



**MINISTRY OF PUBLIC WORKS AND HOUSING  
DIRECTORATE GENERAL OF HUMAN SETTLEMENT  
DIRECTORATE OF SANITATION**

# **DECENTRALIZED WASTEWATER SYSTEM APPROACHES IN INDONESIA**

**Presented by:  
Directorate of Sanitation  
Directorate General of Human Settlements  
Ministry of Public Works and Housing**

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# SANITATION SECTOR IN INDONESIA

## Goals, Targets, and Current Condition

### GOALS AND TARGETS

#### SUSTAINABLE DEVELOPMENT GOALS 6

Ensure availability and sustainable management of water and sanitation for all

#### Goal 6.2

Moving from Open Defecation toward Safely Managed Sanitation

#### Goal 6.3

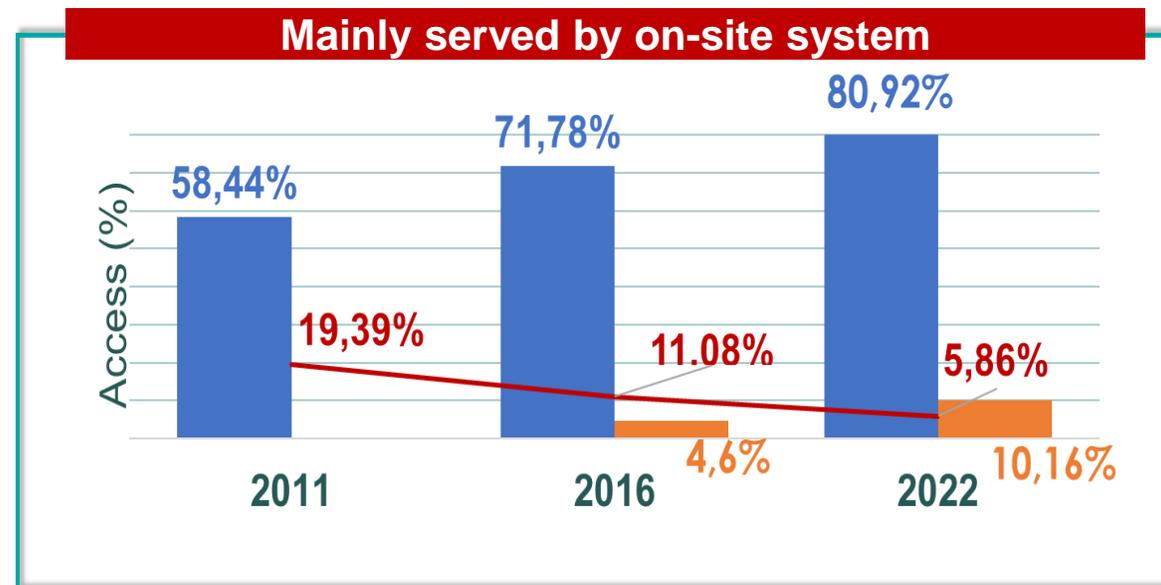
Improve water quality by halving the proportion of untreated wastewater

National Medium-Term Development Plan (2020-2024)

- **90% basic access (including 15% safely managed access)**
- **0% open defecation**

### CURRENT CONDITION

Mainly served by on-site system



■ Basic Access ■ Safely Managed Access ■ Open Defecation

Growth rate on access sanitation from 2011-2022: **±2% per year** → mostly from the on-site system & Community Based Sanitation (SANIMAS)

Reduction rate of Open Defecation (OD) 2011-2022: **±1,2% per year**

# DOMESTIC WASTEWATER SECTOR POLICY

The Government has set **STRICTER EFFLUENT STANDARD** to protect WATER QUALITY

Types of **Projects/ Activities** that require **EIA** according to Minister of Environmental and Forestry Regulation No. 04/2021

**Technical Standard of Domestic Wastewater Minimum Service** according to Minister of Public Works and Housing 29/PRT/M/2018

PARAMETER	Former: Minister of Environmental Regulation No. 5/2014	Updated: Minister of Environmental and Forestry Regulation No. 68/2016
pH	6-9	6-9
BOD	100 mg/L	30 mg/L
COD	n/a	100 mg/L
TSS	100 mg/L	30 mg/L
Oil and Grease	10 mg/L	5 mg/L
Ammonia	n/a	10 mg/L
Total Coliform	n/a	3000/100 mL

