of different Government Departments, Government Agencies, approval process of infrastructural projects.
August 14, 2015	
NEDA Office, DRR-Team, NEDA staff, **Representatives from different Government Agencies and Offices, NGOs:** **DENR, PRA, MWSS, PPA, Manila City hall, CEC, CEC-Phils AGHAM, DOT, Navotas City Hall, ASAP, DOTC, NFRDI** ***Minutes of meeting Annex to the DRR report***	1: Morning: A roundtable meeting, organised by NEDA, with around 20 representatives from different Government Departments, Agencies and Offices, NGOs to discuss: • the details of the DRR scoping mission, • the policies relevant to the development & management of Manila Bay • The delineation of mandates of agencies vis-à-vis development interventions within the Manila Bay area in accordance with national and local laws, rules and regulations (hypothetical cases). • The importance to constitute an integrated coastal zone development plan, essential in steering decisions related to future project/program development and implementation within the Manila Bay area

	• Q&A 2. Afternoon: Presentation Jos van Alphen (Adaptive Planning / Dutch Delta Plan) for NEDA staff 3. Evening: Informal meeting with Dutch Ambassador Marion Derckx. Discussion on financial options next phase (i.e. development of the MB Master Plan)
August 15-16, 2015	
Hotel, DRR staff	Further drafting the DRR report, further desk research, internet search, studying reports on Manila Bay, Study of the National Framework for Physical Planning (NFPF), The National development Plan 2011-2016, Study of the Local Government Code 1991
August 17, 2015 **NEDA Office, DRR-Team**	Further drafting the DRR report, Drafting the outline of a Terms of reference, Informal meetings with NEDA's IS staff, NEDA's Monitoring & Evaluation Staff and Regional Development staff.
August 18, 2015 **NEDA Office, DRR-Team**	Meeting DRR-Team leader with Ms. Kathleen Mangune, after consultation with ADG Reinoso. Discussion and agreement / about expectations with respect to the ToR. Meeting with National Planning Staff of NEDA about : • Organizational Structure for (national) Development Planning • The Development Planning Outputs (Socio Economic and Physical Land Use Planning) • The harmonization of local planning, investment programming, revenue administration, budget and expenditure management
August 19, 2015	Working on DRR Report and TOR
NEDA Office, DRR-Team	Drafting of sections of the DRR report, drafting of the ToR. Telephone conference with RDC (Regional Development Council) and staff of NEDA
August 20, 2015	
NEDA Office. **Meeting in Office DENR with Exec. Dir. Mr. Noel Gaerlan, Mr. Robert Jara (retired), Ms. Kathleen Magune NEDA, DRR-Team**	• Meeting DENR MBCO (Dpt. Of Environment & National Resources). • Meeting with LLDA (TL) • Debriefing at the World Bank (TL) • Debriefing with Mr. Sjef IJzermans / Ambassador Marion Derks (TL) • Working on draft report and ToR. • Concluding discussion with NEDA Directors. Farewell. • Discussion future planning (finalization report + ToR) of DRR-Team in the Netherlands. • Departure DRR staff

Republic of the Philippines

National Economic and Development Authority
Infrastructure Staff

MEMORANDUM

FOR	:	The Director, Infrastructure Staff
THROUGH	:	The Assistant Director, Infrastructure Staff
FROM	:	Social and Other Public Infrastructure Division (SOPID)
SUBJECT	:	**Highlights of the 14 August 2015 Stakeholders Meeting on the Formulation of a Detailed Terms of Reference (TOR) for the Manila Bay Development Master Plan**
DATE	:	19 August 2015

1. This is to provide the highlights of the subject meeting held on 14 August 2015, at the NEDA ANRES-IS Conference Room. In attendance were representatives from NEDA-ANRES, NEDA-GovS, the Department of Environment and Natural Resources (DENR), DENR – Manila Bay Coordinating Office (MBCO), Department of Tourism (DOT), Department of Transportation and Communication (DOTC), Philippine Ports Authority (PPA), National Fisheries Research and Development Institute (NFRDI), Philippine Reclamation Authority (PRA), Metropolitan Waterworks and Sewerage System (MWSS), Center for Environmental Concerns – Philippines (CECP), Advocates of Science & Technology for the People (AGHAM), Alliance for Stewardship and Authentic Progress (ASAP), Manila City Hall, Navotas City Hall, and the Dutch Disaster Risk Reduction (DRR) Team headed by Mr. Albert T. Nauta who also presented the attached discussion materials.

2. The main objectives of the meeting were to discuss the details of the ongoing scoping mission for the Manila Bay Development Master Plan, the policies relevant to the development and management of Manila Bay and the delineation of mandates of government agencies vis-à-vis development interventions within the Manila Bay area in accordance with national and local laws, rules and regulations, as well as to solicit comments/inputs from the various stakeholders on the scoping mission. The active participation of these identified stakeholders is critical to the exercise to determine the challenges/issues that may be encountered in the conduct of the Master Plan.

3. The highlights of the meeting are presented in the attached Annex.

For information/consideration.

SOPID

Highlights of the 14 August 2015 Stakeholders Meeting on the Formulation of a Detailed Terms of Reference (TOR) for the Manila Bay Development Master Plan

- The discussions focused on who to involve; how to proceed or what procedures should be considered (e.g., approval processes, etc.); and the available resources/information base that can be accessed/utilized.

Topic	Issues/Remarks
A. On improving the water quality of Manila Bay	• Primary entities involved: PRA, PPA, DOT, DPWH, DENR, LGUs, Private Sector • DENR-MBCO mentioned that the decision from the Supreme Court to restore the water quality of Manila Bay to Class SB. All efforts and plans for development within Manila Bay should eventually lead to the improvement of the water quality of the Bay. • Separate projects for pollution control should be conducted to help improve the water quality of Manila Bay. Or, this could be a component of the Master Plan.
B. On the delineation of mandates	• LGUs may enforce laws and regulations to protect the environment; however, it is believed that LGUs do not have absolute power inasmuch as they have to adhere to certain environmental laws and/or compliance requirements. DENR has the mandate to issue Environmental Compliance Certificates (ECCs).
C. On large scale reclamation projects	• Primary entities involved: PRA, DENR, LGUs, Private Sector • With reference to conducting Environmental Impact Assessments (EIAs) and securing ECCs, it was noted that there is a certain bias in the conduct of EIAs by proponents as they would eventually want that an ECC be issued. • To eliminate such bias, it was suggested that a bay-wide impact assessment, instead of the conduct of EIAs on specific sites for reclamation, should be done by a team of experts/consultants belonging to a multi-stakeholders group. DENR-MBCO mentioned that PRA, in coordination with DENR, is supposed to organize this multi-stakeholders group. PRA, per DENR-MBCO, agreed to create a committee to look into such proposal. • PRA declared that, in securing ECCs, it conducts consultations with concerned agencies to avoid interference. It also mentioned that area clearance negotiations with DENR on how to streamline the requirements for the issuance of such clearance are already in the advanced stages. • Further, PRA mentioned that it intends to develop a Decision-Support System (DSS) tool that would determine the characteristics of the Bay, the possible threats to the coastal areas, the impacts of the tributaries to the Bay, the implications of population growth, etc. The DSS may help the Government in coming up with informed decisions based on the impact of a certain reclamation project to anywhere within the Bay. • It was agreed that Government should come up with a holistic, comprehensive tool in order to assess, quantify and evaluate the totality of a reclamation project as far as the Bay is concerned. Also, the Bathymetric Survey of the Manila Bay would help serve as reference for reclamations. • DENR-MBCO added that an agreement has already been forged by

