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Establishment of the Performance test for decentralized wastewater treatment facilities in Indonesia

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Background

- Ministry of Environment and Forestry has issued new effluent standard for domestic wastewater (2016).
- This new and **stringent regulation for domestic wastewater is a major step forward** to improve water environment.

Parameters	Unit	Old Regulation	New Regulation
pH	-	6-9	6-9
BOD	mg/L	100	30
COD	mg/L	-	100
TSS	mg/L	100	30
Oil and Grease	mg/L	10	5
Ammonia	mg/L	-	10
Total Coliform	N/100 mL	-	3,000
Discharge	L/person/day	-	100

However, compliance to the regulation may not be ensured.



Septic tanks



Biofil



IPAL

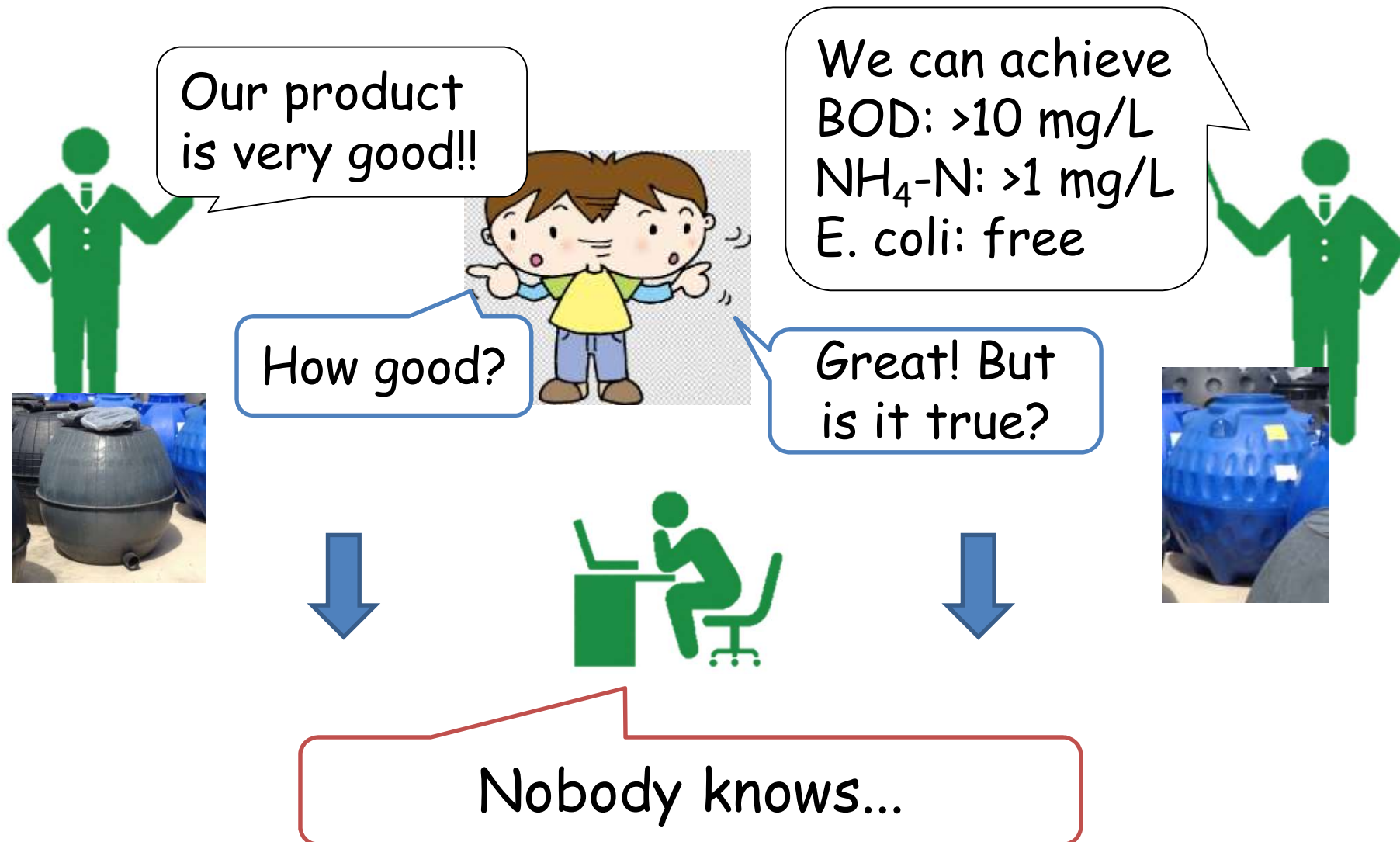


septic tank?

