資料８

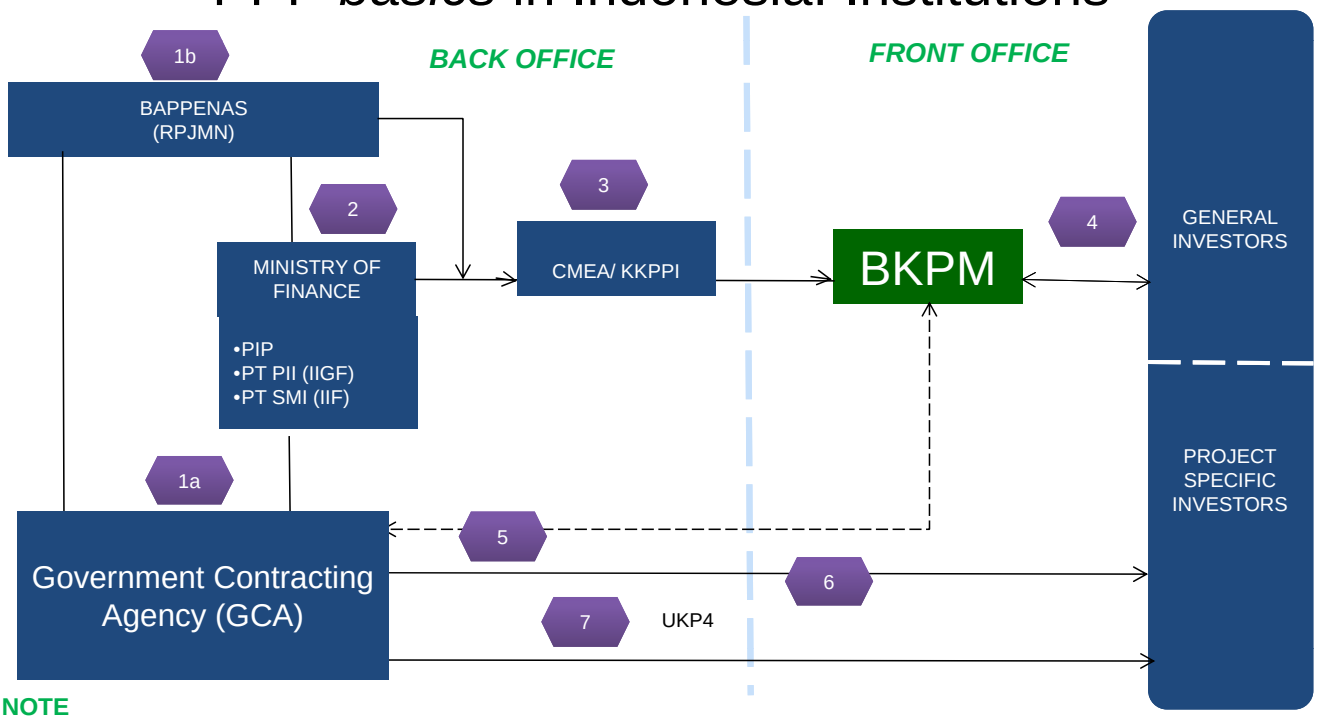
資料８　インドネシア水インフラセミナー配付資料

PPP in Indonesia Water Sector: Overview, Challenges & Opportunities

Nugroho Tri Utomo
Director for Housings and Settlements
National Development Planning Agency/Bappenas
Indonesia