Projects/ Activities	Scale of Activity requiring EIA
Construction of Sludge Treatment Plant	Capacity > 50 m <sup>3</sup> /day
Construction of Wastewater Treatment Plant including supporting facilities	a. Coverage > 50.000 people; or b. Capacity > 5.000 m <sup>3</sup> /day
Construction of Sewer Pipe	a. Coverage area > 500 ha: b. Capacity of WWTP (for domestic wastewater) > 5.000 m <sup>3</sup> /day

**Basic Service Quality of Domestic Wastewater Management including:**

**Quantity**

Every Household has at least one access to domestic wastewater treatment

**Quantity**

Safely Managed Access:

All urban area and rural areas with density > 25 persons/ha

Basic access:

Rural areas with density < 25 persons/ha

# CONCEPT WASTEWATER MANAGEMENT IN INDONESIA

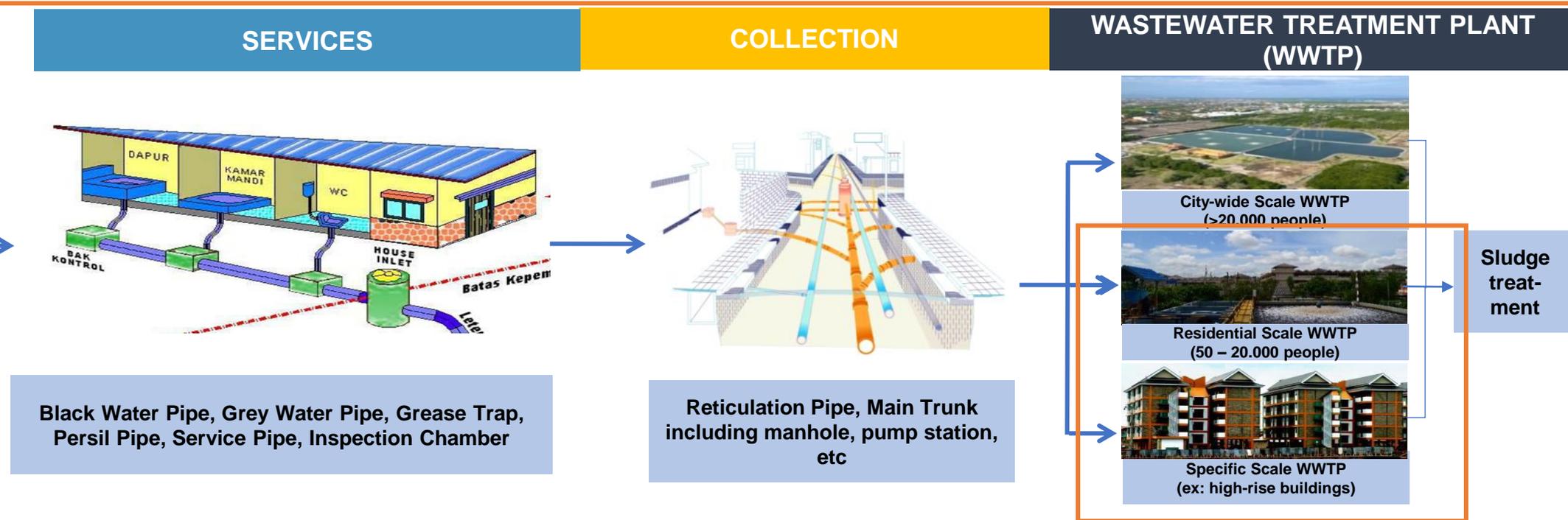
Source: Minister of Public Works and Housing Regulation No. 04 Year 2017

## DECENTRALIZED WASTEWATER SYSTEM

ON-SITE SYSTEM



OFF-SITE SYSTEM



Black Water Pipe, Grey Water Pipe, Grease Trap, Persil Pipe, Service Pipe, Inspection Chamber