Are they all reliable?

- BOD 30 mg/L
- $\text{NH}_4\text{-N}$ 10 mg/L

Manufacturers/providers can say...



The Stakeholders Meeting in Indonesia

To tackle this urgent problem, we have launched "the Stakeholders Meeting on domestic wastewater treatment" in 2015.

Central gov.



KEMENTERIAN LINGKUNGAN HIDUP



Industry-Academia-Government Collaboration

Manufacturers



PT BESTINDO AQUATEK SEJAHTERA



Univ.

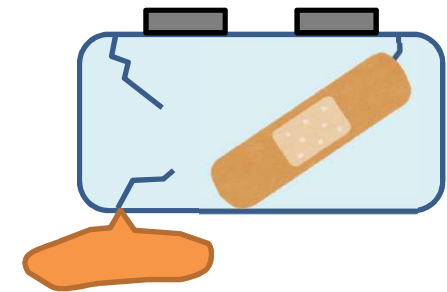


Local gov.



Summary of discussion

- **We need more manufacturers** to distribute domestic wastewater facilities in all Indonesia.
- However, it's easy to make a profit if manufacturers produce **poor performance and/or weak tanks**.



■
To eliminate low quality treatment facilities from the market



Performance testing method and Reliable
certification system are required!!

Major standards in the world

European Standard (EN)

