



# DECENTRALIZED DOMESTIC WASTEWATER TREATMENT IN INDONESIA

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## OUTLINE

1. Present Situation and Challenges
2. Policies and Regulation
3. On-going Related Projects
4. Progress of Formulating City Strategic Planning
5. Multi-Donner Related Projects



## Existing sanitation condition of Indonesia



Wastewater is disposed directly into water bodies, from homes and also commercial areas



Latrines with low quality



Open defecation

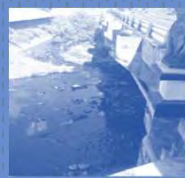


Having shower and wash in stream



Illegal disposal of sludge

## Impact of Poor Sanitation



75% of rivers in Indonesia are polluted



70% of groundwater in Indonesia are polluted



Potentially loss up to Rp 56 trillion per year



50 out of 1000 babies die due to diarrhea



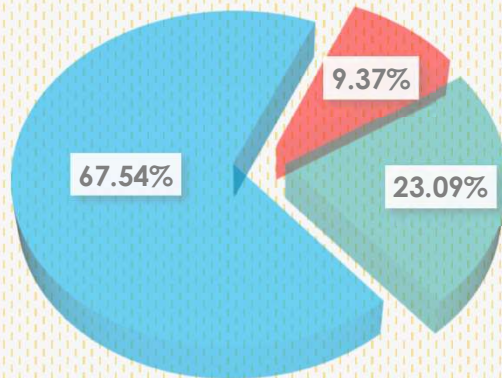
People pay 25% more for piped drinking water







### Sanitation Access in 2017



Source: BPS, 2017

■ Improved Access ■ Basic Access ■ No Access

## Off-Site

### Sanitation System City/Regional Scale

**WWTP City Scale in 13 locations:** Medan, Parapat, Batam, Tangerang, Jakarta, Bandung, Cirebon, Surakarta, Bantul, Banjarmasin, Balikpapan, Manado, Denpasar  
**On-going WWTP Project City Scale:** Jakarta, Palembang, Pekanbaru, Jambi, Makassar

**2017: 1,2 M people\***

RPJMN Target 9 cities: 3 achieved

## On-Site

### Sanitation System :

**253**

Septage Treatment Plant built / rehab / optimised in 2008-2017

## Off-Site

### Decentralised and Communal System

#### COMMUNITY-BASED

**14929** Communal System built (2003-2017)

#### INSTITUTIONAL-BASED

**237** Decentralised System built in 119 City / District (2008-2017)

**2017: 1,7 M people\***

\* Outcome based on design capacity built



## CONCEPT OF WASTEWATER MANAGEMENT (MINISTRY OF PWH REGULATION NO.4/2017)

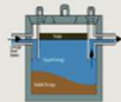
On-Site  
System



Off-Site  
System

### On-Site Treatment

Individual  
Scale



Individual

Communal  
Scale



Communal  
Septic Tank  
(2-10 Household)  
Shared  
Toilet

### Transportation



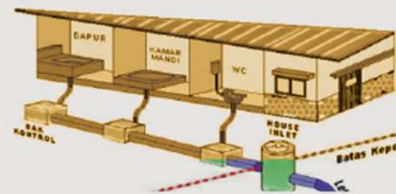
Desludging and Transportation Vehicle

### Septage Treatment



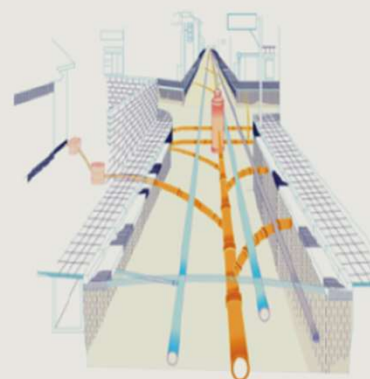
Desludging and Transportation Vehicle

### Services



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

### Collection

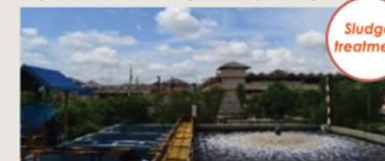


Reticulation Pipe, Main Trunk, Accessory  
(manhole, pump station, etc)

### Off-Site Treatment



City-wide Scale WWTP (> 20,000 persons)