Tokyo, February 16, 2012

PPP *basics* in Indonesia: Institutions



NOTE

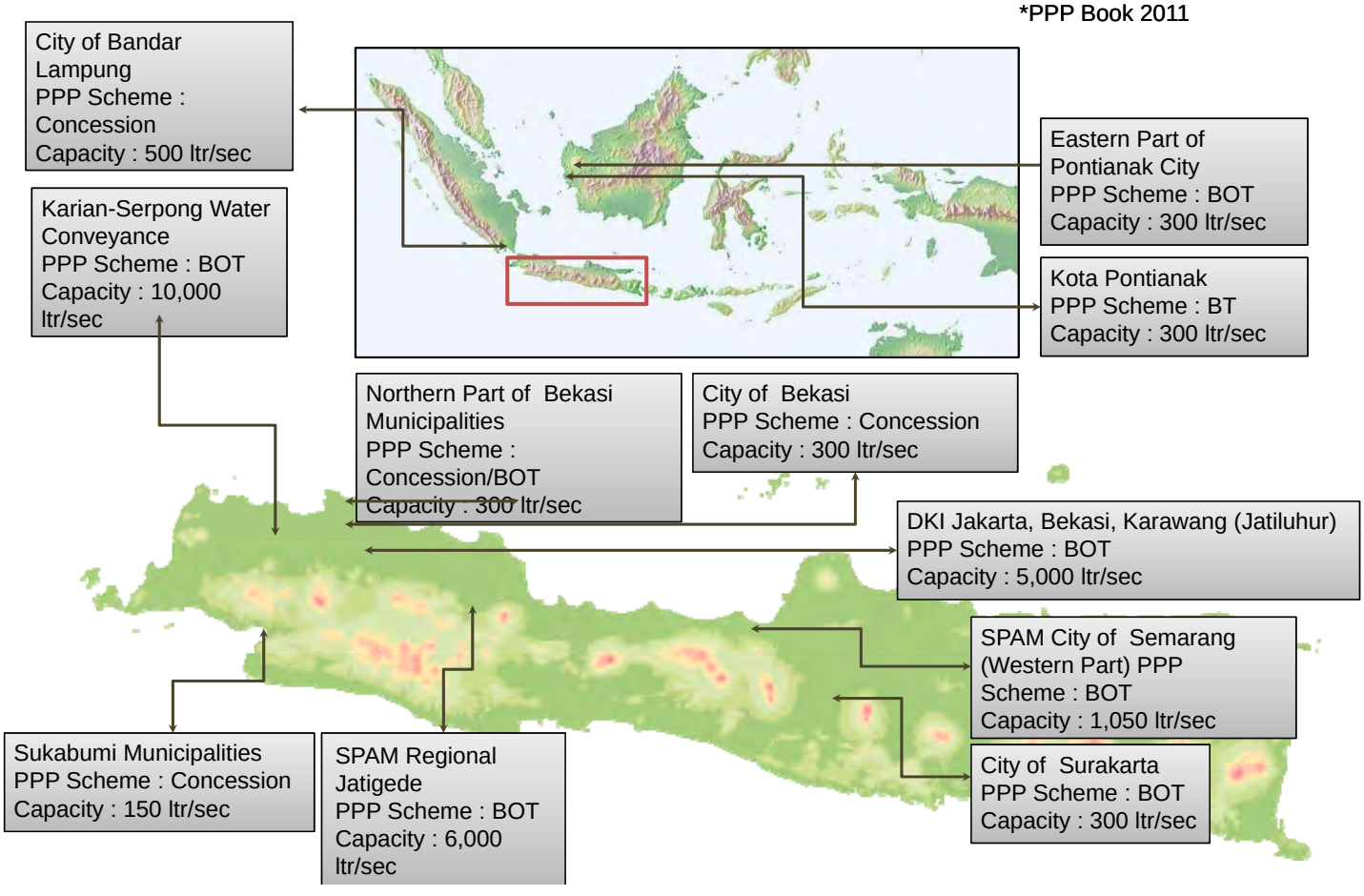
1. Project Preparation by GCA, National Development Planning Agency (Bappenas), and MoF.
2. Preparation of PPP Book and finalization of "ready-to-offer projects" by National Development Planning Agency , MoF, and BKPM
3. Recommendation by the technical and financial feasibility by The Committee for the Acceleration of Infrastructure Provision (KKPPI) and PT IIGF (if project guarantees would be available) .
4. Market Sounding by BKPM (Coordinating Office for Foreign Investment)
5. *Feedback* (*input*) gathered from *market sounding*, potential investor identified, and transaction process is facilitated.
6. Bidding Process by GCA
7. Monitoring by Presidential task Force for Supervision and Monitoring of Development (UKP4)

PPP *basics* in Indonesia: Regulations

- Law & Regulations
  - Law No. 7/ 2004 on Water Resources;
  - Government Regulation No. 16/2005 on Development of Water Supply System;
  - Presidential Regulation (PR) No. 67/2005 revised by PR No. 13/2010, and amended by PR No. 56/2011 on Cooperation between Government and Private Entities on Infrastructure Provision ;
  - Minister for Planning Regulation No. 4/2010 on Operational Guidelines of PPP in Infrastructure;
  - Minister for Public Works Regulation No. 12/PRT/ 2010 on PPP of Water Supply System;
  - Regulations on Government Supports an Guarantees, Land Acquisitions, Asset Management, and Local Government Cooperation have been published.