EN12566-3: Small wastewater treatment systems for up to 50 PE



The United States

NSF/ANSI Standard 40: Residential Wastewater Treatment Systems

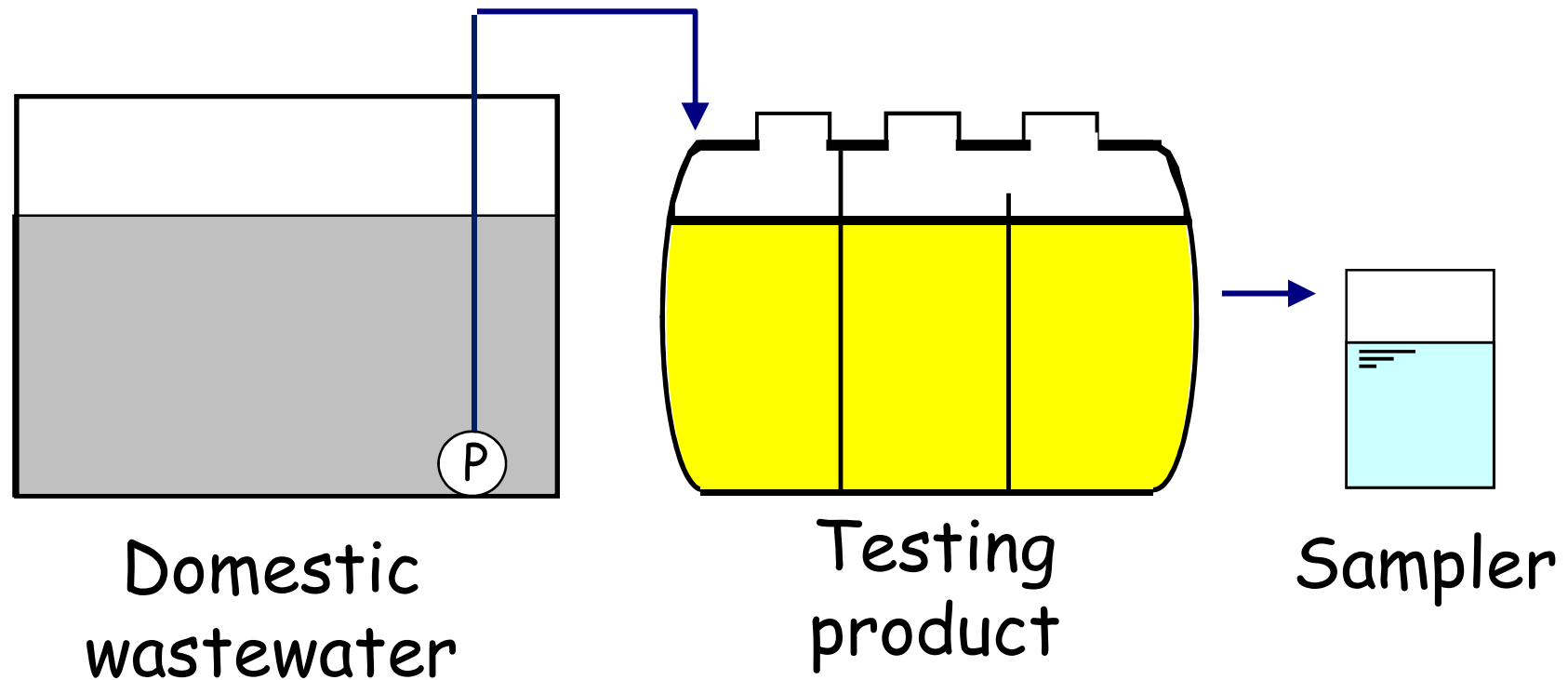
Australia

AS/NZS 1546 Part 3: Aerated wastewater treatment systems

Japan

Performance testing method for Johkasou

Testing methods



1. Feed wastewater

2. Take a sample

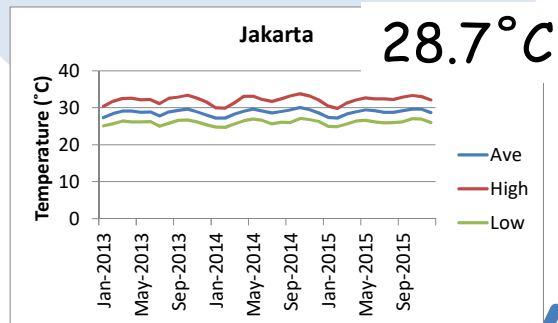
Simple! But...

Major standardized testing method is not necessarily suitable for Indonesia.