		and between DENR and NAMRIA on updating the Bathymetric Survey of the Manila Bay. This would start next year (2016).
D.	**On the National Reclamation Plan (NRP) of PRA**	• Primary entities involved: PRA, Private Sector • The NRP is a framework plan based on inputs from the private sector. It was clarified that the *NRP is not an implementation plan but a "conceptual plan" of potential reclamation sites*. It only serves as a blueprint for *potential* reclamation sites that will guide investors and LGUs authorized to undertake reclamation activities under the Local Government Code in pursuing and/or undertaking such projects.
E.	**On deepening navigation channels**	• Primary entities involved: PPA, DENR, PCG, DPWH, Private Sector • PPA is responsible for the year-round maintenance dredging but only within the port zone. For private ports, maintenance dredging is being done by the private sector. • It was mentioned that there is a need for a tool that would determine when and where to dredge in order to address flooding and improve the natural flow of water. Also emphasized was the need for regular maintenance dredging because of perpetual sedimentation considering that the Bay area does not have good upstream topography. • The agency mandated to do the dredging maintenance activities of all waterways is DPWH. LGUs send their dredging maintenance requests to DPWH according to DENR-MBCO. • AGHAM suggested that an EIA should be required because dredging has an impact on the water resources. • PRA added that no maintenance dredging or navigational deepening channel can start without an ECC from DENR.
F.	**On storage of polluted sediments**	• Primary entities involved: PRA, DENR, LGUs • In the case of PRA's reclamation projects, it was informed that part of the EIAs conducted is the determination of possible disposal sites for polluted sediments. Feasibility studies help proponents in determining the disposal sites wherein concerned agencies are consulted and mitigating measures are being implemented. In this case, separate ECCs for the reclamation project and for the disposal site are necessary. • In the case of the dredging of the Pasig River, DENR-MBCO cited that dredge materials were dumped in a certain site within Manila Bay. • It was further clarified that the use of the disposal sites is subject to the concurrence of the concerned LGUs; otherwise, dredging will not be allowed by the LGUs. • For catchments, on the other hand, it was informed that DPWH has considered drilling a big dam in the upper Marikina that would have an environmental consequence in terms of sediments towards Manila Bay. Identifying the most appropriate agency/s to be in charge of taking care of the interest of the Manila Bay is critical. • In any case, consultations with the people living within the affected areas should be conducted.
G.	**On declaration of marine sanctuaries as protected areas**	• Primary entities involved: DENR-Biodiversity Management Bureau, LGUs • The enforcement and implementation on the protection of marine sanctuaries are the responsibilities of LGUs as prescribed by existing laws, according to DENR. • PRA mentioned that delineation is necessary in order to consider a

		specific site as a "protected area." The National Integrated Protected Areas System (NIPAS) Act has no specific delineations for protected sanctuaries. • DENR, however, explained that the process on how to delineate/ protect an area is stated in the NIPAS Act. Presidential declaration or legislation from Congress and the Senate is needed in declaring a specific site as a "protected area." PRA added that in order to lift a legislation for delineation, another legislation is necessary. It was also emphasized that a Presidential Proclamation may not be sufficient given that at any point it can be rescinded by the President or succeeding Presidents. • The DENR-Biodiversity Management Bureau, in consultation with concerned LGUs and other stakeholders, evaluates these marine sanctuaries to ensure the proper management, enforcement, maintenance and protection of the areas.
H.	**On port expansions and the development of tourism in the Bay area**	• Primary entities involved: DOT, PPA, LGUs • As mentioned by DOT, the biggest obstacle in the development of tourism in the Manila Bay area is its incapacity to accommodate international tourists and cruise ships. • DOT proposed a dedicated coast terminal for cruise ships at the South Harbor but PPA denied such proposal noting that the piers in the South Harbor were designed specifically for cargo operations. PPA, however, committed to find a suitable area to build the coast terminal. • A presidential proclamation, as clarified by DOT, is not required in order to develop such project as long as there is an agreement between the private sector and the National Government, while keeping the concerned LGUs well informed of the apparent economic benefits of such a development.
I.	**On the relocation of affected families along the Manila Bay**	• Primary agencies involved: DPWH, PRA • One of the requirements of the Investment Coordination Committee (ICC) is to have a Resettlement Action Plan (RAP) that will provide land and residential units as well as jobs / livelihood opportunities to sustain the needs of the families to be relocated from the coastal areas.
J.	**On new industrial/ residential activities**	• Primary entities involved: PRA, DENR, LGUs • DENR has made available to LGUs a land use classification map. Apparently, agricultural areas are being converted to residential areas and monitoring at the national level through the Department of Agrarian Reform (DAR) or DENR is limited, making it one of the big challenges. • DENR-MBCO mentioned that the comprehensive land use plans (CLUPs) of LGUs, which are approved by the Regional Development Council and endorsed to the National Government, include the fisheries' interest, tourism interest, port interest, etc. because multi-sectoral consultations are being conducted during the development of the plan. • It was informed that the Integrated Water Quality Management Program for Manila Bay Project of the World Bank is to be signed on November 2015 and scheduled for implementation by March 2016.

K. On who should be the owner/care taker of the Master Plan	• Primary agencies involved: NEDA, DENR, PRA • The perceived solutions to properly implement the Plan were political will on all levels (with emphasis on the top level), development of a roadmap to determine which specific areas/activities to prioritize, maintaining stakeholders' participation, and ownership of the Master Plan. • To ensure the consistency of the Master Plan with the overall development plan for the whole country, NEDA agreed to coordinate with whoever would be the lead agency, whether it will be DENR or PRA or both. • The consistency of proposed programs and projects within the Manila Bay area with the Master Plan may be included as one of the conditions for the issuance of the ECC, Investment Coordination Committee or for the approval of the NEDA Board, as the case may be (such as the case of reclamation projects).

ANNEX C – PROJECT REVIEW AND APPROVAL PROCESS

C.1 Introduction

For some of the structural projects in the Action Plan detailed feasibility studies are required and special approval processes are in place in the Philippines.

The decision making process in the Philippines is directly derived from the Philippine administrative and political structure (see Figure C1). The Local Level (Local Government Units) has a three-tier system of Governance: 1) the Provinces and the Highly Urbanized Cities, 2) the Municipality and Component Cities and at the lowest level of Local Government 3) the Barangays or villages.

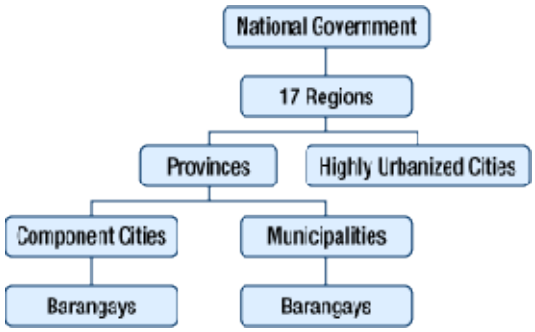


Figure C1 administrative and political structure

The Republic Act (RA) No 7160, also known as the Local Government Code 1991 (LGC1991) provides the political context for the local Governments Units. LGUs shall share with the national government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction, subject to the provisions of LGC1991 and relevant national policies. LGU projects are for the public use only and funded wholly by the LGU and / or privately (through PPP's) for which the Local Government Code 1991 provides the political context.

All NGAs, GOCCs and Offices involved in planning and implementation of any project or program 'that may cause pollution, climate change, depletion of non-renewable source, loss of crop land, extinction of animal or plant species", have to consult the LGUs, NGOs and People Organisations, and need prior approval of the relevant Sangunnian (council) before any project is implemented.

Approval process of structural projects.

The process for the appraisal, endorsement and final approval of major infrastructure projects depends on 1) the type of project, 2) the project value (in PhP) and 3) the project proponent (NGA or LGU) as illustrated in Table C1. Different EO or IRRs are applicable.

Table C1 Relevant rules and regulations per infrastructure implementation

Type Project	Value Project	Relevant rules and regulations
Infrastructure	>1 Billion PhP	EO 230
Infrastructure	<1 Billion PhP	LGC 1991/ EO 325

Infrastructure Projects > 1 B PhP

The process for the approval of a major infrastructure projects > 1 B is graphically described in Figure C2.

