

# JICA Clean City Initiative (JCCI) Kick-Off International Seminar

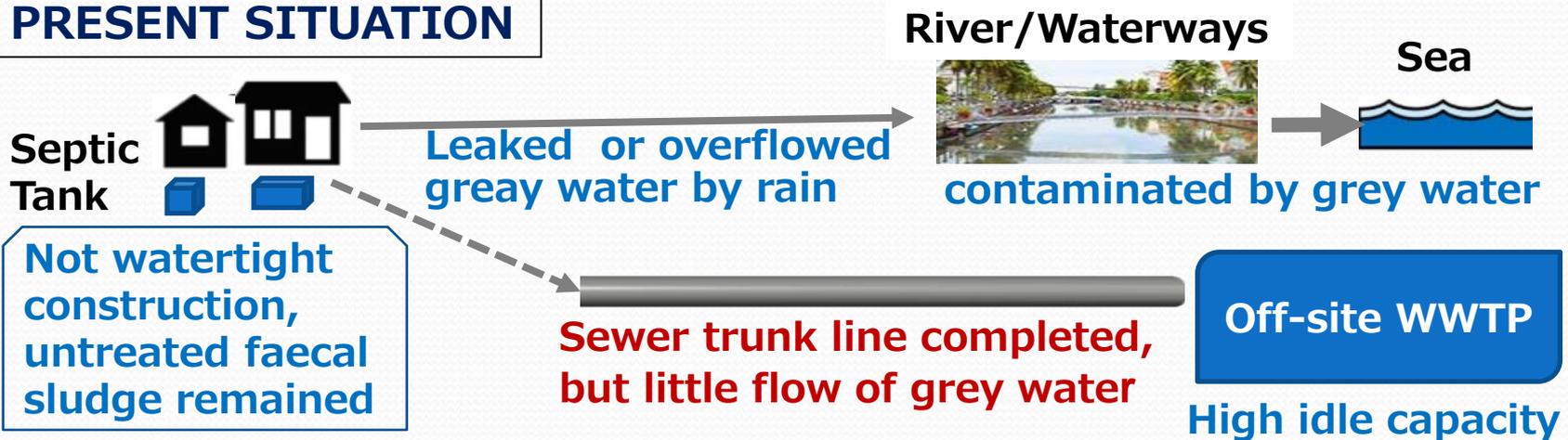
## Microtunneling Technology of Small Diameter Pipe of Sewer Branch & Networks for Centralized Waste Water Treatment in Urban Cities

Side Program Day 1: 19<sup>th</sup> Jan. 2022



# 1. Issues to be Resolved! (1)

## PRESENT SITUATION



**ISSUES: Little Flow of Grey water to Off-site WWTP due to Delayed House Connection & Small Sewer Pipe Laying**

## ASSUMED REASONS

- Lack of Budget mainly by Local Government
- Low Awareness of the Households Owners
- Not Available Suitable/Appropriate Technology

**We can resolve**

# 1. Issues to be Resolved! (2)

## Available TECHNOLOGY, Conventional Open-cut Method

Trenches for laying Sewer pipes to be excavated, up ground surface to required depth. E.g. more than 4 m in Jakarta. Once Excavation is complete, dug out area is backfilled and surface restored to original.



Open-Cut method is currently prohibited in Jakarta.

In order to protect buried utilities, gas, electricity, communication cables etc. on road sides.

Unfavorable to surrounding environments, neighboring houses

Excavated  
Soils &  
dirty water



Traffic  
blocked



Noise



etc.

# 2. How to Resolve! (1)

Our Microtunneling TECHNOLOGY is Trenchless Technology.

**No Excavation** except for Manhole Shafts.  
Microtunneling machine thrust jacking pipes by one by one until the first piece of the jacking pipes reach to the target manhole.



