



**MANILA WATER**  
CARE IN EVERY DROP

# **Sustainable Delivery of Sanitation and Wastewater Management Services**

**Mark Tom Mulingbayan**

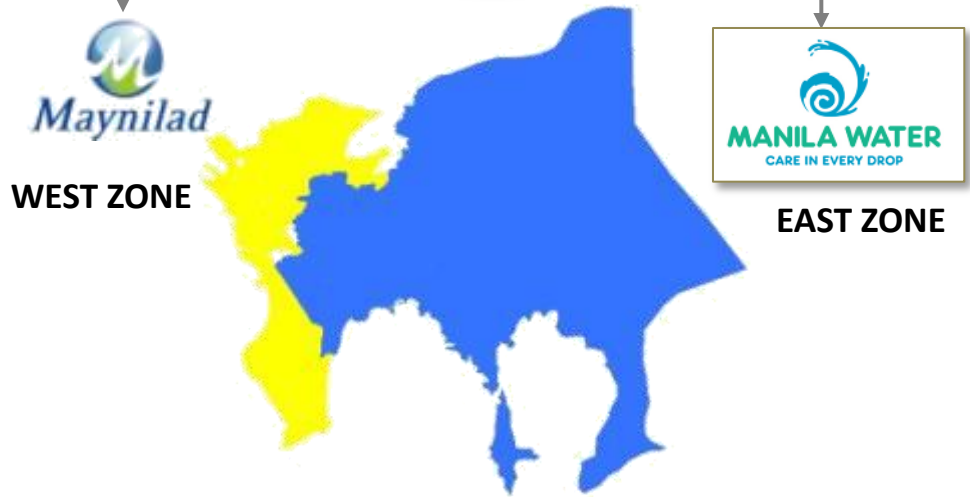
**2017.03.22**

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**Metropolitan Waterworks and  
Sewerage System (MWSS)**