Future PPP Projects in Watsan*

*PPP Book 2011



Contributions expected from Japan-Indonesia Cooperation

- Capacity Building
  - Inadequate capacity, mostly in local governments, in dealing with PPP Projects from planning to implementation; Gap of knowledge among stakeholders.
- Financing Initiatives
  - Flexible financing scheme through combination of grant and soft loan;
- Application of Appropriate Technologies
  - Japanese technology would be beneficial for development of PPP in Indonesia, appropriate technology would very much be preferable as compared to advanced technology.

Lesson Learned from Watsan PPP

- Gap of PPP Knowledge among Stakeholders
- Lack of Coordination among Sectors;
- Lack of Financing Innovation;
- Gap of technology/ Choice of technology applied.

Challenges

- PPP (Public Private Partnerships) should be A Win-Win cooperations/partnerships ;
- PPP Projects, notably in infrastructure, are big and sophisticated;
- PPP Projects can also be small yet beautiful;
- Applying appropriate technology best fitting into local conditions.
- Managing expectations, most especially those of the local governments to maintain their supports.
- Understanding that financial engineering to better suite local and national regulatory settings would be much more effective (and applicable too) than introducing new financing schemes.

Thank you, domo arigatou J

PROSPECTS OF PUBLIC PPP OF WATER INFRASTRUCTURE IN INDONESIA

By Ir. Danny Sutjiono
Director of Water Supply Development

Third Meeting of " the PPP Council for Overseas Water Infrastructure"
February 16th 2012
Tokyo, Japan

MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

WATER SUPPLY DEVELOPMENT PROGRAM

Urban Water Supply Development	
Program	**Target**
Expansion of Existing Water Supply System	459 location 3,916,512m3/d
New Area Secondary Cities/Small Cities	1136 location 1,114,560 m3/d
Budget Requirement US$. 5.91 billion	

Rural Water Supply Development	
Program	**Target**
Water Supply and Sanitation for Low Income Communities (WSSLIC)	5000 villages
Water shortages/ remote	1750 villages
Budget requirement US$. 1.34 billion	

Budget sources:

National budget Urban & Rural	**US$ 4.18 billion**
Local Government	**US$ 1.48 billion**
PPP / Bank	**US$. 1.58 billion**

GOVERNMENT FACILITIES

1. **Government Guarantee**
   PT Penjaminan Infrastruktur Indonesia (Indonesia Infrastructure Guarantee Fund-IIGF) to be a credible guarantee provider
2. **Governement Support**
   a. Pusat Pengelolaan Resiko Fiscal (Center for Fiscal Risk Management) as institutions to provide recommendation on fiscal risk
   b. PT Sarana Multi Infrastruktur (Indonesia Infrastructure Finance-IIF) as institutions to promote PPP in financing various infrastructures in Indonesia.

