



# Approaches for Planning Wastewater and Septage Systems in the Philippines

Maria Catalina E. Cabral, Ph.D.  
Undersecretary for PPP and Planning

Conference on Watershed Management for  
Controlling Municipal Wastewater in South East Asia

July 28-29, 2016



## Session outline

- Models for planning for wastewater and septage infrastructure
- Emerging practices, challenges on wastewater infrastructure services
- Strategic directions for the implementation of the National Sewerage and Septage Management Program



## Mandates and policy environment



## Mandates and policy environment

### Reinforcing national oversight function and implementation

- Clean Water Act
- DENR Department Order on effluent standards
- DOH Department Order on Sustainable Sanitation
- NEDA Resolution for NSSMP
- Water Crisis Act
- MWSS Charter
- LWUA Charter
- Local Government Code
- Presidential Proclamation (watersheds, river basins)



## Mandates and policy environment

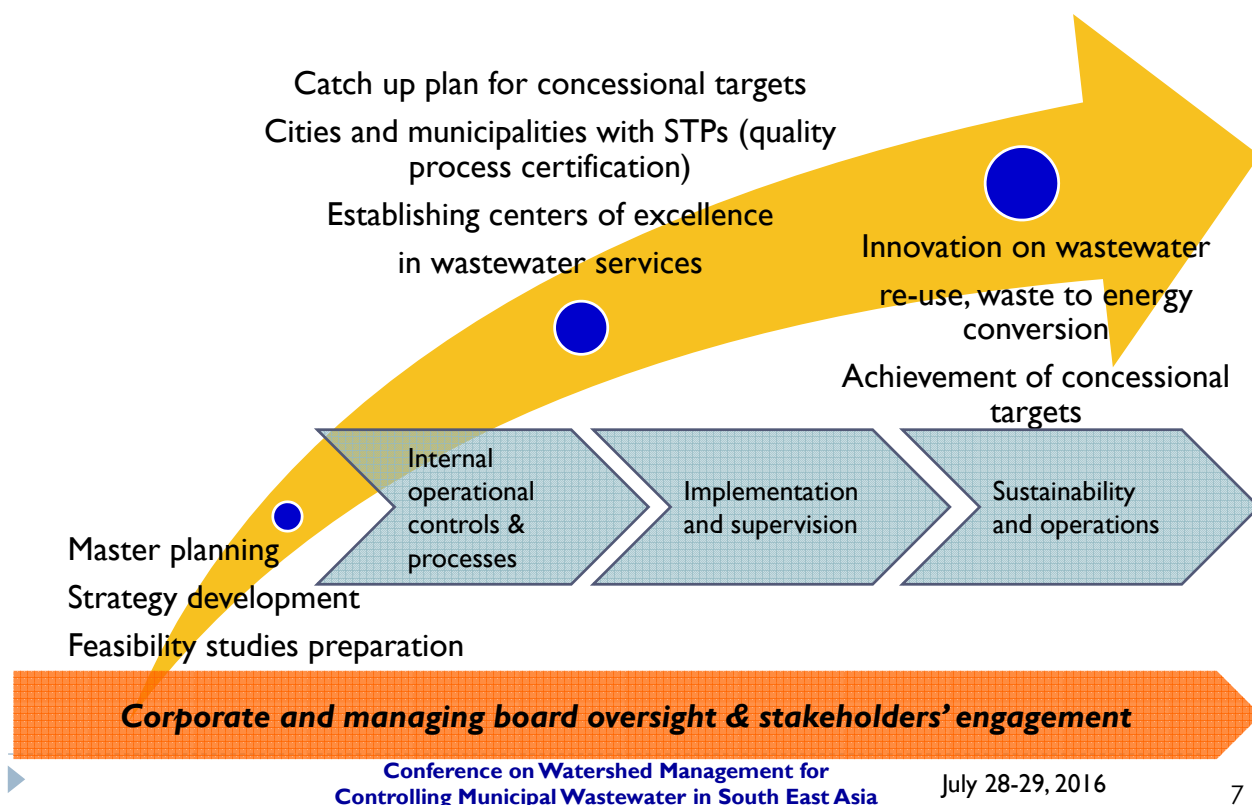
### Reinforcing sub-national oversight function and implementation


