

Maynilad Water Operations: Enhancing Resilience in the Face of Emerging Challenges

Ronaldo C. Padua VP and Head of Water Supply Operations Division

> Liveable Cities Lab: Road to Resilience 26 January 2022



Maynilad Water Services, Inc.

 Largest water concessionaire in terms of customer base in the Philippines

 Has exclusive rights to provide water and wastewater services in the West Zone of the greater Metro Manila area until year 2037

Re-privatized on January 24, 2007

Maynilad

 Managed by Maynilad Water Holding Company, Inc., which is owned and operated by Metro Pacific Investments Corp., DMCI Holdings Inc. and Marubeni Corp.



Recent Developments

 Under the Revised Concession Agreement signed 18 May 2021, Maynilad is no longer just an agent and contractor of MWSS, but also a public utility (PU).

• To strengthen and formalize its classification as PU, Maynilad applied for a franchise in Congress.

 On 10 December 2021, Republic Act 11600 granting Maynilad the franchise to operate until 2046 was signed into law.

Maynilad

• With the continuing demands of our service area, the security and stability of a long-term franchise will give Maynilad the strength and ability to invest in the water infrastructure the

country needs.



Operations Snapshot

Assets	Water System	Wastewater System
Service area	540 square kilometers	
Treatment facilities	4	22
Combined treatment capacity	2,700 million liters/day	664,000 cubic meters/day
Pipelines (in Km)	7,741	607
Pumping/Lift Stations	38	103
Reservoirs	37	n/a



Our Water Sources



Almost 90% of our raw water supply comes from Angat Dam in Norzagaray, Bulacan. The rest comes from Laguna Lake and deep wells.



How we deliver potable water





Critical Resources Needed

Source Management

- Watershed with facilities for efficient impounding of water like dams
- Conveyance to deliver water (normally by gravity) to treatment facilities
- Source of electricity / energy to run the water source facility
- Communication facility

Treatment

- Water tanks and reservoirs to store potable water
- Pipelines to distribute water
- Valves and appurtenances to control and deliver water where and when it is needed
- Pump stations and boosters to deliver water to high areas and areas far from the source
- Source of electricity / energy to run the pump stations and boosters
- Communication facility

- Facility that can process water to remove physical, chemical, and biological impurities so that it will be safe to drink
- Chemicals (like coagulants, disinfectants, etc.) to aid treatment processes
- Source of **electricity / energy** to run the treatment facility
- Communication facility



PHILIPPINES

https://cdn.cnn.com/cnnnext/dam/assets/211215165136_weather-typhoon-rai-satellite-121521-exlarge-169.jpg

Typhoon Rai (Odette)

PALAU







Assembly and Testing of the MTPs





Field Deployment











Transport of Team and MTP in Coordination with Local Government and Philippine Navy



Bohol MTP Deployment



• Up to 18,000 liters of potable water per day





Cebu MTP Deployment





• Up to 22,000 liters of potable water per day





Training and turn-over for continuous operations and maintenance in Cebu and Bohol





Additional support as of January 18

Typhoon Odette donations



~12,000 liters of bottled water

Php 6.5 M in Cash



Sudden changes in weather patterns are the new norm, affecting water operations in new and alarming ways.

Climate Change Severe Southwest Monsoon and El Nino



• Average of 20 tropical cyclones per year entering PAR

PAGASA warns of 'full-blown' El Niño in 2019



• Drought due to El Nino



Climate Change Severe Southwest Monsoon and El Nino



	Habagat 2012 (enhanced by Typhoon Haikui)	Tropical Storm Ondoy (Ketsana)
Dates	Aug 6-8, 2012	Sept 24-27, 2009
	1,007.4 mm of rain (3-day period) measured in Science Garden, Quezon City	556.1 mm of rain (4-day period) measured in Science Garden, Quezon City
Highest Measured Accumulated Rainfall		

https://www.rappler.com/newsbreak/39948-by-the-numbers-ondoy-habagat-2012-2013



Climate Change Severe Southwest Monsoon and El Nino



Water quality in our dams during habagat season



Enhancing Resilience of Maynilad's Water Operations



Source Management

- Strict protection of watershed areas
- Livelihood and knowledge-advancement activities for the locals that help prevent their kaingin practice
- Taps volunteers to plant tree saplings and mangrove propagules in vital watershed areas
- Reduction of carbon footprint by utilizing alternative energy source like solar
- Use of groundwater as emergency water source
- Explore other sources of water like small rivers, seawater and harvesting of rainwater for domestic use

Treatment

- Upgrade facilities that are susceptible to hazards like flooding and earthquake
- Tightening the network allows for better supply distribution and water recovery
- Design primary distribution system with supply flexibility
- Deploy emergency gensets as alternative energy source and provide enough fuel storage
- Increase treated water reserve capacity
- Smaller reservoirs in strategic locations to enhance supply reliability
- Use of data analytics for optimization and prediction

- Upgrade facilities for a more stable production that is not sensitive to sudden changes in raw water quality
- Deployment of small scale mobile and modular treatment plant to utilize smaller body of water in case of emergencies



Source Management

- Water safety plan is also a must to manage and control identified risks in the delivery of water from source to tap!
- Strict protection of watershed areas
- Livelihood and knowledge-advancement activities for the locals that help prevent their kaingin practice
- Taps volunteers to plant tree saplings and mangrove propagules in vital watershed areas
- Reduction of carbon footprint by utilizing alternative energy source like solar
- Use of groundwater as emergency water source
- Explore other sources of water like seawater and harvesting of rainwater for domestic use

Treatment

- Upgrade facilities that are susceptible to hazards like flooding and earthquake
- Tightening the network allows for better supply distribution and water recovery
- Design primary distribution system with supply flexibility
- Deploy emergency gensets as alternative energy source and provide enough fuel storage
- Increase treated water reserve capacity
- Smaller reservoirs in strategic locations to enhance supply reliability
- Use of data analytics for optimization and prediction

- Upgrade facilities for a more stable production that is not sensitive to sudden changes in raw water quality
- Deployment of small scale mobile and modular treatment plant to utilize smaller body of water in case of emergencies



What could be prioritized now?

Water safety plan

is also a must to manage and control identified risks in the delivery of water from source to tap!

Source Management

- Strict protection of watershed areas
- Livelihood and knowledge-advancement activities for the locals that help prevent their kaingin practice
- Taps volunteers to plant tree saplings and mangrove propagules in vital watershed areas
- Reduction of carbon footprint by utilizing alternative energy source like solar
- Use of groundwater as emergency water source
- Explore other sources of water like small rivers, seawater and harvesting of rainwater for domestic use

Treatment

- Upgrade facilities that are susceptible to hazards like flooding and earthquake
- Tightening the network allows for better supply distribution and water recovery
- Design primary distribution system with supply flexibility
- Deploy emergency gensets as alternative energy source and provide enough fuel storage
- Increase treated water reserve capacity
- Smaller reservoirs in strategic locations to enhance supply reliability
- Use of data analytics for optimization and prediction

- Upgrade facilities for a more stable production that is not sensitive to sudden changes in raw water quality
- Deployment of small scale mobile and modular treatment plant to utilize smaller body of water in case of emergencies



Build critical technical competencies for a more resilient water operations





Our priorities are clear ensure resilient operations, meet service obligations, and protect the environment for longterm water security



Thank you.

ar