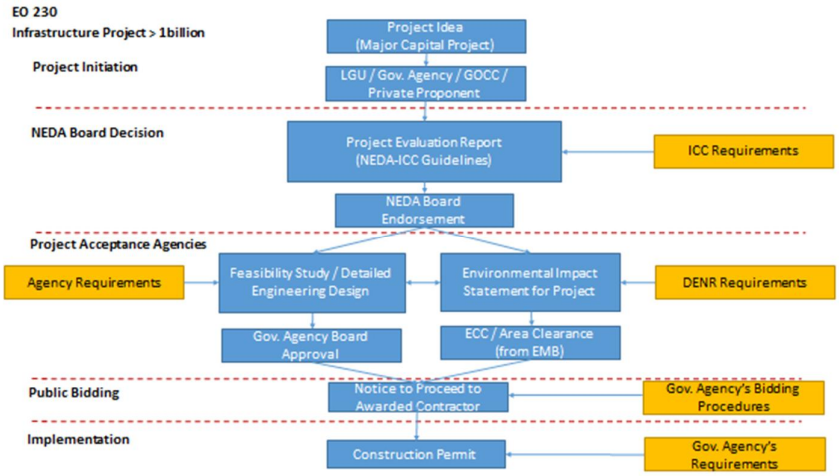


Figure C2 Schematic approval process of a major infrastructure projects

The Investment Coordination Committee (ICC) is tasked to evaluate and approve major infrastructure projects (> 1 billion PHP) on behalf of the NEDA Board as defined by EO 230. The projects are evaluated with respect to technical, financial, economic, social, and institutional development, feasibility/ viability as well as from the context of sectoral plans and geographical strategies, and submitted to the NEDA Board (NB) for confirmation of ICC action.

Projects are evaluated by the ECC (Environmental Compliance Certificate)Technical Board and ICC Secretariat based on a pre-scribed procedure. The projects are evaluated by a Project Evaluation Report (PER) and presented to the ICC in that format. This report contains the following elements: a project history / background / project's sectoral program context / project's regional and spatial context / objective / project description / project cost and financing / institutional arrangements / implementation schedule / technical / market / environmental evaluation /financial analysis / economic analysis / social analysis / issues and recommendation.

Box C1 Value Price Tendering Model

The lowest price policy

In many countries around the world it's common practice that, as a result of public or competitive bidding, major infrastructure or reclamation projects are awarded to the lowest bidder. From research in the Netherlands into the pros and cons of this traditional procurement practice it was concluded that these practices result in:

1. an unhealthy, non-creative and non-responsible construction industry.
2. the absence of an integrated approach and no accompanying efficiencies.
3. an environment in which sustainable business behaviour is not empowered.
4. the most opportunistic and sometimes untrustworthy contractor getting the contract.
5. the contractors following a strategy of interpreting the specifications and requirements of the project as limited as possible.
6. a lot of time, effort and money that goes into resolving conflict and solving quality problems and contractual conflicts.
7. a troublesome relation between the (public) client and the contractor. This leads often to a waste of tax money and societal problems (hindrance, delayed completion).

Innovative procurement

To avoid these negative results of traditional tendering practices, an innovative procurement method – so called integrated contracting – has been developed and extensively tested in the last decade on major Infrastructural projects by the Dutch Government agencies.
The main characteristics of 'Integrated contracting' are as follows:

1. Key is that the contractors are responsible for more design work than in traditional procurement, so called 'early contractor involvement'. This results in more suitable allocations of responsibilities.
2. Public clients enable & empower contractors to come up with their own solutions and alternatives.
3. Contractors will develop more responsibility leading to more reliable and better bids.

The Dutch Government has embraced this vision and has implemented changes in the contracting process.

Concept of Value Contracting: The Value Price Model (see also Annex E)

An important element of integrated contracting is in that bids should no longer be assessed at the (lowest) price only, but on their total 'value'. This is, however, less straightforward than simply selecting the bid with the lowest price. The definitions of 'value' are subjective by nature, but for project assessment it should be suitable for all phases of the project lifespan and be acceptable for all involved stakeholders. In the Value-Price model the bids are assessed either on the basis of 'highest / value price ratio' or 'the highest difference between value and price". There are different methods to quantify 'value' in practice?

Infrastructure Projects < 1 B PhP

Basically the decision making (endorsement / approval) process is similar to the process for projects with a value above 1Billion PhP. The Municipalities and Component cities need to follow the procedure required by the ICC and subsequently need approval from the Province. Then the proposal needs endorsement from the RDC (Regional Development Council).

If the project proponent is a City, and the projects are wholly own funded, the proponent needs approval by the Sanggunian first. There is no need to get endorsement from the RDC. The City however needs to consult the relevant government offices.

All reclamation projects and projects with a Reclamation Component

Executive Order (EO) No.146 (November 2013) and the Joint Order 01-2015 (Implementing Rules and Regulations, IRR) defines that for all reclamation projects, or projects with a reclamation component, NEDA approval is required. So, all reclamation projects initiated/proposed by PRA, or initiated by LGUs (funded out of own funds or through a PPP) and projects of National Government Agencies (NGAs) and Government Owned or Controlled Corporations (GOCCs, ref. Governance Act of 2011) (own funding or PPP) or proposed by qualified Filipino Individuals are subject to final approval by the NEDA Board.

Mandated to reclaim land are NGAs and GOCCs like: PPA, LLDA, BCDA (Bases Conversion & Development Corp), SMBA (Subic Bay Metropolitan Auth.), PHIVIDEC (Phil. Veterans Investment Dev. Corp.), DPWH and NPC.

The Implementing Rules and Regulation (IRR) of executive order NO.146 specifies and enumerate exactly the requirements and procedures for the review, evaluation and approval of all reclamation projects / components nationwide by the NEDA Board.
It also states that "Proposed projects submitted should include Provincial / City Council resolutions expressing no objection to the proposed reclamation project".

The PRA staff (Philippines Reclamation Authority) shall initiate the processing, review and evaluation of all reclamation project proposals and shall, after positive evaluation, recommend to the PRA Board to submit the reclamation project for final approval by the NEDA Board.

The process for the approval of a reclamation project is graphically described in Figure C3.

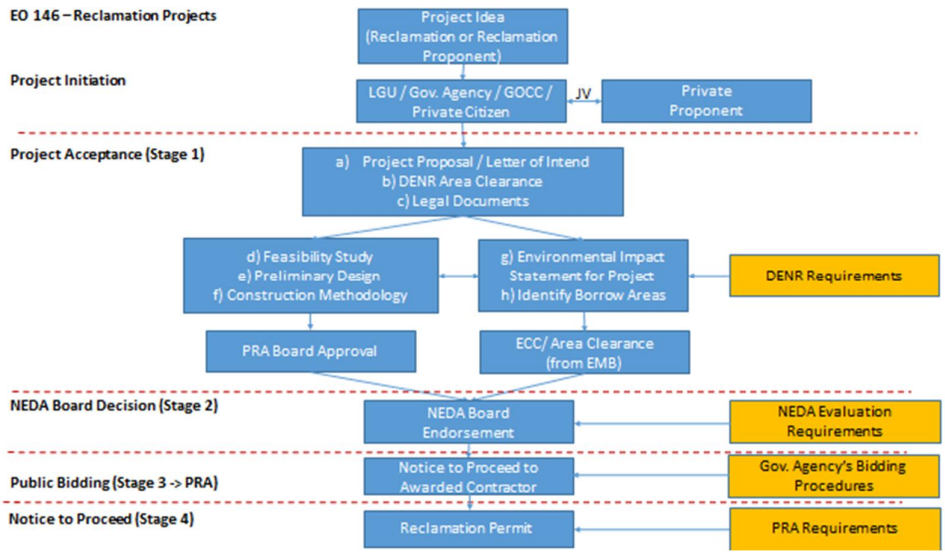


Figure C3 Schematic approval process of reclamation projects

Proposed reclamation projects, endorsed by the PRA and submitted to the NEDA board for approval, should include all relevant documents as required by the NEDA Board, such as: L0Is, Project Proposals, Area Clearance, (Pre)-feasibility studies, identified borrow/quarry areas (and agreement to use that area), draft agreements and contracts and a ECC (Environmental Completion Certificate, including a EIA) secured from DENR /EMB (Environmental Management Bureau).