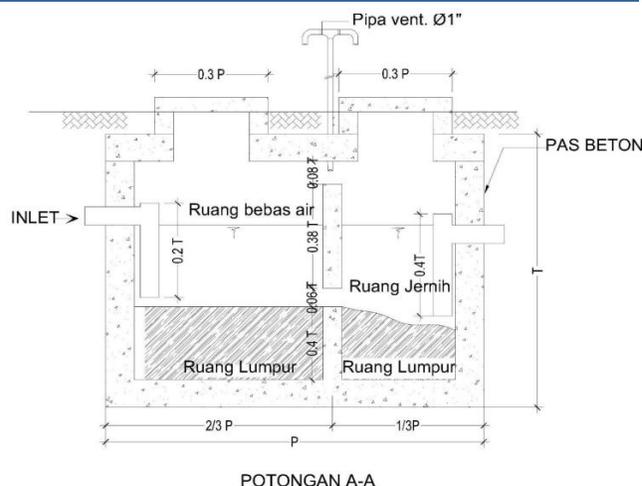
## DECENTRALIZED WASTEWATER SYSTEM

# ON-SITE SYSTEM

## ON-SITE TREATMENT

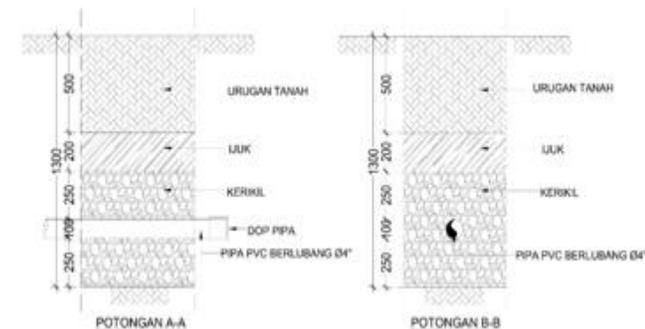
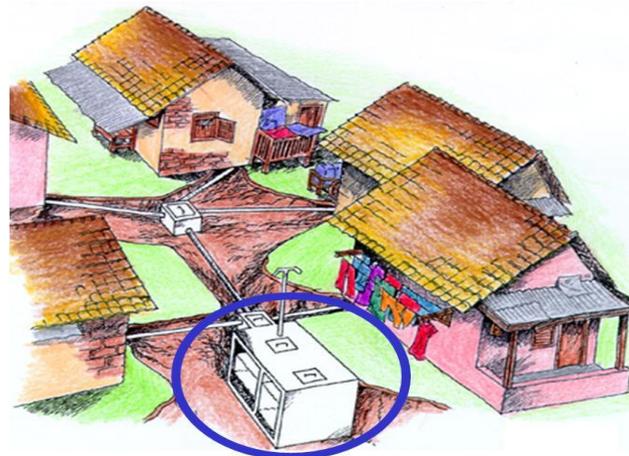
Conventional septic tank planning refers to **SNI 2398-2017**. The septic tank needs to be equipped with advanced treatment

### Individual Septic Tank



### Conventional

### Communal Septic Tank



### Infiltration wells

### Prefabricated



The prefabricated septic tank must have **certification** and still needs to be equipped with advanced treatment

# ON-SITE SYSTEM

## SEPTAGE TREATMENT PLANT



**Sludge Separation Chambers**

**Stabilization Ponds  
(Anaerobic, Facultative, Maturation)**

**2015-2022**

Units

**156 units**



# OFF-SITE SYSTEM

RESIDENTIAL SCALE OF WWTP



## Off-site Systems of An Institution-Based Domestic Wastewater System

2016-2022
Location
9 locations
Beneficiaries
8.645 households



## Off-site Systems of a Community-based Domestic Wastewater System

2018-2022
Location
994 locations
Beneficiaries
64.626 households
Manpower
18.252

# ISSUES AND CHALLENGES IN DECENTRALIZED SYSTEMS IN INDONESIA

## ON-SITE SYSTEM



ON-SITE TREATMENT

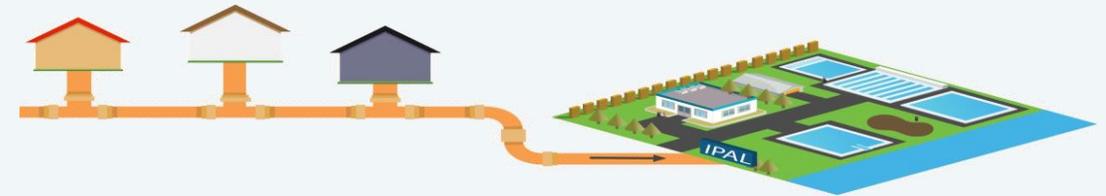
TRANSPORTATION

SEPTAGE TREATMENT PLANT (STP)