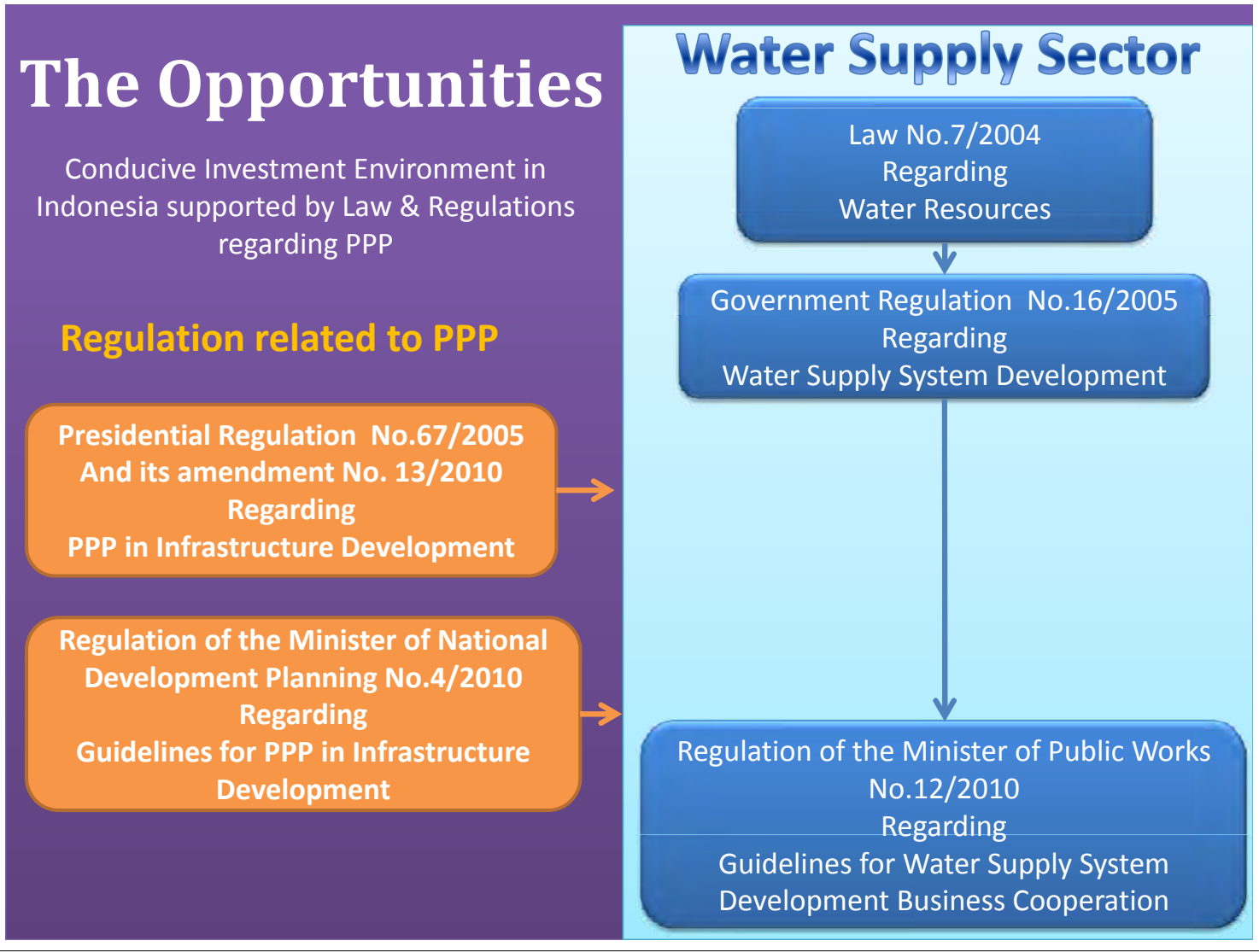
OPPORTUNITIES TO PPP

1. Expansion Water Supply System

2. NRW Reduction by performance base contract
   - The contract agreement between a water supply operator with a private partner based on the performance achievement of the partner to meet the goal of reducing Non Revenue Water which is set up, first in the beginning.

OPPORTUNITIES TO PPP

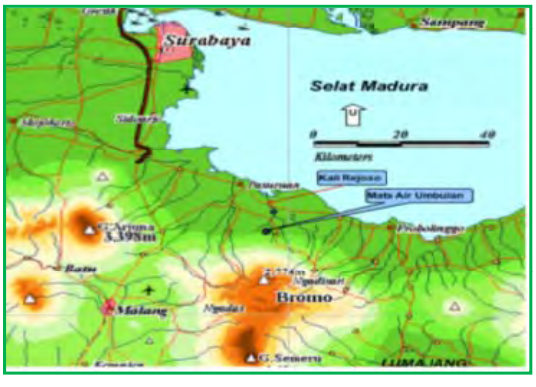
3. Energy Efficiency by performance base contract
   - contracting specifications and procedures permitting the contractor to devise the most efficient and effective way to meet the goal of reducing energy consumption which is set up perform the
4. Water Operator Management
   - The partnership between a water supply operator with a private partner in term of operation and maintenance aiming at improving the performance of the water works company
5. Water Technology