Infrastructure projects or developments with a reclamation component requiring the same review and evaluation as for infrastructure projects > 1 B PhP (so review by NEDA's ICC). Pursuant to pertinent laws, rules and regulations, the reclamation component shall be subject to the entire review and evaluation process of the PRA and the resulting CSW (Completed Staff Work) of the PRA shall be submitted to the NEDA Board's ICC through a PRA Board resolution for the endorsement of said development or infrastructure project with reclamation component to the NEDA Board. Except for projects including reclamation components (for example, airports, ports, power plants etc.), or wholly own funded projects of LGUs or NGAs all reclamation projects shall be tendered via public bidding (in accordance with RA 9184, the BOT law (Ra 6957, RA 7718), the NEDA JV Guidelines of 2013).

Upon NEDA approval and the bidding an Implementing Agreement (IA) or Reclamation Agreement (RA) shall be executed between PRA, the LGU / GOCC / NGA and the winning proponent.

PRA shall only issue a Notice to Proceed (NTP) after NEDA approval, the execution of an IA or RA and the submission of the pre-construction documents.

The project implementation shall be the sole responsibility of the concerned LGUs, GOCCs, NGAs. EO 146 states clearly that 'No reclamation work shall commence without the required ECC'.

Projects without ECC (and Environmental Management Plan) and approval of NEDA (or the President) are illegal and be forfeited to the state (EO 146)!

C.2 Obstacles

The result of the policy of the State that "the territorial and political subdivisions of the State shall enjoy genuine and meaningful local autonomy" is that the Local Government Units are given more powers, authority, responsibilities, and resources.
During discussions with relevant Government Agency Officials and a Roundtable meeting (on 14 august 2015) with representatives of Government Agencies and Offices (see Annex B) there was a general consensus that, with respect to the implementation of (smaller infra- and reclamation) projects within the LGU jurisdiction, the LGUs 'have much room to manoeuvre'). It is not clear, for example, if in the review/ endorsement/approval process of all LGU funded projects an Area Clearance or ECCs is presented. Even the smaller projects implemented by LGU's within the Manila Bay catchment might have a negative effect on Manila Bay.

it makes sense to include in the decision making process an area clearance and ECC which is not restricted to the 'project site only", but includes the possible effects on Manila Bay. This calls for a strategic move, i.e. a move from looking at projects as 'stand-alone" towards a dynamic strategy, whereby projects are considered related to each other, optimized and integrated (see Table 2.1).

This page is intentionally left blank.

ANNEX D SOME INTERNATIONAL LESSONS LEARNED

Deltas all over the world are attractive places to live and work. Abundant supply of fresh water, and nutrients make them ecological valuable and productive for fisheries and agriculture. Their location as a transport hub between international marine and inland water transport routes generates abundant economic activities and attracts people to live and work. As a result the majority of the most important cities worldwide is situated in deltas. This figure is expected to increase, as well as the number of inhabitants in these cities.

On the other hand deltas are also very vulnerable locations to live and work. Too much water, due to river floods, storm surges, tsunami's or excessive rainfall causes floods, low river discharge or precipitation causes drought and salinisation of surface and ground water. Economic activities and resulting waste production deteriorate water quality. The large fresh water demand increases ground water extraction, which enhances subsidence, making these areas even more susceptible to flooding. Natural hazards may result in large numbers of casualties, fatalities, damage and societal disruption, which may take the affected areas many years to recover (e.g recent examples in Bangkok and New Orleans). As a consequence they can undermine efforts to achieve sustainable development.

The management of deltas is therefore an ongoing effort to balance the benefits and risks of living in a deltas. This requires continuity in management, institutions and funding.
One of the main challenges in delta management is how to handle uncertainty: to guarantee deltas as safe and attractive environments large investments in infrastructure are required as well as an adequate maintenance. On the other hand, rapid socio-economic developments impose large uncertainty on the design conditions that that should be applied (e.g. regarding drainage capacity or to be reclaimed land), which are enhanced by climate change (e.g. sea level rise and increase in rainfall intensity).

Meanwhile in some delta regions plans are being prepared or implemented to achieve sustainable delta management on the long term. In the Netherlands the Delta Program is being implemented yet, aimed to maintain the Netherlands as a safe and attractive place to live and work on the long term (up to 2100). For the Mekong delta a similar was finalized in 2013, whereas in Bangladesh the Bangladesh Delta Plan 2100 is in preparation and in Indonesia much effort is put into a new Jakarta Bay Master Plan.

These adaptive management plans have similar elements in common:

1. They start with a long term holistic vision from which long term (indicative) policy goals are derived, like "maintain an adequate fresh water supply" or "provide adequate and cost-effective flood protection to all inhabitants and activities". Since these plans act as a framework for decisions on land use development and major investments in projects with long lifetimes, the time horizon is 2050, with a view-trough towards 2100.
2. The next step is to make these policy goals concrete and elaborate them in strategies. Because of the long term perspective these strategies have to robust enough to handle future uncertainty. Scenarios, combining climate change and socio-economic trends, are applied to clarify the potential range in long term water challenges and to make this uncertainty manageable. To achieve the long term water related policy objectives despite future uncertainty, these strategies have to be adaptive regarding future developments in climate, population, knowledge etc. Adaptive strategies are clear in their objectives but flexible in their approach. They try to avoid "lock in" and "pathway dependency", and keep options open to take future measures when necessary. Adaptive strategies

benefit from flexible measures that are able “to speed up” or “slow down” when actual developments requires so. In that respect measures that are based on natural processes, like sedimentation, (“building with nature”) are more flexible than structural measures build by concrete or steel.

3. In addition the policy goals have to be made concrete in policy objectives, which can be used to evaluate the performance of strategies in time. Political choices have to be made regarding these policy objectives, since the higher the ambition the larger the efforts and budgets involved. Therefore decisions on policy objectives and related strategies proceeds in an interactive process.
4. Building with Nature instead of Building in or against Nature is widely supported within the Dutch water sector and embraced by a number of government institutions in the field of infrastructure and ecosystem development. However, a different way of thinking, acting and interacting is required (see text box below).
5. These strategies are developed on a regional scale, catchment-based, considering the inter-linkages between water users and (eventually supra-regional) coherence between water systems in upstream-downstream, ground-surface, and major-regional sub-systems. In a stepwise process of joint fact finding representatives from authorities, stakeholder organizations, private companies and knowledge institutes decide upon the facts and knowledge that is available, the decisions that can be made, the uncertainties involved and research and measurements that are necessary to make the next step. In this way local knowledge and expertise can be included in the strategies, while acceptance and commitment is built with the proposed measures. Regional, design- like workshops can facilitate this process.
6. The strategies developed are risk based, i.e. they consist of measures that reduce the probability of a water related hazard (drought, flood) and measures that reduce the consequences (see fig). In addition measures can be included that increase the economic development and improve the resilience to disasters. Probability affecting measures are flood defences, beach nourishments, water storage reservoirs and their related maintenance and operations. Land use regulations (and their enforcement) and early warning systems (and related behaviour of officials and public) reduce the consequences. Special attention should be paid to vital services like electricity, communications, drinking water, health care/hospitals which can cause serious and long term disruption when damaged.
7. In addition to the adaptive Master Plan described above continuity of implementation should be guaranteed to make the long term vision and its related policy objectives reality. This requires leadership, sound institutional arrangement between cooperating parties, stability in funding and preferably all legally based in an act.

Building with Nature®, as developed in the Netherlands, uses natural processes and ecosystem services to ensure safety, human well-being, economic development and natural quality in delta areas through multifunctional use of space. Building with Nature® focuses on cost-effective approaches that avoid or reduce space conflicts by optimally combining different functions. Examples of multifunctional Building with Nature® solutions are the creation or restoration of mangrove forests, shallow foreshores and reefs. These will not only reduce the wave load on coastal defence systems, but will also contribute to carbon fixation, and improve water quality. Moreover, several of these systems naturally adapt to sea level rise, as they have the capacity to trap sediments. In case of sediment shortage, these systems can be nourished with sediments. At the same time, they contribute greatly to landscape and natural values.