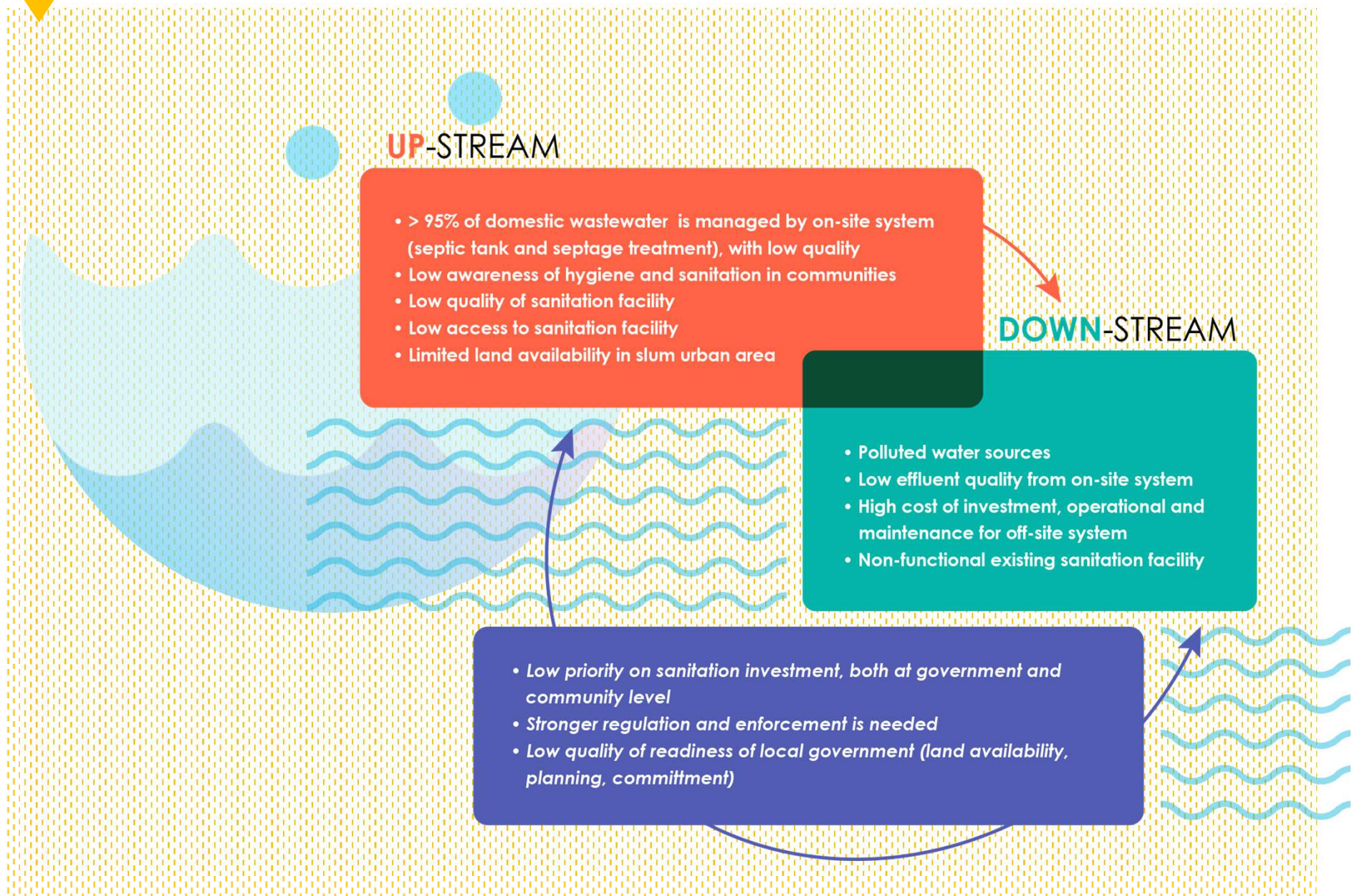


Small Scale WWTP (50 – 20,000 persons)



Specific Scale WWTP (ex: high-rise buildings)

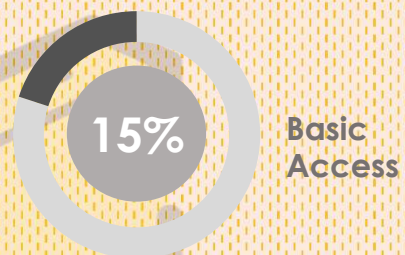
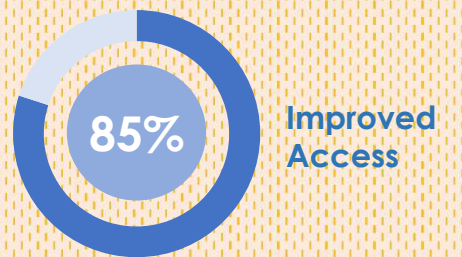