ON GOING PROCESS OF TENDER IN PPP PROJECTS

(1) UMBULAN WATER SUPPLY

- PPP MODALITY : BOT
- CAPACITY PLANNING : 4,000 lps
- ESTIMATED PROJECT COST : US$ 204.2 Million
- ESTIMATED IRR : 14.54 %
- BENEFICIARY : The utilization for 1.6 million inhabitants or 320,000 connection
- PROJECT LOCATION : East Java Province
- STATUS : Invitation To Tender Process



(2) BANDAR LAMPUNG WATER SUPPLY

- PPP Modality : BOT/Concession
- Estimated Project Cost : US $ 38 Million
- Project Location : Bandar Lampung City

Scope of Project:

- Development of Intake and WTP 2 x 250 L/sec
- Development of Distribution network and house connections

Status: Pre-Qualification Process

(3) MAROS WATER SUPPLY

SCOPE PROJECT:

- Construction of Intake: 270 lps
- Installation raw water transmission 8,5 km
- WTP 250 lps
- Reservoir: 4.500 m3
- Main distribution network 37 km

ESTIMATED PROJECT COST :
US$ 11.50 mill

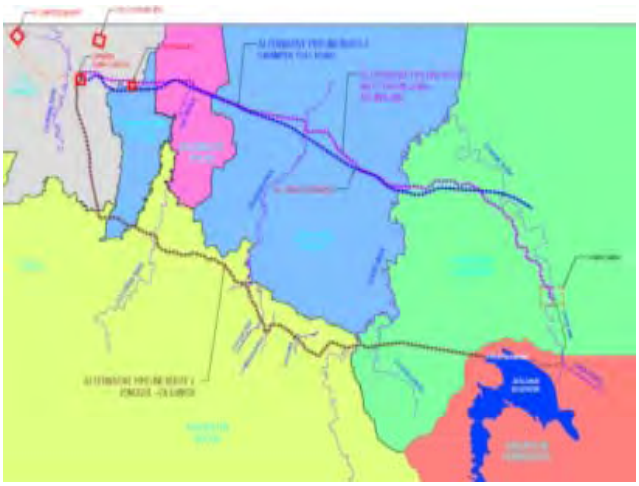
STATUS : Pre Qualification

OPPORTUNITIES PROJECTS PPP

(1) DKI JAKARTA, BEKASI, KARAWANG WATER SUPPLY (JATILUHUR)

PROJECT SCOPE :

- Development of intake 5,000 lps
- Development of Water Treatment Plant (WTP) 5,000 lps
- Procurement of transmission pipe ND 1,800 mm length 58 km



ESTIMATED COST:

- US $ 663million

STATUS :

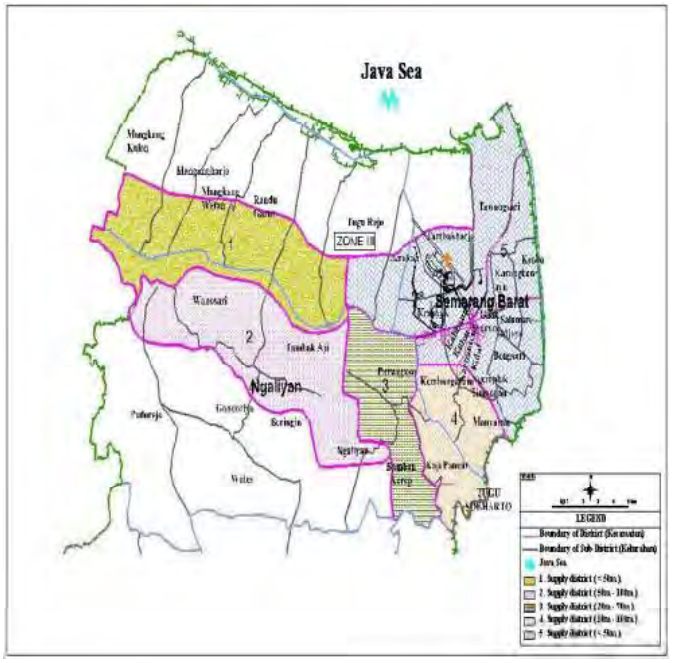
- Pra FS preparation by Ausaid

(2) WESTERN SEMARANG CITY WATER SUPPLY

- PPP Modality : BOT/Concession
- Estimated Project Cost :
  US $ 40 – 70 Million
- Project Location: Western Semarang City

