Approaches for Planning Wastewater and Septage Systems in the Philippines

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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

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

- Catch up plan for concessional targets
- Cities and municipalities with STPs (quality process certification)
- Establishing centers of excellence in wastewater services
- Innovation on wastewater re-use, waste to energy conversion
- Achievement of concessional targets
- Internal operational controls & processes
- Implementation and supervision
- Sustainability and operations
- Master planning
- Strategy development
- Feasibility studies preparation

**Corporate and managing board oversight & stakeholders’ engagement**

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

Board approval

- Strategic Business Plans
- WD corporate plans
- Annual Investment Plans
- Feasibility study preparation
- Special studies

Stakeholders’ engagement
Baliuag Water District

- Connections: 28,439
  (27 brgy. into five zones)
- Capacity of wastewater facility: 37 m³/day
- 2 5.5 m³ 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%)

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

July 28-29, 2016

Baliuag Water District

Photo source: Baliuag Water District

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
Zamboanga City Water District

- Project preparation Phase 1 (USAID PWRF, Be Secure)
- Access to: 234,006 (16 urban barangays)
- Capacity of wastewater facility = 4,000 m³/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 m³/day (2020 targets)

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

<table>
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<tr>
<th>Central catchment (16 barangays)-Phase I</th>
<th>849 hectares (Magay Creek, Hondo River, Baulan Strait)</th>
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</thead>
<tbody>
<tr>
<td>Baliwasan Catchment (7 barangays)</td>
<td>1,680 hectares (Baliwasan River, Basilan Strait)</td>
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<tr>
<td>Upper Tumaga Catchment (6 barangays)</td>
<td>2,115 hectares (Tumaga River-midstream)</td>
</tr>
<tr>
<td>Lower Tumaga Catchment (8 barangays)</td>
<td>1,940 hectares (Tumaga River-downstream)</td>
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<tr>
<td>Mariki Catchment (5 barangays)</td>
<td>795 hectares (Mariki River, Mariki Swamps, Basilan Strait)</td>
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</table>
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 straightforward 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.
Strategic considerations for the National Sewerage and Septage Program

• From water quality mgmt. 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