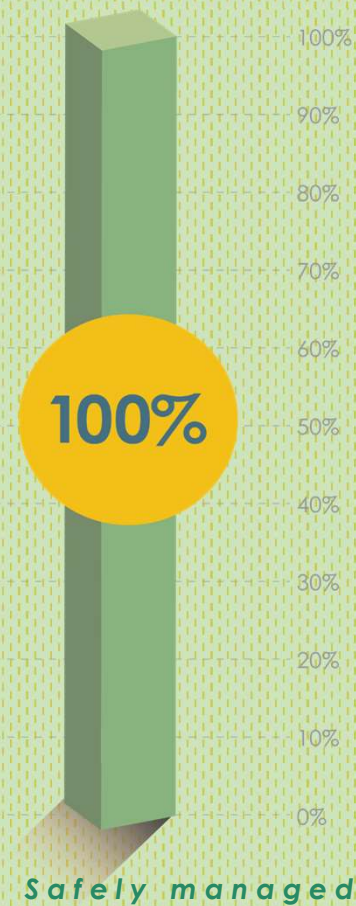




### Mid-Term National Development Plan 2015-2019



### SDGs 2030



### National Program for Sanitation

**Community Based  
Total Sanitation** 1.  
MINISTRY OF HEALTH

**Infrastructure  
Development** 2.  
MINISTRY OF PUBLIC WORKS  
AND HOUSING (MPWH)

**Acceleration of  
Sanitation  
Development  
Program** 3.  
MINISTRY OF NATIONAL PLANNING,  
MPWH, MINISTRY OF HEALTH

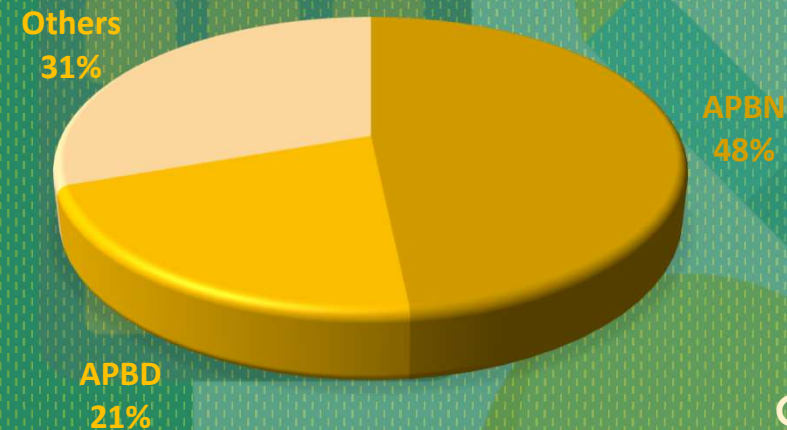
**Village Funds** 4.  
MINISTRY OF VILLAGE  
AND TRANSMIGRATION

**Special Allocation  
Funds for sanitation  
and Grant** 5.  
MINISTRY OF FINANCE

**Sanitation for School** 6.  
MINISTRY OF EDUCATION



NO	SOURCE OF FUNDING	INVESTMENTS NEEDS (Rp)	%
1	APBN (National Budget)	132 Trillion	48 %
2	APBD (Province & City/District Budget)	58 Trillion	21 %
3	Others (Community, Private)	83 Trillion	31 %
	Total	<b>273,7 Trillion</b>	100 %



Funding target to reach Universal Access

**273,7 T**

**GAP 1 = 238,055 T**

APBN Plan \*)

**35,645 T**

Current Condition	APBN FINANCING (Rp. Trillion)					
	2015	2016	2017	2018	2019	Total
APBN Plan	3.78	5.58	6.89	9.07	10.3	<b>35.645</b>
APBN Realization	3.15	3.62	3.35	-	-	<b>10.12</b>

**GAP 2 = 25,525 T**

\* Based on RPJMN 2015-2019

- **GAP 1** is the difference between the needs and plans in 2015-2019
- **GAP 2** is the difference between plan of APBN/RPJMN 2015-2019 and annual budget realization





## LAW

Law No. 11 Year 1974  
about irrigation

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Law No. 32 Year 2009  
about Protection and  
Management of  
Environment

## GOVERNMENT REGULATION

Government  
Regulation No. 35 Year  
1991 about stream

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Government  
Regulation No. 82 Year  
2001 about water  
quality management  
and water pollution  
control