- Concessional agreements
- Water district board resolutions
- City/municipal ordinances
- Directives and operational guides




## Models for planning wastewater and septage infrastructure

# Common strategic planning framework through concessional type of wastewater/septage services





**MANILA WATER**  
CARE IN EVERY DROP



**Maynilad**

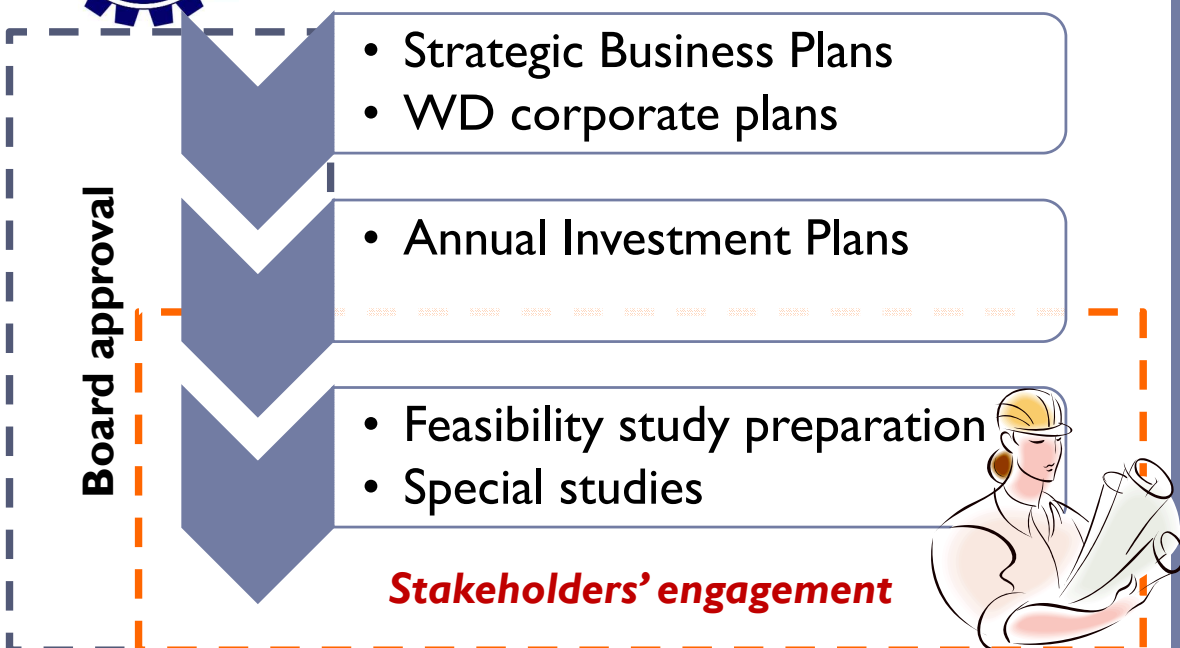
	<i>Manila Water Company, Inc. (based on 2016Q1 report to MBCO)</i>	<i>Maynilad Water Services, Inc.</i>
<b>Connections *</b>	816K people being served by separate system 1,027,033 target customers to be desludged for 2016 Q1 report actual = 206K people served	174k connected to sewer system 600k customers' access to desludging services
<b>Wastewater capacity (combined)</b>	136 mld (38 UWTPs)	229 mld (19 sewerage facilities)
<b>STP capacity (combined)</b>	1400cmd ( 2 septage treatment plants)	940 cmd ( 3 septage treatment facilities)
<b>Key result outcomes</b>	366 km sewerlines 10 pumping stations	527 km sewer lines 67 pump stations
	73 mld of wastewater treated 100% in compliance with WQ standards	57 mcm of wastewater treated 100% conformity to the WQ standards

\*for sewerage & septage.  
 Red- west concession area Blue- east concession area.