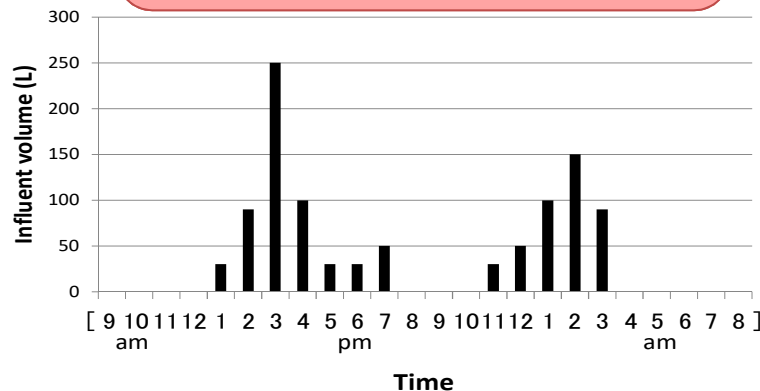
Climate

Lifestyle

Social structure



Diurnal inflow pattern



Wastewater quality and quantity

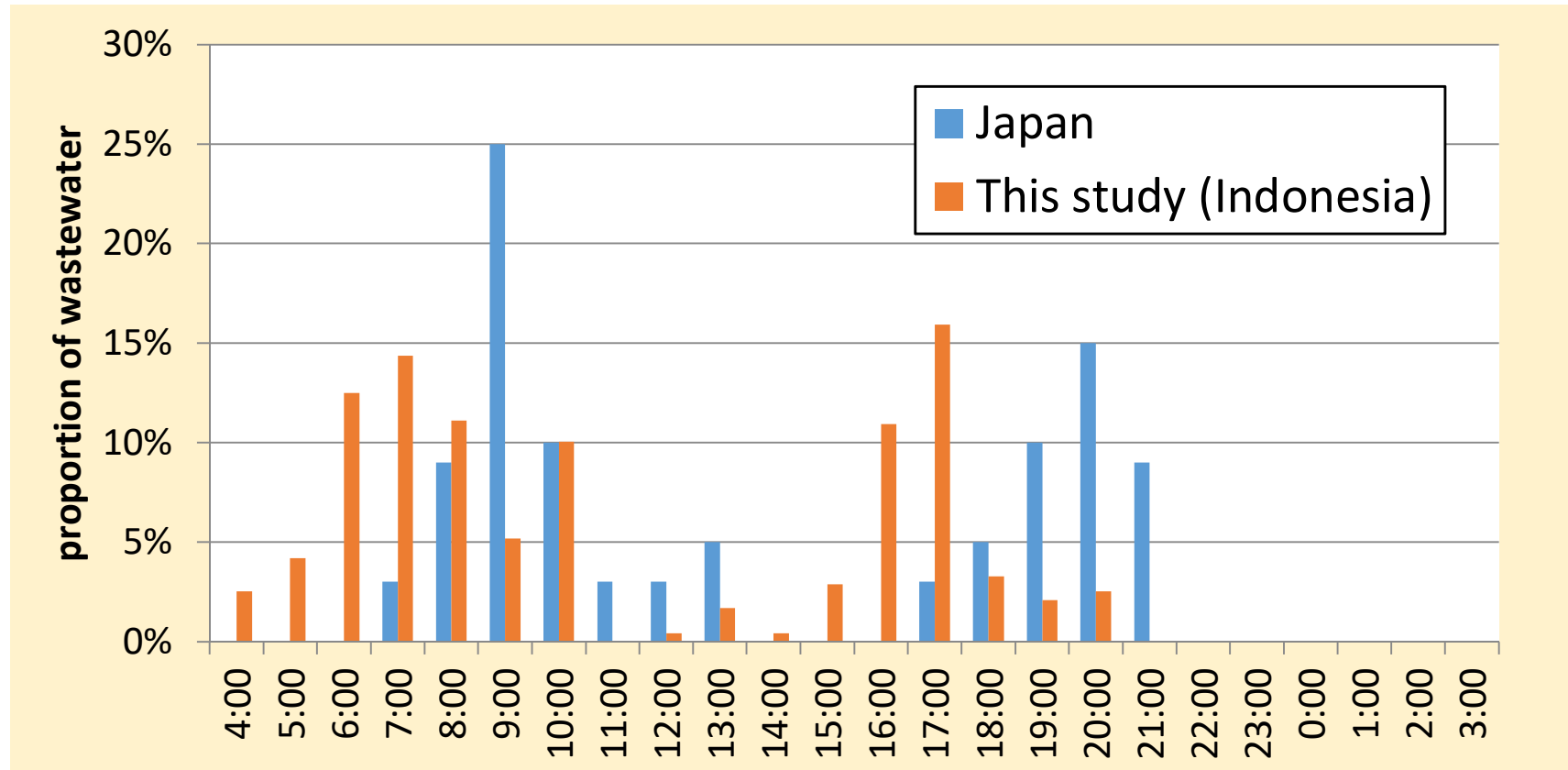


Field investigation



Wastewater volume was measured every hour.

Inflow pattern in Indonesia



- Two peaks in a day (morning and evening)
- Starts 2-3 hours earlier than Japanese case
- No high peak which is due to bath tub

Development of the Performance Testing Method in Indonesia



1st SHM



2nd SHM



3rd SHM



4th SHM



5th SHM

Precursor of SNI (National Standard of Indonesia)

Drafted based on the industry-academia-government collaboration

Performance Testing Method for
Decentralized Domestic Wastewater
Facilities in Indonesia
(1st order draft)
Proposed by Stakeholder's Meeting

Research Institute for Human Settlements and Housing (RIHS:
PUSPERKIM)
Institute of Technology Bandung (ITB)
National Institute for Environmental Studies (NIES)

Trial of the testing method



Objectives

- To confirm availability of the equipment for the test
- To confirm feasibility of the testing procedure
- To sort out the problem



Improve and revise the testing method!!