Arrival Shaft

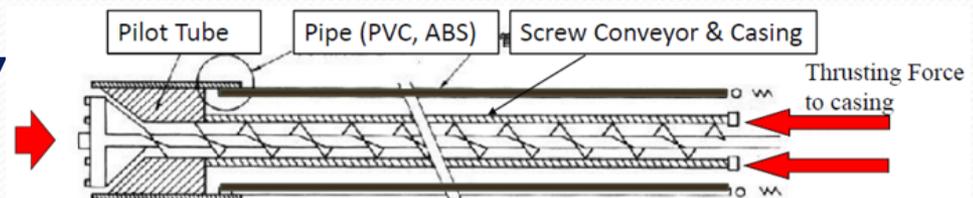


In addition to Concrete pipes, PVC pipes can be thrust.

## Merits:

Acid (H<sub>2</sub>S)-proof (easy maintenance/long life time)

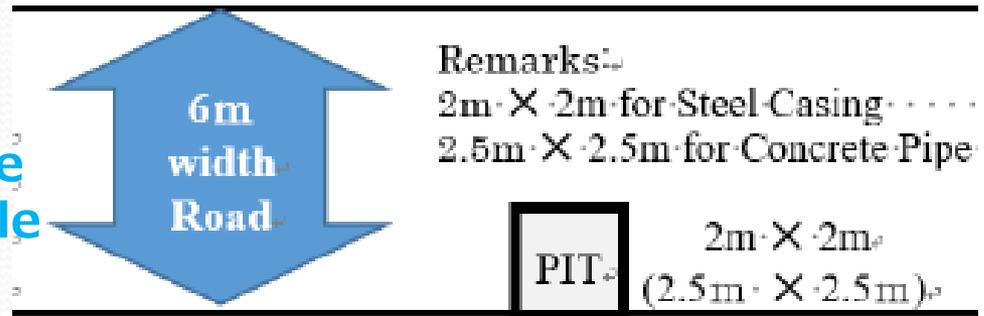
Better roughness coefficient enabling down sizing of pipe dia.



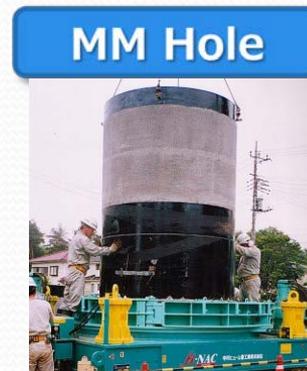
# 2. How to Resolve! (2)

## Other Preferable features/advantages

- Not blocking the traffic even road width of 6 m.  
As shown in the right, we could build Shaft manhole (PTT) with Minimum dimension.



- Shaft manhole can be built even soft ground condition by Art Column Driver.  
Pre-cast Concrete casing can be applied by combining with MM Hole.



- Total Construction Period can be drastically reduced.

# 3. Strong Points of CHIKEN

- Culmination of techniques & practices acquired and developed through improving, rehabilitation and renewal of sewerage system in Japan
- CHIKEN has vast experience in Pipe Jacking System for Large & Medium Dia. pipes as well as Small Diameter Pipe, and familiar with almost all processes as shown in the next Slide.
- CHIKEN has also accumulated technology of improvement of the Ground conditions by “Well point and Chemical grouting”, and ample experience of repair, rehabilitation of sewer lines in order to comply with various needs and requirements of the client and project site conditions.
- Relevant information extracted from CHIKEN’s website are shown in next slide for reference.

# CHIKEN's Activities (1)

Microtunneling of Large-Medium through Small-Diameter



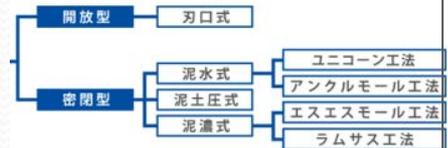
Microtunneling works of Small diameter pipes