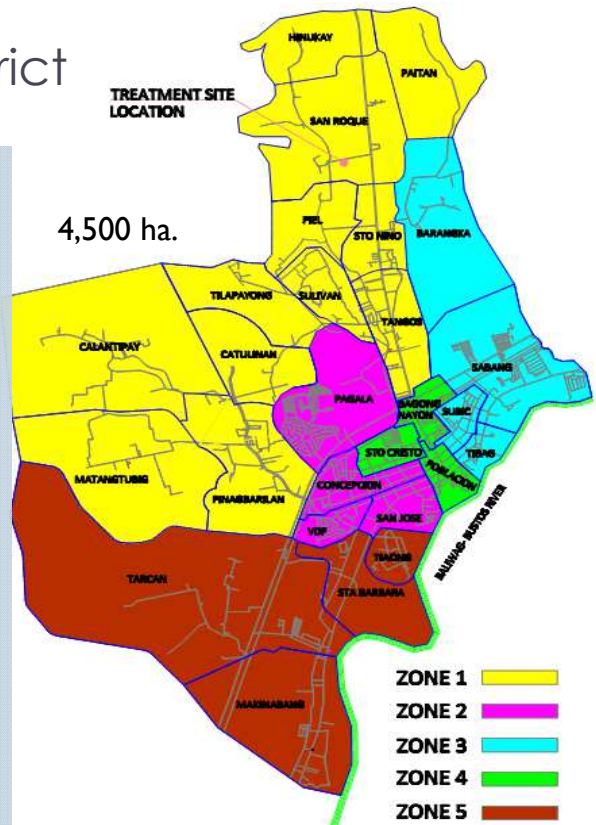
## Implementation challenges

- Right of way and regulatory permits affecting key implementation timelines
- Managing community responses (NIMBY)
- Limited available lots for wastewater/septage systems
- Informal settlers



# Baliuag Water District

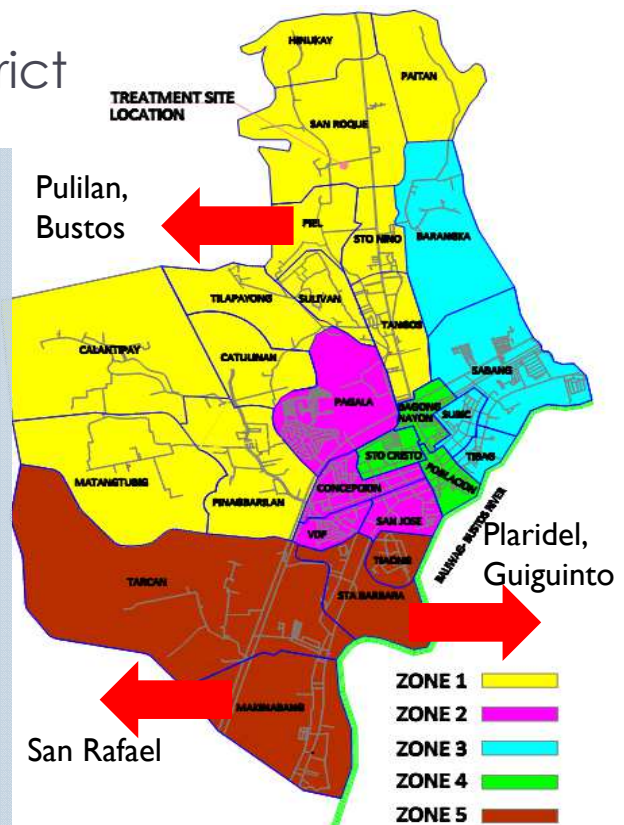
- ▶ Connections: 28,439  
(27 brgy.s into five zones)
- ▶ Capacity of wastewater facility :37 m<sup>3</sup>/day
- ▶ 2 5.5 m<sup>3</sup> vacuum tanker
- ▶ Php 60 M (facilities, vacuum tanker, land acquisition and site development)
- ▶ Decentralized fully-mechanized septage facility
- ▶ Financing: Loan to DBP
- ▶ Outcomes : 2013- Apr 2016  
7,079 septic tanks desludged (43%)