The Building with Nature® concept is that measures become an integral part of the regional ecosystem. These measures should provide a net positive value to the environment that goes beyond mitigation and compensation of human developments/activities. Building with Nature projects are realized through an integrated envisioning, design and building process. Various stakeholders from different disciplines work together in developing an optimal multifunctional and sustainable solution. It is a challenge to integrate the dynamic behaviour of nature in the process, as this behaviour can be difficult to predict. This requires a new way of thinking and interacting, integrated into water management practices.

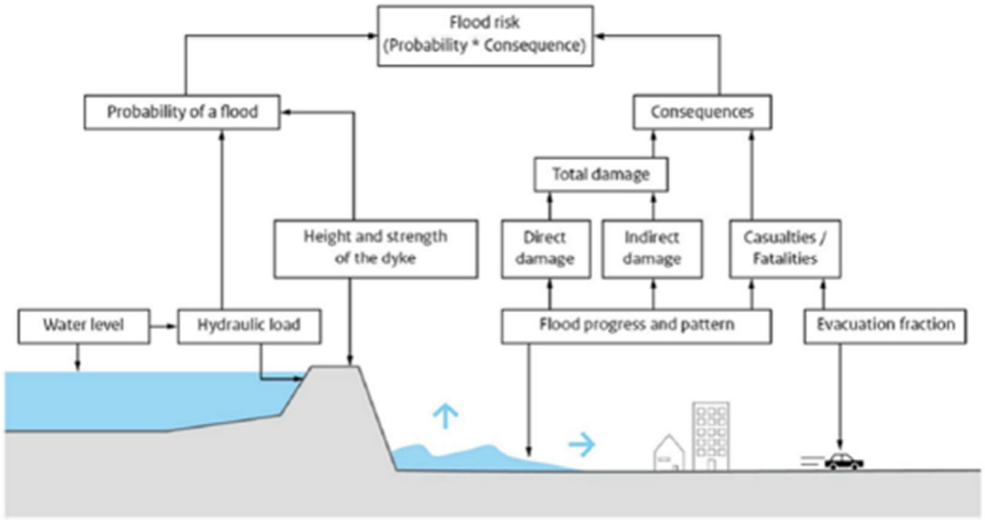


Figure D2 Flood Risk Management

Coastal Zone Management in the Netherlands

The southern Bight of the North Sea is one of the most intensely used coastal zones of the world. Busy maritime navigations routes to the harbors of Rotterdam, London, Hamburg and Antwerp made it necessary to regulate navigation in traffic zones and separation schemes. This was done in cooperation with the international maritime organization (IMO). Since the 70's the exploration and exploitation of natural gas and oil resources, the related fixed production platforms and connecting pipelines increased the necessity of marine spatial zonation. Recently the increase of sand extraction and development of offshore windmill plots added to that need. And closer to the coast nature preservation, aquaculture, fisheries, recreation and land reclamation requires decision making on land use, regulations and more detailed spatial zonation.

Regarding the management of the Dutch sector of the continental shelf (DSCS) municipalities are responsible for the land use in the nearshore zone of 1 km. wide. Water Boards are responsible for the maintenance flood defenses; the Dutch government maintains the shoreline. On behalf of the national government the Minister of Infrastructure and Environment plays a coordinating role in harmonizing sector policies (every 5 year translated in a North Sea Management Plan) and the day to day management of the DCSC (monitoring, surveyance, licensing sand extraction, navigation).

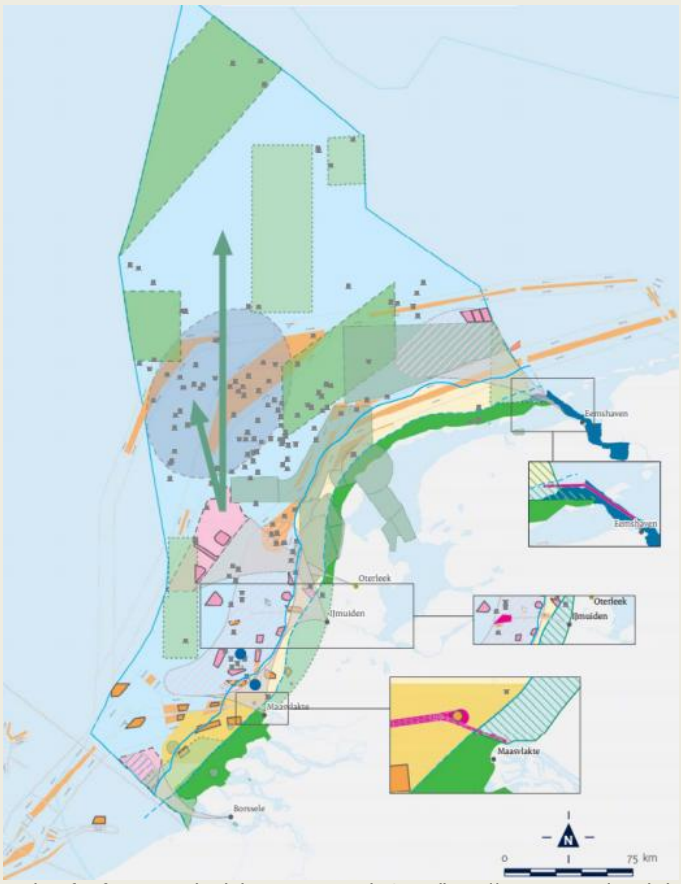


Figure D1 Example of a framework vision map North Sea (http://www.noordzeeloket.nl/en/spatial-management/): spatial planning of fisheries, energy, mining, cables, military use, recreation, shipping, nature, ..)

Operational tasks are performed by the Kustwacht (Coastguard), in which the ministries of Infrastructure & Environment, Defense, Finance, Security &Justice and Economic Affairs cooperate.

The Delta Program of the Netherlands
(www.english.deltacommissaris.nl/delta-programme/documents/publications/2014/09/16/delta-programme-2015)

The Delta Program was prepared between 2010 and 2014. In 2014 is was adopted by the Parliament and implementation of the proposed strategies started in 2015. It consists of strategies and an investment plan to protect the Netherlands against flooding and to safeguard fresh water supply up to 2100, while anticipating climate change. The program is aimed at avoiding a disastrous flood or drought, rather than responding to it after an event. This requires a multi-governmental approach, strategies dealing with uncertainty and adequate institutional arrangements to guarantee future-proof implementation.
The Delta Program includes updated standards for flood protection, policy frameworks regarding fresh water supply and flood-proof urban (re)development and efforts to improve disaster management, to be implemented in 2050. Uncertainties about the future climate, population, economy and society are to tackled by an adaptive way of planning i.e. maximizing flexibility, keeping options open and avoiding 'lock in'. The multifunctional design of these measures increases societal 'added value' (regarding nature, recreation or urban development) and enhances acceptance.
The Delta Commissioner, an independent senior government official, directs this multi-governmental process, monitors progress, prepares a report to Parliament every year and takes the necessary steps when problems arise. From 2020 onwards, a Delta Fund of about 1 billion EUR per year (0.15% of GDP) will provide stability in financial resources. The new Delta Act forms the legal basis for the Delta program, the Delta Commissioner and the Delta Fund.

The Mekong Delta Plan
(www.mekongdeltaplan.com)

The Mekong Delta Plan was prepared by the Government of the Socialist Republic of Viet Nam, in cooperation with the Government of the Netherlands and approved in December 2013.

The Mekong Delta Plan contains on a long term vision (2100) that is aimed to contribute to realizing a prosperous delta, both economically and socially, in which population can thrive in a vigorous and dynamic economy that is founded on sustainable use of its resources, and well adapted to changes in water resources and climate. Based on climate change and socio-economic scenarios it spells out what uncertainties and challenges confront the delta from now on to 2050, and from 2050 towards 2100. The most promising future strategy involves a development towards Agro-Business Industrialization. This implies a to shift from a focus on production towards a focus on added value by improving the product-value chain, involving public-private partnerships and introducing market-based mechanisms.
The plan includes "no regret" and priority measures, measures that can be postponed because the need is yet uncertain, and "last resort" measures, that are only necessary in case of extreme climate change, land subsidence or upstream developments. Distinguishing these types of measures helps in avoiding overinvestment and in flexible adaptation to foreseen and unforeseen developments.