Testing site

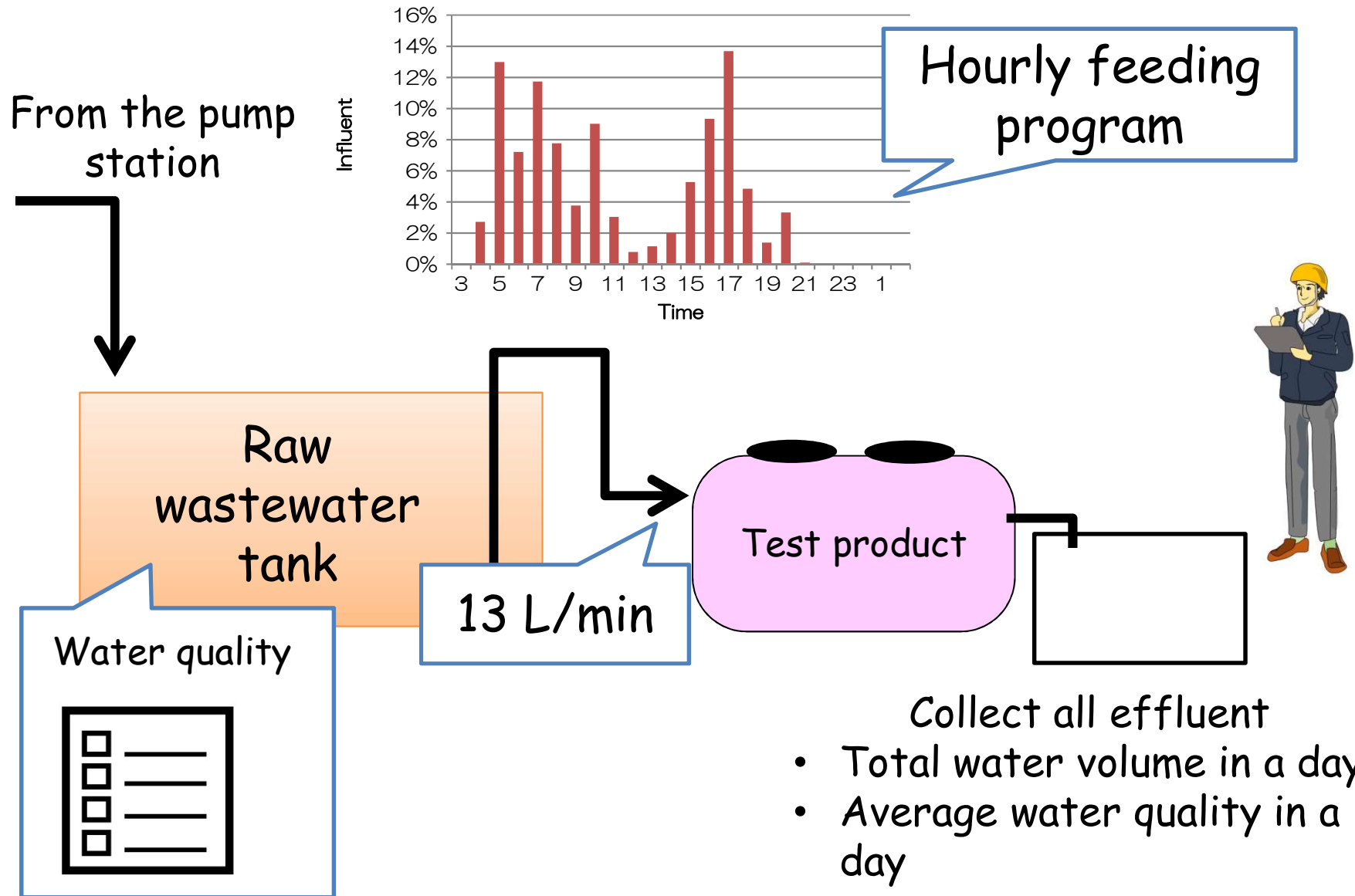


Bojongsoang WWTP



Gumuruh pump station

Trial of the testing method



Final goals

- All the products in the market must have a **certificate** to improve water environment in Indonesia.

The **certificate** is based on the result of **performance test**

- Treatment efficiency (Water quality)
- Robustness of the tank
- Material, design, Standard Operating Procedure, workshop, etc.



When

Timing to take a test and to get certificate

Same design and manufacturing process from the time of test.