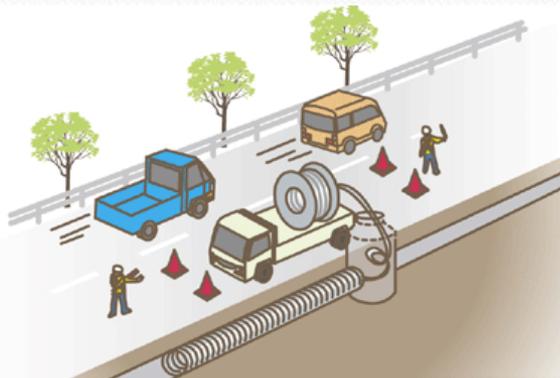
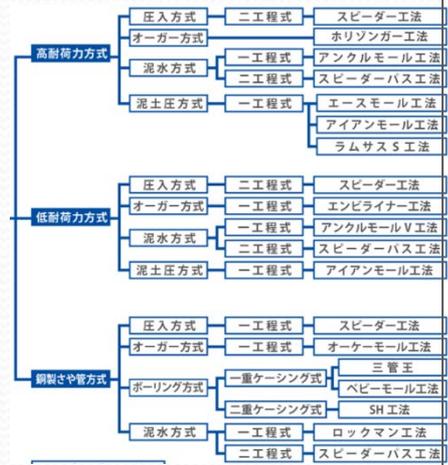
Sewer rehabilitation (Trenchless Technology)

## Available Process

### Large-Medium

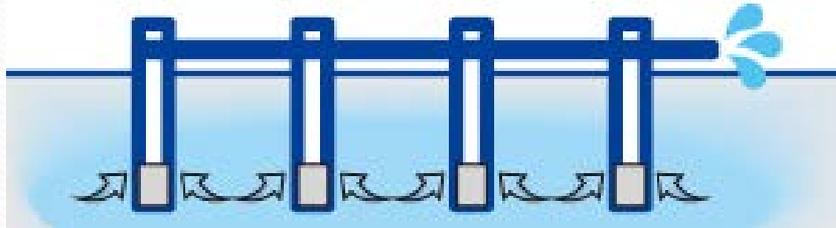


### Small diameter



# CHIKEN's Activities (2)

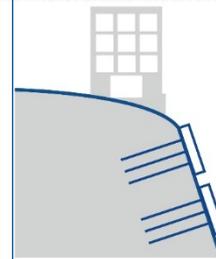
**Ground improvement  
(Well point & Chemical grouting)**



**Shaft construction  
for manhole by  
special purpose  
machine by using  
concrete or steel  
casings.**



**Ground anchor method by  
driving piles into slope for  
stabilizing.**



**Rehabilitation of sewer  
pipes without digging the  
damaged pipes.**



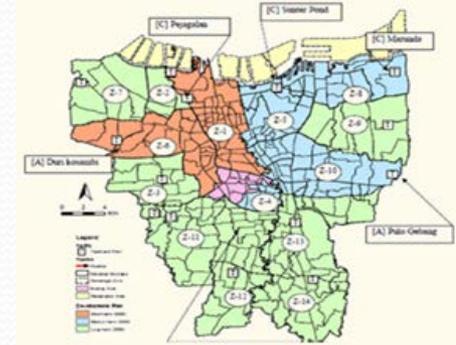
## 4. Any Work Experience in Indonesia?

- No experience in Microtunneling works in Indonesia.
- However, our group “**CHIKEN/SANWA**” was selected by JICA to implement the Verification Survey under “**the framework of JICA’s public-private partnership programs**”.
- By using Microtunneling Machine and Art Column Driver of **SANWA KIZAI**, our partner in the Verification project, we shall construct about 330m sewer pipeline with diameter of 400mm PVC pipe in center of Jakarta city to demonstrate how our technologies can respond effectively to specific development challenges.

**This Survey will be implemented in collaboration with Indonesian Central and Local Governments including Local Wastewater Company.**

# 5. Business Plan

- Result of demonstration test shall be analyzed in order to reflect to implementation of future sewerage projects in Indonesia, such as,
  - **Jakarta Sewerage System (JSS)**  
Initial focus on Zone 1 & 6.
  - Sewerage projects in Kalimantan, Sumatra, Sulawesi etc., if any.
- We shall transfer our technology to local by supervising construction and by providing guidance on fabrication of materials to create new jobs opportunities.  
For this purpose, we plan to open our local office.
- In medium to long term, we aim to extend our activities to other Southeast Asian countries as well.



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# Thank You

## ありがとうございました

Side Program Day 2: 19<sup>th</sup> Jan. 2022

CHIKEN ENTERPRISE CO., LTD.



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