The Mekong Delta plan acts as a reference document for Government agencies and organizations at all levels. As such it provides a tool to support the review, coordination and integration of present and future master plans as well as guidance towards implementation. Its findings are also important for the international development partners, research institutes, and potential domestic and foreign private investors.
It is recognized that the implementation of the Mekong Delta plan requires review of existing policies, programs, possibly leading to intensification where appropriate or adjustments elsewhere. Legislation needs to enable further development and stimulate the process of adaptation. Financial structures need to be set for an investment climate that is in line with the preferred strategy for the Mekong Delta. Stakeholders will be involved in the elaboration of the plan into concrete measures.

The Bangladesh Delta Plan 2100
(www.bandudeltas.org/about/bangladesh-delta-plan-2100-bdp2100/)

The preparation of the Bangladesh Delta Plan 2100 (BDP2100) started in 2014 and will be completed in 2016. BDP2100 will be a holistic plan, integrating planning from all delta related sectors all across the country. It will change the individual sector approach of project planning into a multi-lateral coordinated approach and related program management. This will enable the government to coordinate the funding process of the different government bodies and private stakeholders, using limited funds and investments more effectively. In addition it creates an opportunity to harmonize regional and local developments plans for agriculture, water management, environment, urban development and tourism with national plans.
The BDP2100 contains on a long term vision that is aimed to achieve long term economic growth and environmental sustainability while effectively coping with climate change, natural disasters and other delta issues through robust, adaptive and integrated strategies, and equitable water governance.
It has a planning horizon up to 2041 and beyond, including no-regret short term measures (<2021). BDP2100 will present national policy frameworks (e.g. on flood protection) and regional specific adaptive strategies that are able to deal with uncertainty in future climate and socio-economic developments. In this way it will enable the government to integrate climate change adaptation in a more strategic, knowledge based and consistent way, making efficient use of limited natural and economic resources. In addition the BDP2100 preparation has resulted in an investment proposal (as water related input for the 7th national rolling-on 5-year plan) and will finally contain a capacity building program.
This BDP2100 is prepared in a multi-governmental approach, including stakeholder participation, led by General Economics Division of the Ministry of Planning. Adequate institutional and funding arrangements will guarantee future-proof implementation.

National Capital Integrated Coastal Development Plan (Jakarta Bay)
(http://en.ncicd.com/ncicd/)

The National Capital Integrated Coastal Development Plan (NCICD) was prepared by the Government of Indonesia, in cooperation with the Government of the Netherlands.

The speed and magnitude of land subsidence in Jakarta is such that the need for a comprehensive strategy became clear soon after the 2007 flooding of Jakarta. One of the biggest challenges for the future of the National Capital of Indonesia, is to protect its 10 million inhabitants and fast growing economy against increasing flood risks due to a fast subsiding street level. The northern part of Jakarta is expected to subside up to 5 meters below sea level in 2050 and 7 meters in 2080. The NCICD Project was initiated to address this issue from an integrated coastal development perspective.

The NCICD project was split in an engineering and an institutional component. The engineering component provides an integrated approach to address the challenge. It also provided components to finance the project, like reclamation and expressway developments. Flood protection, improved sanitation and water supply, improved connectivity and sustainable community development are included in the development of the metropolitan coastal area. The institutional component included the establishment of a Project Management Unit (PMU) for the swift and effective financing and implementation of NCICD. The PMU also addresses the organization of effective operation and maintenance and monitoring of the implemented measures.

Figure D3 Impression on Coastal Development in Jakarta (Garuda)

This page is intentionally left blank.

ANNEX E VALUE ADDED TENDERING MODEL

1. The lowest price policy

In many countries around the world it's still common practice that, as a result of public or competitive bidding, major infrastructure or engineering projects are awarded to the lowest bidder based upon traditional design-bid-execute project delivery method.

The (public) client specifies the project in detail, including cost estimates, technical requirements, quality and external details. After this preparatory stage, tenderers can provide bids. Once the winning - lowest bid - tenderer is selected the relationship which develops is often getting adversarial. The client tries to force the contractor/vendor to act in a preferred way. The contractor (or vendor) lacks the opportunity to utilize the latest know-how and experience to improve efficiency but still will try to make a profit, despite the low margins due to the lowest price selection criterion. The contractor will therefore actively seek the opportunities to improve his margins and to aim for and charge for extra work. In this contractual arrangement there is no alignment of goals. The relationship between client and contractor has more to do with competition than cooperation. As a result cost overruns, delays and dissatisfaction on both sides occur.

From research in the Netherlands into the pros and cons of this traditional procurement practice (PhD thesis, Dreschler, 2009) it was concluded that these practices result in:

- An unhealthy, non-creative and non-responsible sector / construction industry;
- Lack of an integrated approach and also lack of accompanying efficiencies;
- An environment in which sustainable business behavior is not empowered;
- Award of the contract by the most opportunistic (and sometimes untrustworthy) contractor;
- Contractors / vendors following a strategy of interpreting the specifications and requirements of the project as limited as possible;
- A lot of time, effort and money wasting into resolving conflicts and solving quality problems and contractual conflicts;
- A troublesome relation between the public client and the vendor/contractor. This often leads to a waste of tax money and societal problems (hindrance, delayed completion).

2. Integrated project delivery methods

Many international publications show that there are opportunities to increase the quality of the tender processes for major infrastructural and engineering projects and to improve the project results by using early contractor involvement and integrated project delivery schemes.

Some examples of integrated contracting, like Design-Built (DB), Design-Built- Finance-Operate (DBFO) are well known and widely used for large capital projects (see figure E1):

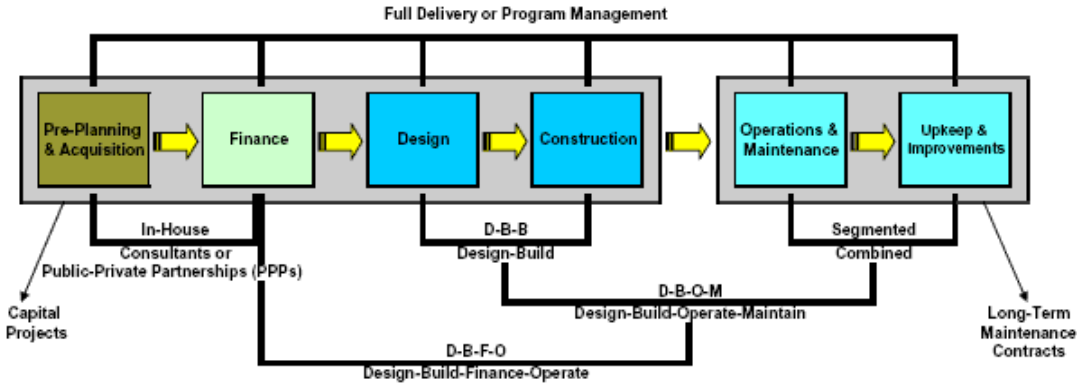


Figure E1 Integrated contracting. Source: Pekka Pakkala. Innovative Project Delivery Methods for Infrastructure - An International Perspective. Finnish Road Enterprise, Helsinki, 2002.

Key of 'Integrated contracting' is that public clients enable & empower contractors / vendors develop their own (design and execution) solutions and alternatives. Contractors will develop towards responsibility taking counterparts, which lead to more reliable and better bids and in more suitable allocations of responsibilities.

The economic and environmental interests are evident: there is a social economic relevance to increase performance, avoid overspending and time-wasting and to improve the price/quality ratio many publications promote integrated project delivery schemes and propose selection on quality based criteria rather than just lowest-bid.

3. Concept of Value Procurement: The Value Price Model

An important element of integrated contracting is that bids should no longer be assessed at the (lowest) price only, but on their total 'value'. However, this is less straightforward than simply selecting the bid with the lowest price. The definitions of 'value' are subjective by nature, but for project assessment it should be suitable for all phases of the project lifespan and be acceptable for all involved stakeholders. In the Value-Price model the bids are assessed either on the basis of 'highest / value price ratio' or 'the highest difference between value and price".