Development of new product

Take a treatment performance test

Get certification of products by type test

Manufacture the product

Sell products in the market

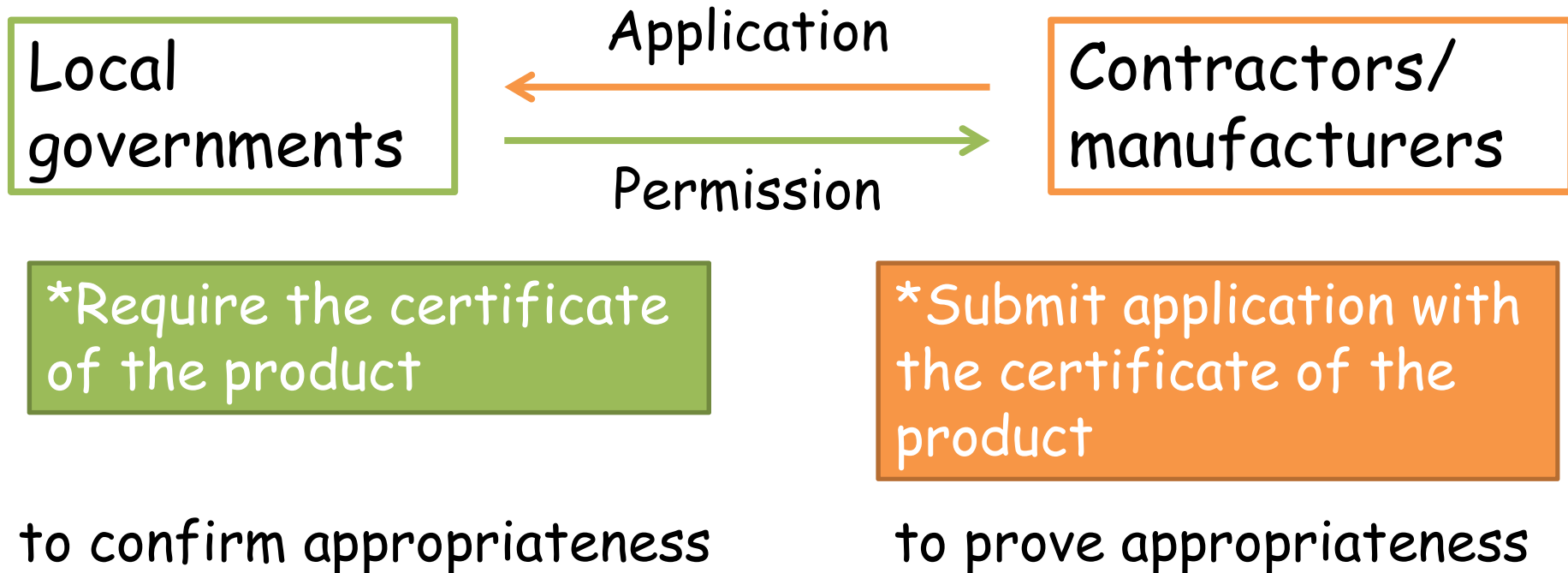
Before start manufacturing product series



How

to use the certificate?

Building permission processes



➡ Compliance to the regulation would be sure!!

Step-wise implementation NIES, Japan

- At the beginning, enact the certification system only for some area/buildings.
 - Central government
 - shows first targets of this certification system like "Sensitive area/tourist site, large building"
 - Local government
 - defines where is "Sensitive area/tourist site"
 - defines size of the "large building".



Establishment of standardized performance testing method for decentralized wastewater treatment facility in Asian region and network building of its experts

Progress of standardization

- ✓ Capacity building of a testing body
- ✓ Qualification system for engineer

Indonesia



- ✓ Raising awareness
- ✓ Drafting a testing method
- ✓ Considering strategies

- International WS (MOE)
- WEPA (MOE)



Indonesian test

Stakeholder's meeting



Testing methods in Asian countries

Regional standard



Propose testing standard in ASEAN countries



Characteristics of biological wastewater treatment in each country

Nation to region

Conclusions

- **Stringent effluent standard** is a major step forward to improve water environment.
- To ensure compliance to the regulation, we have drafted **Indonesian performance testing method** to evaluate domestic wastewater treatment facilities.
- We are going to conduct **trial of the testing method** to sort out the problem and solve it.
- These **institutional approach** would be helpful to promote appropriate domestic wastewater facilities **in ASEAN**.