BWD Site Location & Zoning Map

# Baliuag Water District

- ▶ Future plans : Inter-local government cooperation and expansion of current STP facility (additional 120 cu.m.)
- ▶ Benefits: protection of groundwater sources, minimize risks of public health related illnesses.



BWD Site Location & Zoning Map

# Baliuag Water District



Photo source: Baliuag Water District



Conference on Watershed Management for  
Controlling Municipal Wastewater in South East Asia

July 28-29, 2016

13



Republic of the Philippines  
Department of Public Works and Highways

## Operational challenges

- Developing an operations manual
- Periodic check of vacuum tanks
- Close coordination with barangays in desludging activities
- Consideration on road density and traffic
- Process checks on workers' safety during operations



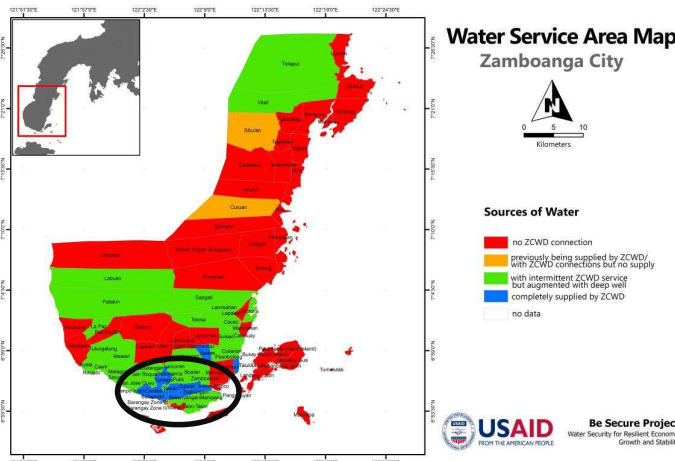
Conference on Watershed Management for  
Controlling Municipal Wastewater in South East Asia

July 28-29, 2016

14

# Zamboanga City Water District

- ▶ Project preparation Phase I (USAID PWRP, Be Secure)
- ▶ Access to : 234,006 (16 urban barangays)
- ▶ Capacity of wastewater facility=4,000 m<sup>3</sup>/day
- ▶ Php 162 M (facilities, water and wastewater laboratory, SCADA, site development)
- ▶ Decentralized combined sewage and septage fully-mechanized facility
- ▶ Project preparation phase
- ▶ Outcomes : 6,000 m<sup>3</sup>/day (2020 targets)



# Zamboanga City Water District

ZCWD used the watershed framework in identifying catchments and in planning for wastewater infrastructure

Central catchment (16 barangays)-Phase I	849 hectares (Magay Creek, Hondo River, Baulan Strait)
Baliwasan Catchment (7 barangays)	1,680 hectares (Baliwasan River, Basilan Strait)
Upper Tumaga Catchment (6 barangays)	2,115 hectares (Tumaga River-midstream)
Lower Tumaga Catchment (8 barangays)	1,940 hectares (Tumaga River-downstream)
Mariki Catchment (5 barangays)	795 hectares (Mariki River, Mariki Swamps, Basilan Strait)



## Practices and challenges : Environmental framework for wastewater planning



Bigger systems will have economies of scale, but smaller systems are as efficient and effective.

Densely packed urban centers makes it challenging to find a suitable site for WTP facilities.