PROJECT SCOPE :

- Development of Intake 1.050 L/sec
- Transmission pipe of raw water
- WTP 2 x 500 L/sec
- Distribution pipe system
- Reservoir
- Distribution and service unit



STATUS : Preparation FS by JICA

(3) PEKANBARU SELATAN WATER SUPPLY

Kampar River

- **SCOPE OF PROJECTS:**
  - Intake
  - Development of Water Treatment Plant 500L/s
  - Development of distribution pipe

- **PROJECT LOCATION**: Pekanbaru Municipal and Kampar Regency

- **COST ESTIMATION** : US$ 41 Million

- **STATUS** : Preparation of Pra FS

(4) KARIAN-SERPONG WATER CONVEYANCE

- PPP MODALITY : BOT
- CAPACITY PLANNING : 10,000 lps
- ESTIMATED PROJECT COST : US$ 690 Million
- ESTIMATED IRR : 16 %
- BENEFICIARY : The utilization for 4 million inhabitants or 800,000 connection
- PROJECT LOCATION : Banten Province

➢ Karian

PROJECT SCOPE :

- Development of Water Treatment Plant (WTP) 10,000lps
- Procurement of transmission pipe length 90 km

STATUS: Pra FS of Karian Dam

(5) JATIGEDE WATER SUPPLY

- PPP MODALITY : BOT
- CAPACITY PLANNING : 6,000 lps
- ESTIMATED PROJECT COST: US$ 357.6 Million
- ESTIMATED IRR : 20.0 %
- BENEFICIARY : Utilization for 2,4 million inhabitants or 480,00 connection
- PROJECT LOCATION : West Java Province

PROJECT SCOPE :

- Development of WTP 2 x 3.000 lps
- Procurement of transmission pipe ND 1,600 mm , 7,150 m
- Development of Reservoir 2x 7,000 m3

STATUS: Dam Construction

(6) EXPANSION OF PADANG WATER SUPPLY

- Location : Padang Municipal
- Estimated Cost : US$ 20,50 Million
- Project Scope :
  - Increase of water treatment of 200 l/s
  - Rehabilitation of Distribution network
- Status : Preparation of pre-FS by IRSDP - ADB

PERFORMANCE BASE CONTRACT FOR
Energy Efficiency
and
Reduction of Non Revenue Water