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Government  
Regulation No. 122  
Year 2015 about  
Peraturan Pemerintah  
Nomor 122 Tahun 2015  
about Drinking Water  
Supply System

## PRESIDENT REGULATION

President Regulation  
No. 185 Year 2014  
about Acceleration of  
Provision of Drinking  
Water and Sanitation

## MINISTRY REGULATION

Ministry of PWK  
Regulation No.  
28/PRT/M/2015 about  
Determination of the  
River and Lake Border  
Line;

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Ministry of PWK  
Regulation No. 4 Year  
2017 about  
Implementation of  
Domestic Wastewater  
Management System;

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Ministry of Environment  
and Forestry No. 68  
Year 2016 about  
quality standar of  
Domestic Wastewater



TARGET 6.3	GLOBAL INDICATOR	NATIONAL INDICATOR	PRESIDENTIAL REGULATION NUMBER 59 YEAR 2017 ON SDGS IMPLEMENTATION (National Target on RPJMN 2015-2019)
<b>By 2030</b> , improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	<b>6.3.1</b> Percentage of safely managed domestic wastewater	<b>a.</b> Number of city / regency improved by cityscale fecal sludge management and septage treatment plant infrastructure development	<b>3.1</b> Off-site sanitation system through city-scale, decentralized and communal system in 438 district/city in 2019  <b>3.2</b> Increasing domestic wastewater treatment quality through fecal sludge management quality improvement and development of Septage Treatment Plant in 409 district/city
		<b>b.</b> Percentage of household management	
	<b>6.3.2</b> Percentage of good quality watershed*	<b>c.</b> Lake water quality	
		<b>d.</b> River quality as water resource	

\*) Coordinated by Directorate General of Water Resource, MoPWH  
 Source: Directorate of Urban, Housing and Settlement, BAPPENAS



**2015**

- Raising awareness
- Serial meeting with stakeholders

**2016**

- Technical Guidance for National Action Plan and Sub National Action Plan for SDGs (RAN/RAD TPB/SDGs)
- Dissemination and Preparation RAN & RAD TPB/SDGs

**2016**

- Presidential Regulation Number 59 Year 2017 on SDGs Implementation
- National SDGs Roadmap RAN and RAD TPB/SDGs

**2017**

- Implementation
- Monitoring, Evaluation and Reporting





## Regular Community Based Sanitation Project

- Total of location: 161
- Total of months: 3 months
- HOK: 352.055 person



- Total of location: 212
- Total of months: 3 months
- HOK: 408.795 person

## Community Based Sanitation Project IDB Financing

## Rural Sanitation Project

- Total of location: 106
- Total of months: 3 months
- HOK: 186.460 person



- Total of unit: 36.717 in 71 city/districts (in verification process)

## On-Site Wastewater Grant Program



## ON-GOING PROJECTS



Ministry of Public Works and Housing  
Directorate General of Human Settlements  
Directorate of Environmental Sanitation Development



### REGULER SANITATION BASED COMMUNITY PROJECT (APBN FINANCING)

PROGRESS :  
**Construction**



Tumbu Village, West Sulawesi | Progress: 34,2%



Dimito Village, Gorontalo Province | Progress: 38,8%

#### Description

- Total cost \_\_\_\_\_ : **73.725 Billions**
- Benefit Receptient \_\_\_\_\_ : **32.200 persons**
- WWTP Technology \_\_\_\_\_ : **Anaerobic Filter (AF)**
- Target of Household connection\_ : **50 SR per location**



## ON-GOING PROJECTS



Ministry of Public Works and Housing  
Directorate General of Human Settlements  
Directorate of Environmental Sanitation Development



### SANITATION BASED COMMUNITY PROJECT (IDB FINANCING)

PROGRESS :  
**Preparation**



Sozialization with community in Anggut Bawah Village,  
Bengkulu Province



Sozialization with community in Wonosari Village,  
South Sumatera Province

#### Description

- Total cost \_\_\_\_\_ : **90.1 Billions**
- Benefit Receptient \_\_\_\_\_ : **42.400 persons**
- WWTP Technology \_\_\_\_\_ : **Anaerobic Filter (AF)**
- Target of Household connection\_ : **50 SR per location**