There are different methods to quantify 'value' in practice. Formulating MEAT (Most Economically Advantageous Tender) award criteria is a prerequisite, particular in complex projects. The most obvious way to formulate a mechanism is to apply MCA techniques (Multi-Criteria Analysis). For the comparison of the bids three systems can be selected: a) The Point system (both quality and price are expressed in points), b) a Price Correction system (rewards extra performance with added value, which is deducted from the price) and 3) the Ratio system (expresses the total value in a number, which is divided by the price. The highest ratio wins).

4. New EU-rules (2014) on public procurement - ensuring better value for money

EU Public procurement rules govern the way public authorities in the EU buy goods, works and services by establishing the criteria for awarding contracts. They ensure that public purchases are made in a transparent manner so as to ensure fair competition and that contracting authorities get the best value for taxpayers' money.
Earlier EU procurement rules (directives 2004/18/EU) did not always allow public contractors to make the best use of their resources and could also be unduly burdensome, an EU Commission impact assessment shows.

As from 2014 new EU-rules (Directive 2014/24/EU) on public procurement will ensure better quality and value for money when public authorities buy works, goods or services, thanks to new award criteria which will put more emphasis on quality, environmental considerations, social aspects and innovation. To remedy these problems, the award criteria in the new EU rules will be based on the principle of the "most economically advantageous tender" (the 'MEAT' - criteria) which aim to ensure quality and best value for money by putting more emphasis on environmental considerations, social aspects or innovative characteristics, the experience of the staff performing the contract, while still taking into account the price or life cycle costs of the work, good or service procured. This "innovation partnership", which is becoming reality, makes it possible for clients and tenderers to negotiate new, innovative solutions together during the tendering procedure, rather than being committed to a specific solution already when the call for tenders is issued.

5. The Best Value Performance Information Procurement System (BV-PiPS)

A particular form of value-based contracting is the Best Value PiPS approach. The Best Value PiPS methodology was developed (in the mid '90s) at the Performance Based Studies Research Group (www.PBSRG.com) headed by Prof. Dean Kashiwagi of Arizona State University. It was first introduced and applied in the United States. Years later (in 2005) it was introduced and tested in the Netherlands (Rijt, J. van de & W. Witteveen (2011)) and in 2008 in Canada in (Stewart,B: Warren,H: Sullivan, K: (2015)).

The Best Value PiPS is a procurement and project management approach that focuses on gaining the best value for the lowest costs and minimizes direction and releases control of the client over the vendor, since the vendor is the expert. This system focuses on making the vendor accountable for the project and minimizing the direction and decision-making by the owner in the project. According to Kashiwagi the Performance Information Procurement System (PiPS) aims at selecting the most suitable contractor / vendor for the job, to spur the contractor on to the highest performance and to reduce the client's management and control tasks (Kashiwagi 2001, 2003, 2006).

When BV PIPS is set up correctly, one does not need a high level of project management that is constantly checking up on the experts and their work. Project management now becomes a quality assurance role of ensuring that the best value structure is put into place. The transparency caused by the logical setup of the delivery of services will now immediately identify "risk" or "sources of project deviation." The only task of the buyer's project manager and procurement personnel is to ensure that the documentation of the deviation is being done (quality assurance). Instead of making decisions, the buyer's project manager only has to ensure that the contract terms are being met.

We believe that Best Value PiPS is probably a preferred method to tender the Manila Bay Masterplan study, because: it is a unique and very complex project, there is a need for the best expertise, it has a fixed (maximum) budget, a limited time schedule, many participants / stakeholders and a large number of potential local and international bidders.

We therefore like to explain in more detail the principles of the Best Value PiPS methodology and to report on the international experience applying this methodology.

6. Best Value PIPS methodology

The Best Value PIPS has four phases: Pre-qualification (optional), Selection; Clarification; and Execution (Kashiwagi, 2015)

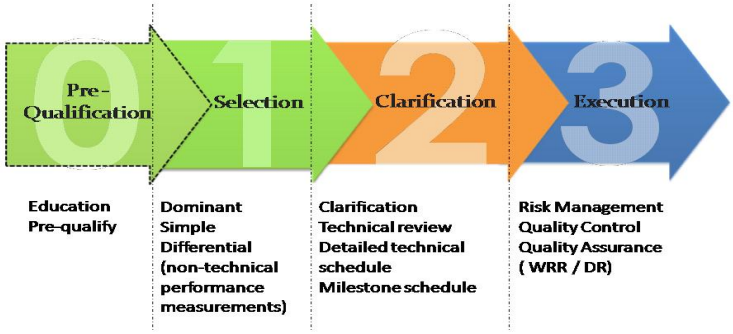


Figure E2 Four phases of Best Value PIPS

In the sections below these four phases and the specific filters used in Phase 1 (the Selection Phase) are explained in more detail:

6.1. Phase 0: Pre-qualification Phase (optional)

The pre-qualification phase is the preparatory phase and composed of the following activities:

1. Education and training in the Best Value PiPS approach, the performance metrics and the use of these metrics to increase competitiveness, value and transparency;
2. Set the minimum requirements (legal and financial) for prequalification to work for the owner. This can include financial information, insurance, bonding information, and “similar type of work” metrics.

There should be no decision making in this preparatory phase in identifying prequalified vendors. The pre-qualification phase is optional. More trained and experience clients can start directly with Phase 1.

6.2. Phase 1: Selection Phase

According to Prof. Dean Kashiwagi both clients and vendors / contractors have to become more ‘performance orientated’. He believes that PiPS will be more effective when working with functional specifications and a fixed budget.

Functional specs present high performance vendors/ contractors with a better challenge to maximize value and to minimize risks for the client. In a PiPS tender vendors/contractors face a real challenge to come up with clever and inventive solutions and will be stimulated to come forward with solutions that can compete in term of quality as well as costs.
The Best Value PiPS process assumes that if a vendor responds to a solicitation then the vendor is an expert at delivering the required service. The client has no responsibility to verify this assumption. Vendors who are not experts are at risk. By definition, the Best Value PiPS approach is comparing alternatives to find the best value for the lowest price that meets the "intent" of the owner (who is not an expert). There may be some vendors / contractors who cannot meet the intent of the owner/buyer. It is not the Best Value PIPS objective to identify and eliminate these vendors as early as possible in the process.

The Selection Phase is to identify the Best Value vendor/contractor (highest level of expertise for the lowest cost) from the competing vendors / contractors.

The selection phase utilizes four filters, before letting the Best Value vendor / contractor pass to the clarification phase (Phase 2):
The four filters are:

- Filter 1: Project capability (Level of Expertise (LE), Risk assessment (RA) and Value Added (VA));
- Filter 2: Interviews with key personnel of the (shortlisted) vendors / contractors;
- Filter 3: Prioritization / shortlisting of vendors / contractors (by the selection committee);
- Filter 4: A 'dominance check' (by the selection committee).

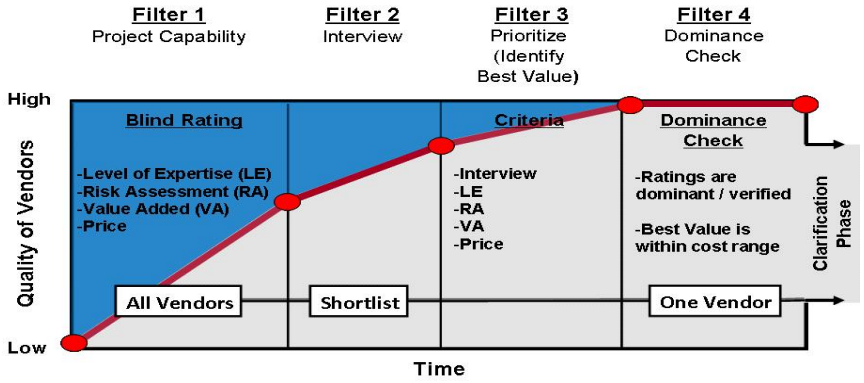


Figure E3 Four filters of the selection phase

Filter 1: Project Capability
The first filter has to do with Level of expertise (sometimes is past experience included, if not restricted by law), the project risks as the bidders see them and to explain how they will minimize, mitigate and manage these risks (Risk Assessment plans), possibilities to add value (VA through dominant expertise) and the price. The price is removed by a contract office/coordinator and put into the selection scoring matrix. So, the selection committee will only rate the project capability submissions (and the interviews). The rating may or may not result in shortlisting the bidders.
Filter 2: Interviews
The second filter are interviews with key personnel who will do the work (and not the "sales"-person). The aim of the interview is to search for an individual who can lead the team. The number of people interviewed should be kept to the critical players, and should be minimized.
Filter 3: Prioritize
The selection committee will prioritize the project capabilities and the information received during the interviews and as a result identify 'the best value'.
Filter 4: Dominance check
The selection committee will do a last 'dominance check' to ensure that the Best Value contractor is indeed the best value and if the best value is within cost range.