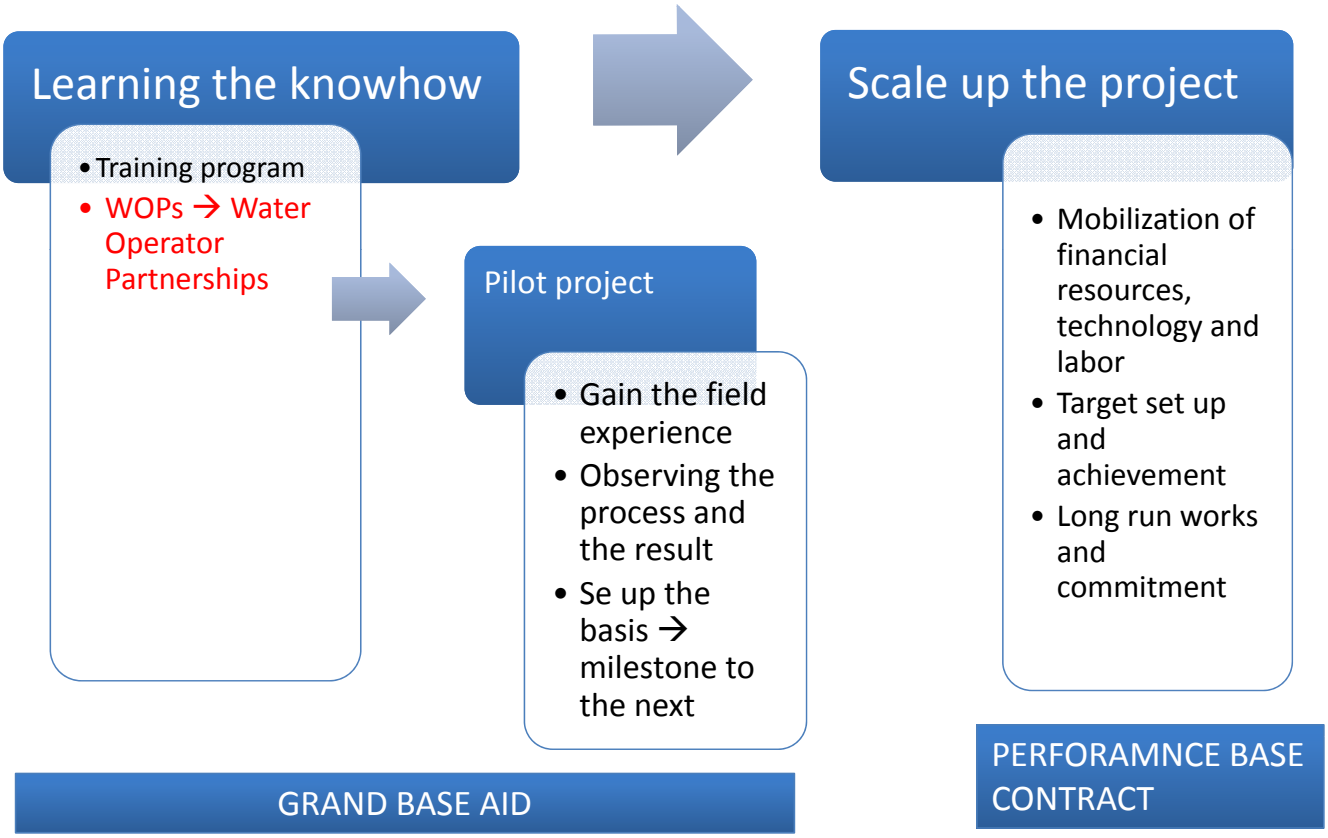
SUBJECTS

- Energy Efficiency
- Reduction of Non Revenue Water

BACK GROUND

- Number of water works company > 400
- Sufficient high rate of Non Revenue Water. National figure is 33%
- Improper maintenance of the equipment → high cost of energy > 30% of the operational cost
- Lack of technology
- Low internal cash capacity
- Unskilled employee

PROCESS SOLUTION



WOPs (Water Operator Partnerships)

- Collaboration between mentor (well run waterworks) with recipient (local waterworks) in particular agreed subject for certain period of time → twinning
- Subject of interest:
  - NRW reduction
  - Energy efficiency
  - Asset management
  - Technical management
  - Financial management
  - Etc.

Module

Performance Base Contract

- The contract agreement between a water supply operator (waterworks) with a private partner based on the performance achievement of the partner to meet the goal of particular subject which is set up, first in the beginning.

BASIC CONCEPT

- Baseline condition → AUDITED
- Target
- achievement vs. threshold → AUDITED
- Below the threshold, no payment incurred

ENERGY EFFICIENCY

The term is related to the effort on reducing the energy consumption in particular equipment as to the efficient one.

The subjects are the apparatus of the water supply system which consume energy to operate. This includes the electrical and mechanical equipment.

Pre-condition:

- Water Supply Operator with energy consumption > 30% of the operational expenses;
- Full cost recovery tariff

REDUCTION OF THE NON REVENUE WATER

The term is related to the effort on reducing the Non Revenue Water (NRW) in water supply operator

The subjects is the level of NRW to be reduced

Pre-condition:

- Water Supply Operator with NRW > 40%;
- Supply coverage > 80% population
- Full cost recovery tariff

THE WORKS

Preparation:

- Identify the recent condition of the system;
- Audit the performance as a base line;
- Set up the target performance;
- Define the term and condition for the contract agreement.