**CONCESSION  
AGREEMENT**



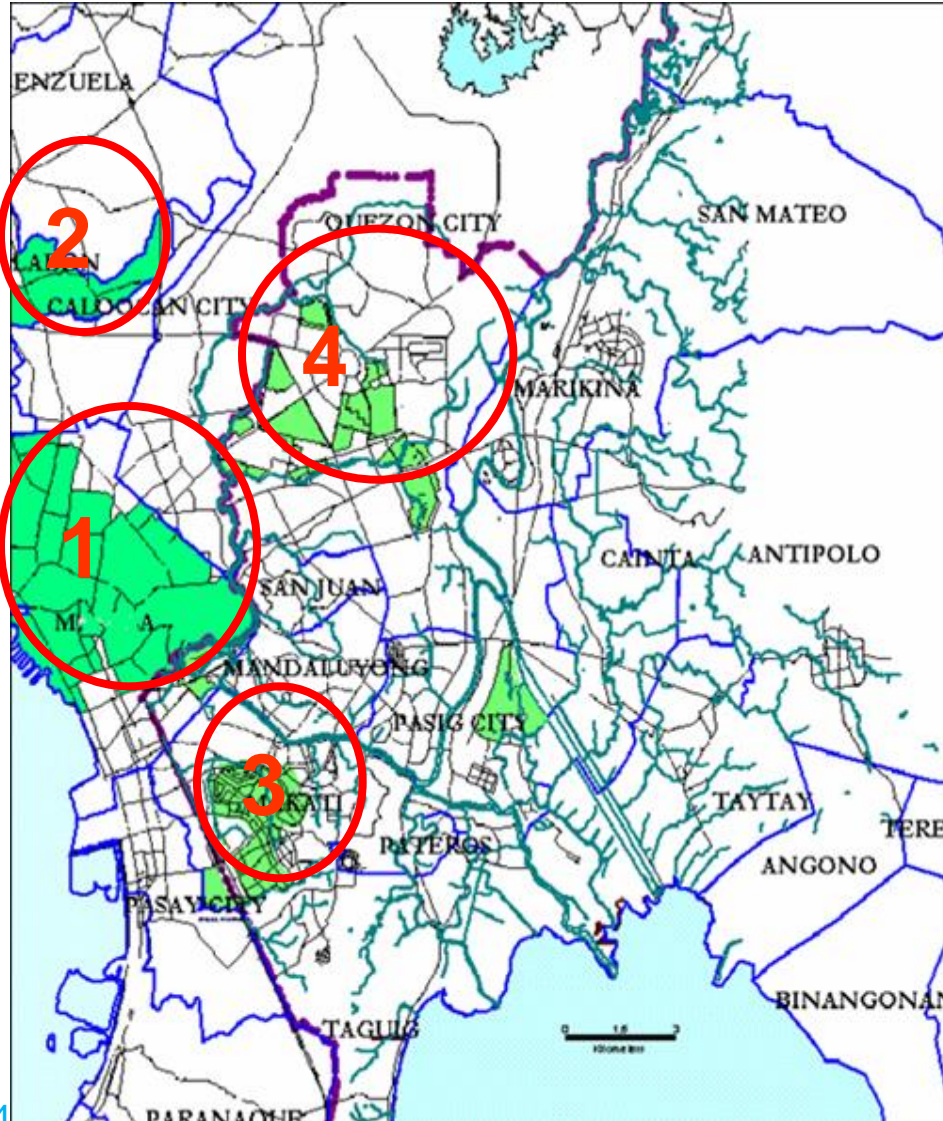
**end of concession in 2037**



# 6 CLEAN WATER AND SANITATION



# Wastewater service coverage in 1997



## 1 **Manila Central Sewerage System**

- ♦ *outfall to Manila Bay, no treatment*
- ♦ *7 lift stations, 1 pump station*
- ♦ *305 km sewer network*
- ♦ *2,620 ha area served*