1. Many septic tanks do not comply with Indonesian national standards;
2. Mostly no greywater treatment in septic tanks;
3. No effluent standards for septic tanks;
4. The scheme of sanitation service tariff for desludging is not full cost recovery;
5. Not all regencies/cities have IPLT (only 304 of 514 regencies/cities that have IPLT);
6. Most IPLTs have not occupied full capacity;

## OFF-SITE SYSTEM

### RESIDENTIAL SCALE AND SPECIFIC SCALE OF WWTP



SERVICES

COLLECTION

WASTEWATER TREATMENT PLANT (WWTP)

1. Operational challenge to comply with the new effluent standards;
2. Has no sludge treatment plant, so it needs regular desludging and transport to STP or WWTP which has sludge treatment unit;
3. Mostly managed by the community and the tariff is not full cost recovery;



# MINIMAL ASPECTS FOR IMPLEMENTING REGULAR DESLUDGING

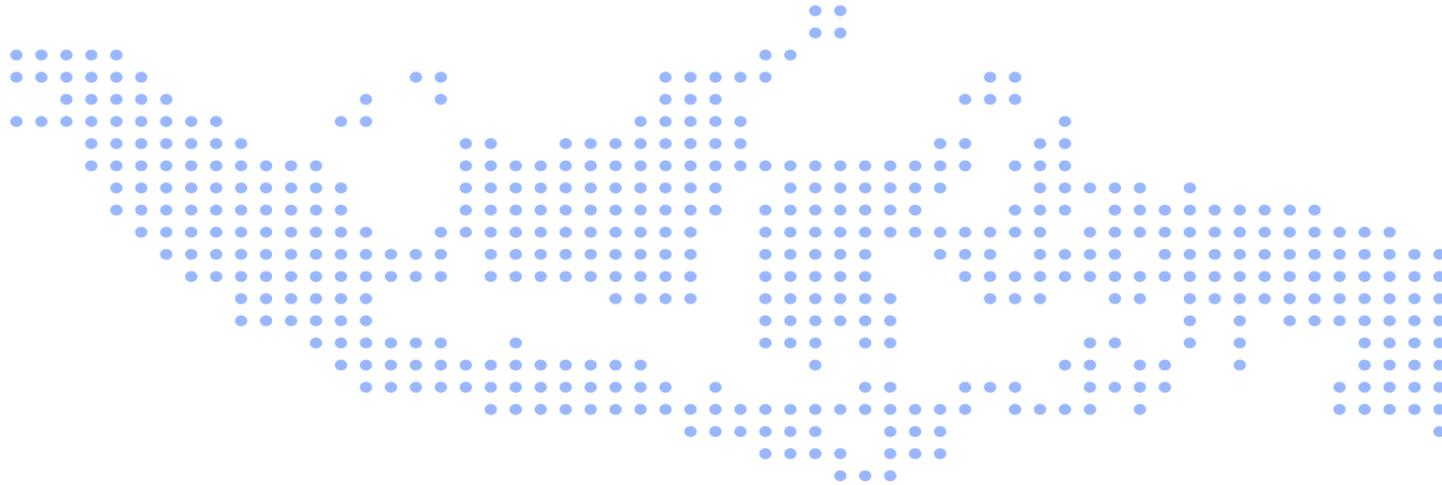


Local Governments must have:

- **an operator;**
- **local regulations** on domestic wastewater management and tariff/retribution;
- infrastructure of **Septage Treatment Plant (STP)** as well as desludging and transportation;
- **Sufficient operation and maintenance funds.**

# WAY FORWARD FOR SAFELY MANAGED AND SUSTAINABLE SANITATION SERVICES

- 1 **Greywater management** to cope with the existing on-site sanitation system through application of interceptor in city-scale off-site sanitation system;
- 2 **Strengthening the governance of sanitation**, such as preparing standards and monitoring services;
- 3 **Developing a suitable approach to climate change mitigation and adaptation** especially for on-site sanitation system services, from planning to operational process and potential resource recovery for treated sludge.



**THANK YOU**



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