Both a concessional type of wastewater /septage and a straight forward project implementation for WSS benefits from a strategic planning process and from engaging the stakeholders.

There are evidences on practices and approaches wherein a watershed is considered as a planning unit for wastewater and septage infrastructures.

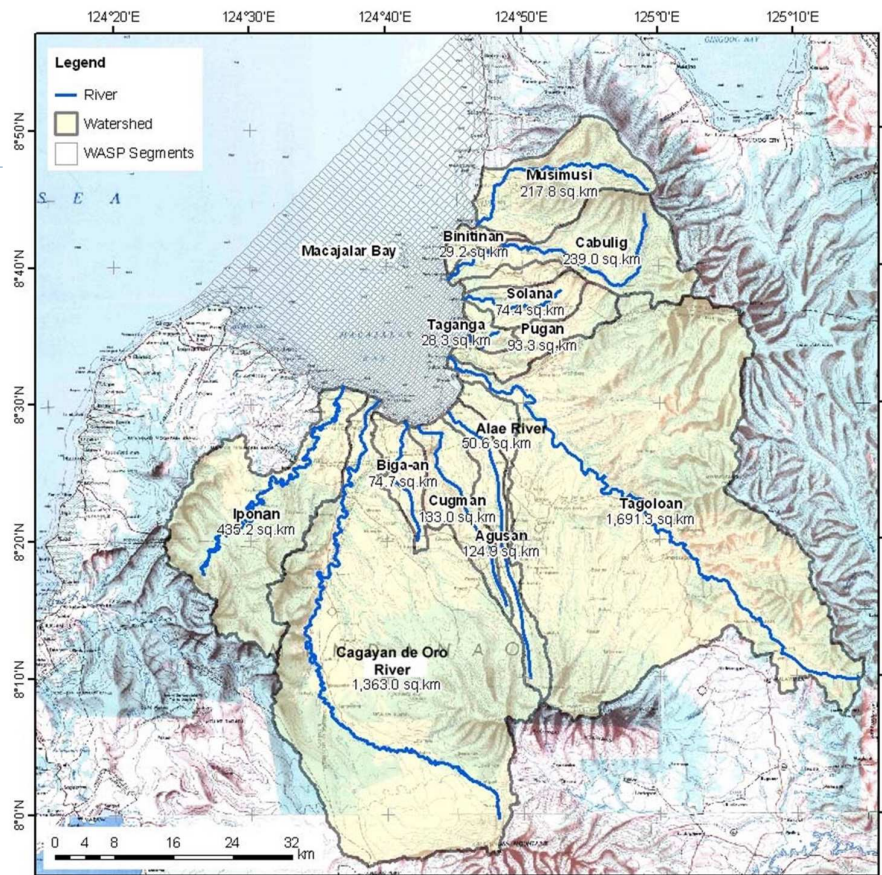


Photo credits to Woodfields Consultants : JICA DENR Study Macajalar Study



Republic of the Philippines  
Department of Public Works and Highways

Thank you!

[cabral.ma\\_catalina@dpwh.gov.ph](mailto:cabral.ma_catalina@dpwh.gov.ph)

Contributors:  
Engr. Eman C. Avengoza, Manila Water Company  
Paulo M. Catibayan, Maynilad Water Services  
Joseph Ocampo, Woodfields Consultants, Inc.  
Shiela dela Torre, AECOM International Development



# Strategic considerations for the National Sewerage and Septage Program

- From water quality mgt. to river basin. [Revisiting the Philippine Water Code.](#)
- Improved information on rivers and watersheds.
- Advocacy and capacity building: Inclusion of a blue environmental framework to water service providers on wastewater and septage planning
- Creating an incentives mechanism : ['benefits to host communities'](#)
- Developing the market of de-sludgers.
- Convergence of national-led programs



---

A sustainable world means  
working together to create  
prosperity for all.

-Jacqueline Novograz