## 2 **Dagat-Dagatan System**

- ♦ *aerated lagoons*
- ♦ *18 km sewer network*
- ♦ *333 ha area served*

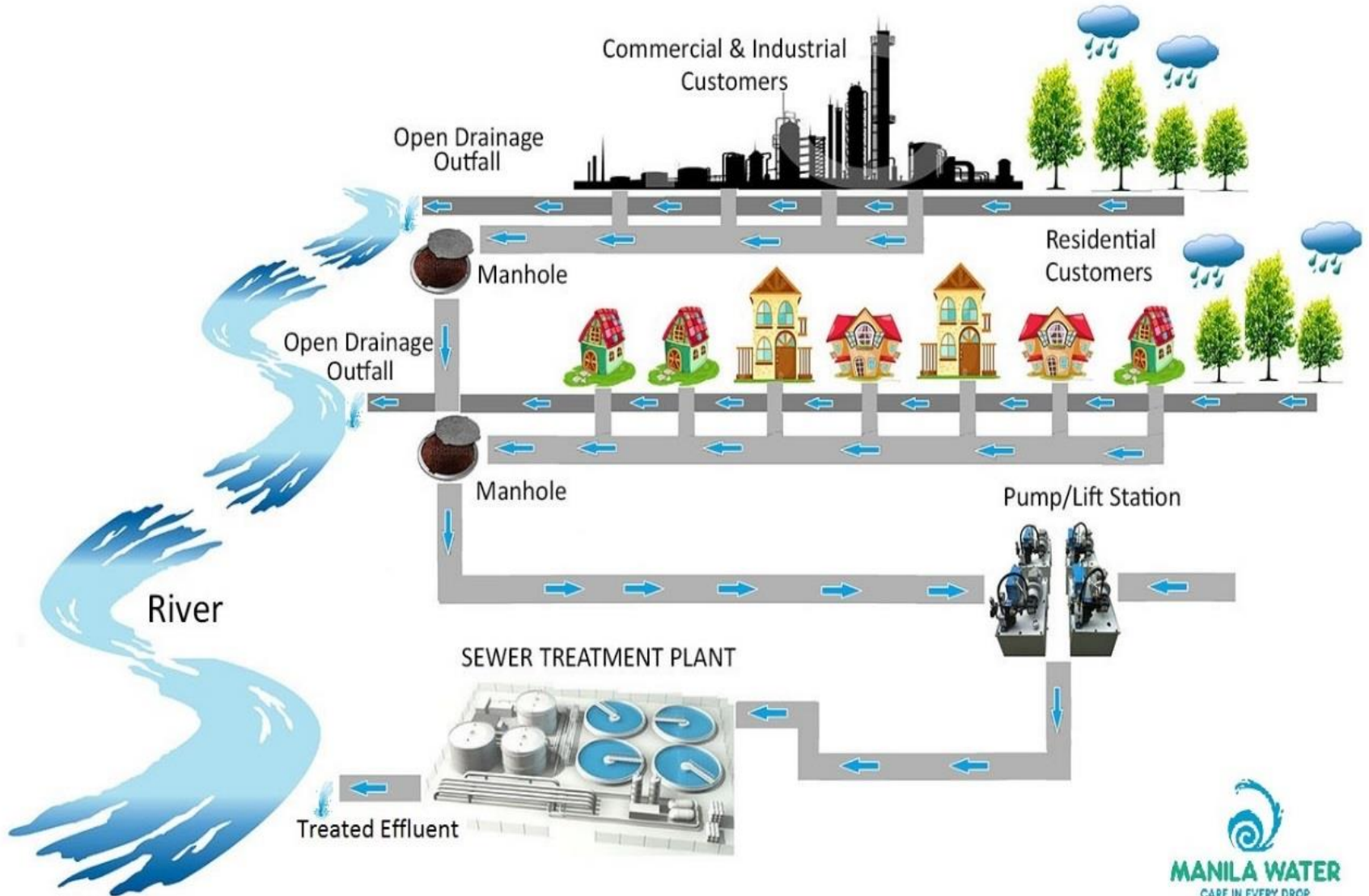
## 3 **Magallanes System**

- ♦ *Activated sludge STP*