## RURAL SANITATION PROJECT



Waer Village, Maluku Province |  
Progress 25%

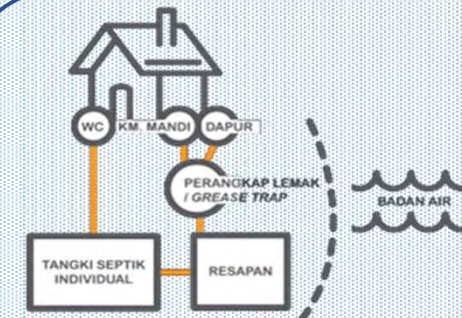


Wonua Monapa Village, Southeast  
Sulawesi Province |  
Progress 100%

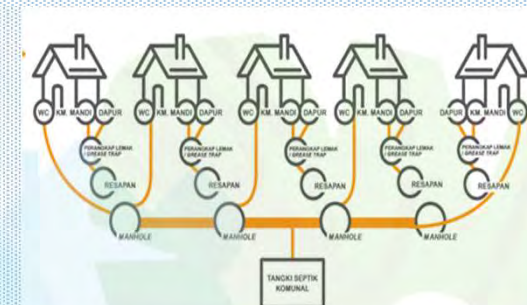
### Description

- Total cost \_\_\_\_\_ : **33.6 Billions**
  - Benefit Recipient \_\_\_\_\_ : **31.200 persons**
  - Technology \_\_\_\_\_ :
- Individual and Communal Septic Tank with Anaerobic Filter (AF) technology**
- Target of Household connection\_ : **50 SR per location**

### PROGRESS : Construction



Individual Septic Tank



Communal Septic Tank



### ON-SITE WASTEWATER GRANT PROGRAM (APBN FINANCING)

Principle: **Output Based Assessment (OBA)**

intended as an incentive for investment costs that have been financed by the Regional Government for the construction of septic tanks which include planning, development, supervision until the construction of a septic tank can be utilized by beneficiary

**Rp 3 Million**

for total unit  $\leq$   
3000 per  
city/districts

**Rp 3,5 Million**

for total unit  $>$   
3000 per  
city/districts

**Cost**



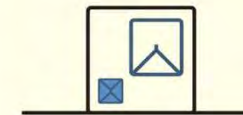
Silinder Septic Tank Construction



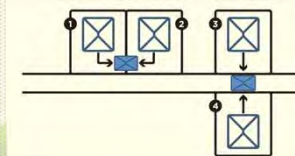
Fabrication Septic Tank Construction

PROGRESS :  
**Construction**

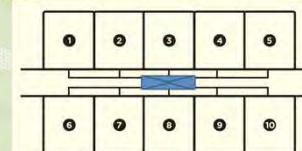
#### TECHNOLOGY



1. Individual



2. Communal  
for Couple Houses



3. Communal  
for 3 – 10 Houses



### City Sanitation Strategic (SSK):

Integrated and comprehensive sanitation development plan for the medium term which contains vision, mission, goals, objectives, strategies, and development programs and activities to improve sanitation conditions

### Support of Ministry Publick Works and Housing in composing "City Sanitation Strategic":

- Empowerment of Regional Government in compiling SSK documents
- Provision of fasilitator to assist in compiling SSK documents in province and city/district scale
- Monitoring in compiling SSK periodically

Number of city that has compiled and updated "**City Sanitation Strategic**" documents until 2018:

YEAR	COMPILED SSK	UPDATED SSK
2009	20	
2010	41	
2011	58	
2012	104	
2013	123	
2014	98	
2015	21	100
2016	15	129
2017	5	128
2018	4	42
<b>TOTAL</b>	<b>489</b>	<b>399</b>



## MULTI-DONNER RELATED PROJECT



Ministry of Public Works and Housing  
Directorate General of Human Settlements  
Directorate of Environmental Sanitation Development



### COMMUNITY BASED SANITATION PROJECT (SANIMAS) IDB FINANCING NO. 0167-IND

- The community acts directly in infrastructure development
  - The government facilitates and provides information about the option of sanitation technology that can be used
  - The role of government: provider → facilitator
- Total of target location: 1800 locations ≈ 360.000 persons served
  - Total of infrastructure built until 2017: 1317 locations ≈ 263.400 persons served
  - Total province served: 13 province
  - Target household connection: 50 SR per location



Communal WWTP in Pematangsiantar City, North Sumatera Province



Communal WWTP in Bangka City, Bangka Belitung Province



Communal WWTP in Bogor City, West Java Province



## COMMUNITY BASED SANITATION (SANIMAS)



Ministry of Public Works and Housing  
Directorate General of Human Settlements  
Directorate of Environmental Sanitation Development







Thank you