Only one – prioritized Best Value – vendor/contractor moves into Phase 2, the clarification phase.

6.3. Phase 2: Clarification Phase

Best Value PiPS minimizes activity of the entire supply chain. The model is simple: technical experts should know their job. Integration of technical expertise should be done by leaders who align the experts in a logical schedule. The requirement, the schedule, the alignment of the experts and the measurement of the integration is set up in the Clarification Phase.

In Phase 2, only one vendor / contractor is considered as the prioritized Best Value vendor/contractor. The prioritized Best Value vendor upon entering the clarification phase is expected to clarify their plan / project scope and clearly clarify "what is in" and "what is out" of their proposal, identify areas that are unforeseen, that have a lack of information, or are risks that they do not control. They must answer any detailed technical questions to show technical competence. They should deliver a milestone schedule (integrated with time, cost and performance measurements) and a Risk Management Plan including a list of all identified risks (prioritized by importance) a plan to minimize/mitigate risk with an estimated impact (time/$$). The clarification period is for the Best Value vendor to clarify their offer to the owner in a way that is understandable and can be delivered by the expert vendor. The offer must be accepted before the vendor is identified as the best value. If the offer is not acceptable to the client, the next prioritized best value vendor / contractor will be invited in to the clarification phase.

6.4. Phase 3: Execution Phase

The contract is signed after the clarification period, and the selected vendor moves into Phase 3 to deliver the service, performing quality control and risk management of the project by the use of the Weekly Risk Report. The client takes the role of quality assurance. Quality assurance is the assurance that the vendor is using the Weekly Risk Reports to ensure delivery of planned service with minimal time and cost deviations. The Weekly Risk Report (WRR) is the key to every project. If the WRR is not being done accurately and on time, the project is not in good health. All weekly risk reports are fed into the Director's Report (DR). The WRR and the DR do not replace any of the contractual documents being used by the owner and vendor/contractor.

7. International experiences with the use of the Best Value Procurement

7.1. United States of America

The Performance Based Studies Research Group (PBSRG), headed by Prof. Dean Kashiwagi of Arizona State University, has documented hundreds of Best Value PiPS projects in the USA and abroad from 1994 to 2003. In the beginning most of these projects were rather small. Later the project sized increased substantially. In many of these projects the PBSRG have been involved as trainer and or consultants.

The results of Best Value PIPS projects worldwide are well documented. PBSRG published in 2004/2006 the following results on 400 USA projects (www.PBSRG.com):

- 98% of all BV PIPS projects are on time and on budget,
- 98% of all BV PIPS projects meet the client’s expectations,
- Reduction of management effort on the client’s side of up to 80% and
- More value for money for the client; more profit for the contractor(s).

In the Netherlands it was questioned however if these outstanding success rates could be justified. In 2005 Dutch researchers were allowed by Kashiwagi and PBSRG to make an analysis of the available documented data of 400 PiPS projects in the USA (Duren, J., & Dorée, A., (2008). Besides, a separate questionnaire was sent to a small (n=17) number of clients and (n=2) contractors who worked with PiPS. The results were combined with the results of a small number of PiPS projects in the Netherlands.

The result of the independent analyses was that:

- 93,5% projects were delivered on time (so the 98% claim was indeed rather positive);
- 96,7% of projects were delivered within budget;
- In 91% of the projects there were no charges for extra work;
- 93,9% of the clients awarded the contractor's performance with an A or B (>8 on a scale 1-10);
- 94% of the clients would hire the same contractor again;
- Contractors indicated their appreciation for the focus on quality instead of lowest price;
- The Kashiwagi's claim that 'the client effort can be reduced to 80%' however, seems to be overoptimistic (however, the research showed that two out of three clients agreed that there is less monitoring and inspection effort needed);
- The claim 'More value for money for the client; more profit for the contractor(s)' was assessed with only 17 clients and two contractors. From this limited survey it appeared that the clients selected a better contractor using PiPS, and that it leads to better coorporation and more efficiency. All (100%) clients stated they will use PiPS again.

Concluding: the PiPS success claims seem justified, but not all to the full extend published by Kashiwagi / PBSRG. The conclusion is that the use of Best Value PIPS leads to projects that are on time and within budget, meeting the client's expectations and reducing the management effort on the client side. Furthermore there was no doubt that a high quality and a low price go hand in hand.

7.2. Canada

The University of Alberta, Edmonton, Canada (the largest University, 38.000 students) began implementing best value concepts and principles based on the best value PiPS methodology in 2010.

The results of the first 8 major projects (estimated value $145 million) are presented in a paper (Stewart,B et all (2015)). They concluded that the pilot implementation of the PiPS best value model was extremely successful. It resulted in savings of USD12 million, in 50% of the cases Best Value was also Lowest Cost, and an average of 9.8 (out of 10 !) client satisfaction with vendor performance.

Future programs of the University of Alberta will include a major construction management service (of all projects below USD 2,5M) and a large scale campus-wide IT project. These projects will function as main efforts to make Best Value PiPS an institutionalized tool for the years to come.

7.3. The Netherlands

As described in Van de Rijt & Witteveen (2011), the Best Value Procurement (BVP) to major clients in The Netherlands was first introduced in 2004. The first BVP projects in The Netherlands started in 2005. A major milestone for BVP in The Netherlands was the decision in 2008 by 'Rijkswaterstaat' to resolve 16 major road bottlenecks in the Netherlands using BVP. ('Rijkswaterstaat' is the government agency that is responsible for design, construction, management and maintenance of major public waterways, roads and water systems in the Netherlands and part of the Ministry of Infrastructure and Environment). This, so-called 'Fast Track Program' was until now the world's largest Best Value Procurement program with a combined worth of USD 800 million (Van de Rijt et Witteveen, 2011).

The most important results of this Fast Track Program were:

- Procurement transaction costs were reduced by over 50% for both client and the construction contractors;
- 95% of all project deviations were caused by the client. The only reason for projects that are still not completed is the owner driven changes, which the contractor experts identified early in the projects;
- 14 projects where completed in the planning period, surpassing the goal of 10 projects;
- Average completion time for projects was reduced by 25%.

In 10 out of the most recent 28 Best Value projects in the Netherlands the winning bid turned out to have both the lowest price and the highest quality. In 6 of the other projects the winning bid had the second lowest price. The conclusion can be drawn that Best Value does not lead to the selection of a more expensive vendor (Witteveen and Van de Rijt, 2013).

Two recent papers (Veenendaal van, S; Witteveen,W. (PBSRG, 2011) and Plehn.B,PBSRG, 2011) describe the use of Best value PiPS in two Dutch major engineering projects, including the weighing of the evaluation criteria. Both projects show that Best Value procurement and the use of PiPS can be successful in the procurement of engineering services.

Through application of MEAT (Most Economically Advantageous Tender) instead of selection based on lowest price the project will not become significantly more expensive (Witteveen and Van de Rijt, 2013). Research of Rijkswaterstaat indicates that in 80% of all procurements with MEAT the winning proposal also has the lowest price. The price increasing effect of MEAT is estimated around 2%. Needless to say, this cannot lead to the conclusion that when the lowest price has been selected this also automatically results into the best quality.