- ♦ *73 km sewer network*
- ♦ *600 ha area served*

## 4 **Quezon City Separate System**

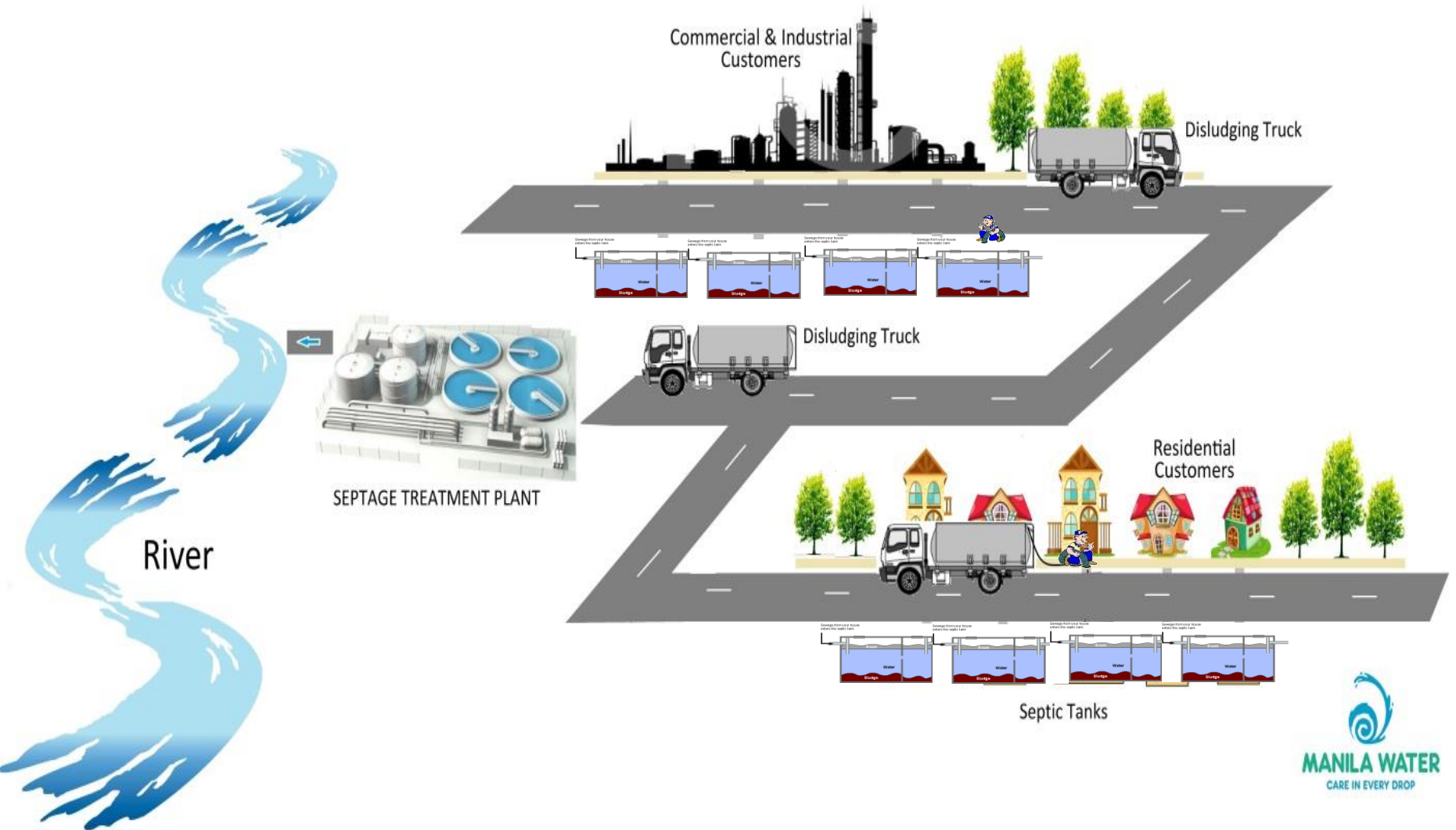
- ♦ *31 communal septic tanks*
- ♦ *114 km sewer network*
- ♦ *1,300 ha area served*

# Separate Sewer Systems

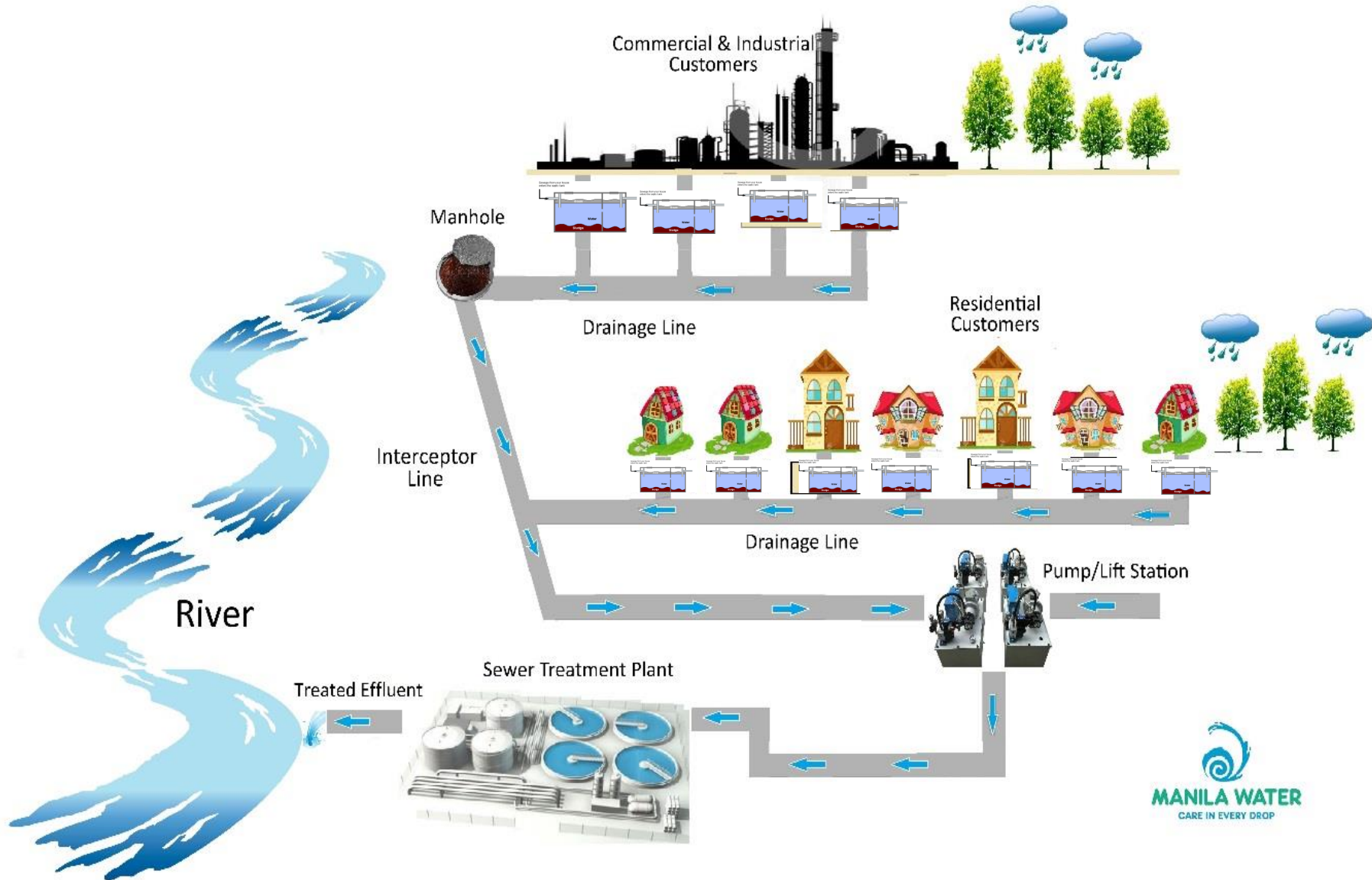




# Septage Management (a.k.a. 'Sanitation')



# Combined Sewer & Drainage System with Sanitation Services

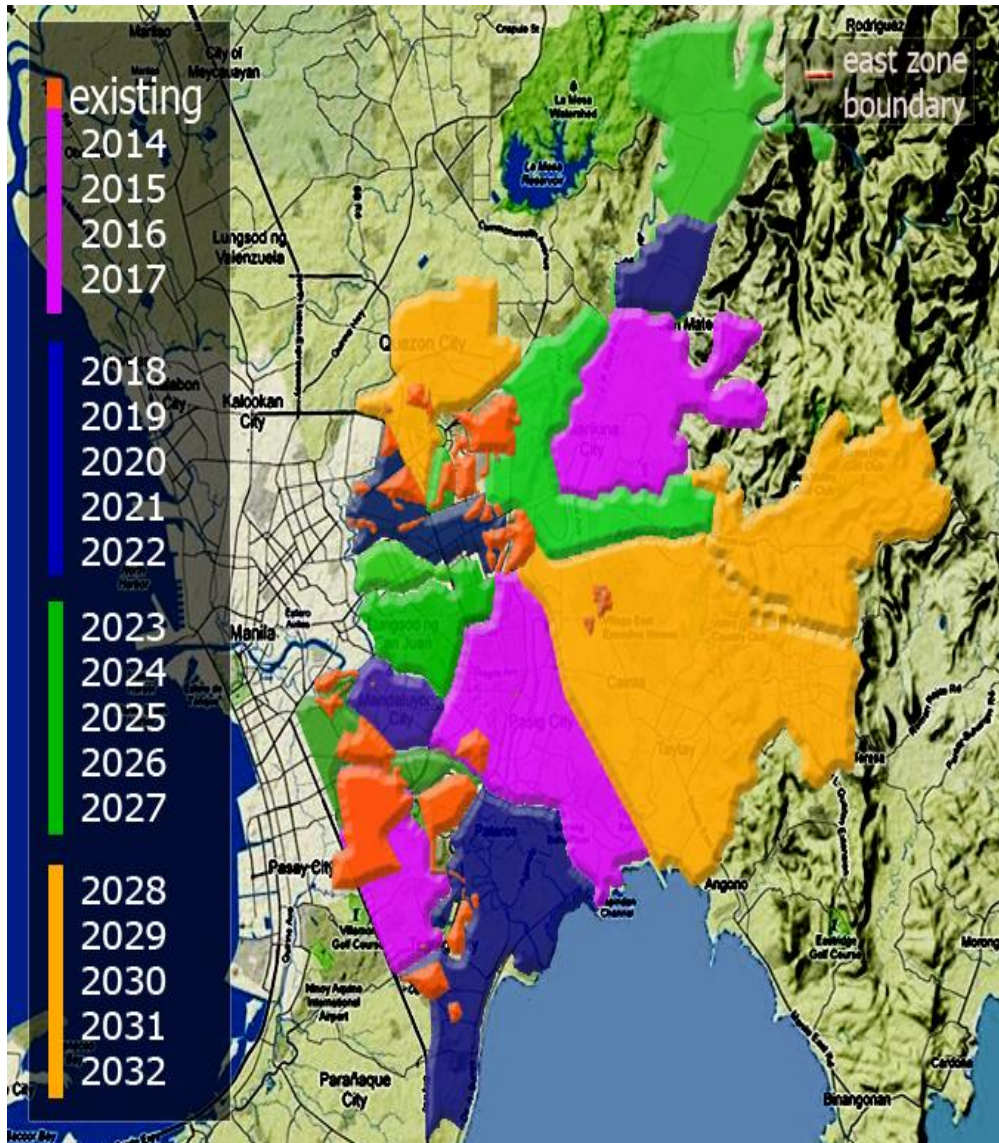








# Used water projects in Metro Manila's East Zone



2018 - 2037	Capacity
Makati-Manila	93mld
Mandaluyong West	57mld
San Mateo – Rodriguez	103mld
QC West	62mld
Taguig Central	117mld
QC East	25mld
QC South	15mld
SJ South	36mld
Marikina South	20mld
QC North	90mld
Antipolo	60mld
East of Manggahan	190mld

# Current and emerging concerns

- 💧 Provision of land for treatment plants
- 💧 Securing right of way for sewer lines
- 💧 Solid waste and biosolids management
- 💧 Public awareness and support
- 💧 Revised effluent standards incorporating nutrient removal
- 💧 Full cost recovery through the water tariff







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Manila Water



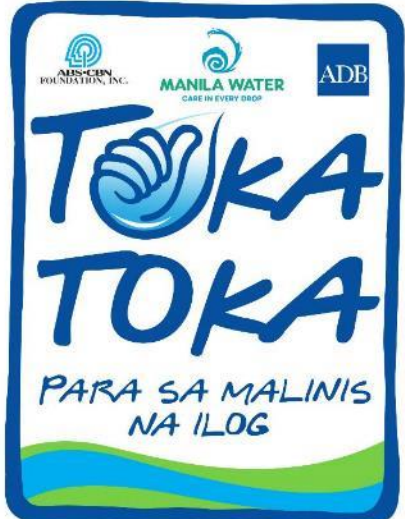


# 'Lakbayan' Water Trail Tour



## 'Toka Toka' Advocacy

- 🌀 IPA-DESLUDGE O IPASIPSIP ANG POSO NEGRO NG BAHAY
- 🌀 IPAKONEKTA ANG BAHAY SA SEWER LINE NG Manila Water
- 🌀 MAGTAPON NG BASURA SA TAMANG PARAAN
- 🌀 SUPORTAHAN ANG MGA PROYECTO NG Manila Water SA KOMUNIDAD



NAGAMIT NA TUBIG, GAWING TUBIG NA OKS!

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# Revised effluent standards

## Limits for Class C water bodies

Parameter	DAO 1990-35	DAO 2016-08
BOD <sub>5</sub>	50	50
COD	100	100
Ammonia	None	0.5
Nitrates	None	14
Phosphorus	None	1

- 💧 Transition work to achieve compliance (5 yrs)
  - Need more space, new technology
  - Add'l CAPEX, higher OPEX
  - Non-compliance during retrofit work
- 💧 Will it really result in cleaner water bodies?

# The 1997 Concession Agreement

**S**

**Service Obligation**

- **Provide water and used water services to all**
- **Service Delivery: Reliability, Customer Service**
- **Operational Efficiency**

**E**

**Expenditures**

- **Capital Investments**
- **Operating Costs**

**T**

**Tariff**

- **Full cost recovery model**
- **Appropriate Discount Rate (ADR)**
- **Tariffs set by the MWSS Regulator**



- Are the effluent standards responsive to the need to clean the water bodies, and is the technology available?
- Will end users agree to pay for the total cost of wastewater services?
- What innovations in wastewater can we adopt, and will existing regulations and covenants allow such?



“...a mission to fulfill,  
not a business to run...”

**Fernando Zobel de Ayala**  
Chairman  
Manila Water Company