THE WORKS …… continued2

Implementation

- Define the business plan;
- Implement the program;
- Measure the achievement;
- Pay the work based on the achievement

Concerned matters:

- Transfer of knowledge
- Dispute resolution

Thank You

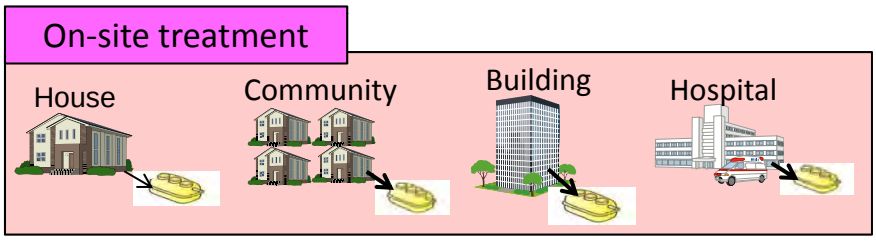
Arigatou Gozaimasu

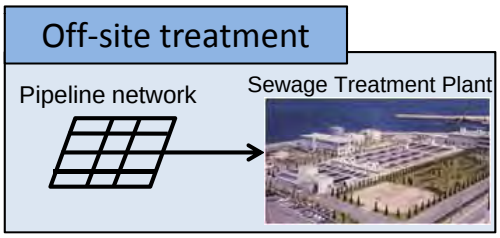
Proposal of On-site sewage treatment unit

February 16, 2012

Kubota
For Earth, For Life

What is “On-site treatment” ?



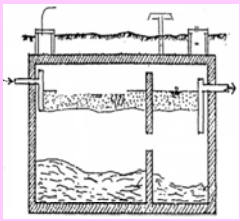
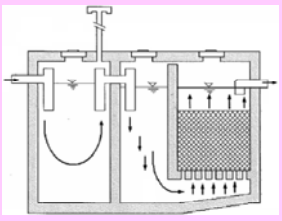


On site
sewage treatment unit

Off –site
sewage treatment plant

✓Geographically isolated
✓Pipe laying is not possible by Urbanization, etc..

Comparison between On-site/Off-site treatment

	Conventional Septic Tank	Modified Septic Tank	On-site sewage treatment unit so-called "Johkasou"	Sewage treatment plant
Figure				
Category	On-site for Black Water	On-site for Black & Gray Water	On-site for Black & Gray Water	Off-site Black & Gray Water
Treatment Process	Anaerobic + (Under Seepage)	Anaerobic + Filter Anaerobic	Anaerobic + Aerobic	Anaerobic + Aerobic
Treated water Quality(BOD)	100-150 mg/L	75-100 mg/L	< 20 mg/L (MBR type < 5 mg/L)	< 20 mg/L (MBR type < 5mg/L)
Capacity	Small 1 – 2 m3/day	Small-middle 1 – 200 m3/day	Small-middle 1 – 1000 m3/day	Large - 1000000 m3/day
Construction Period	Short	Short	Short	Long Pipeline network, civil work

What is "On-site sewage treatment unit (Johkasou)" ?

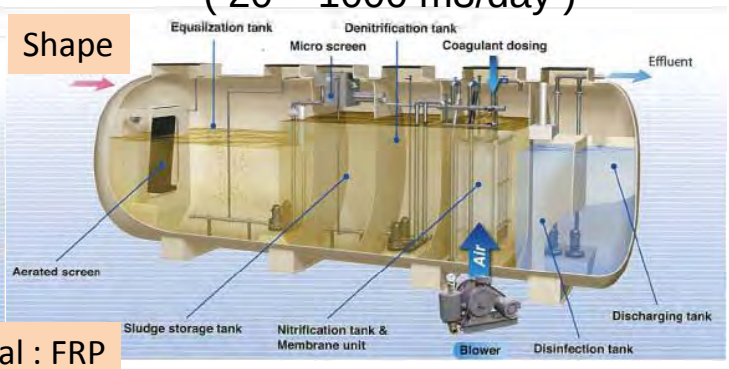
For 5 - 50 person
(1 – 10 m3/day)

Shape

Main material : FRP

For 100 - 5000 person
(20 – 1000 m3/day)

Shape



Household sewage
(Japan)

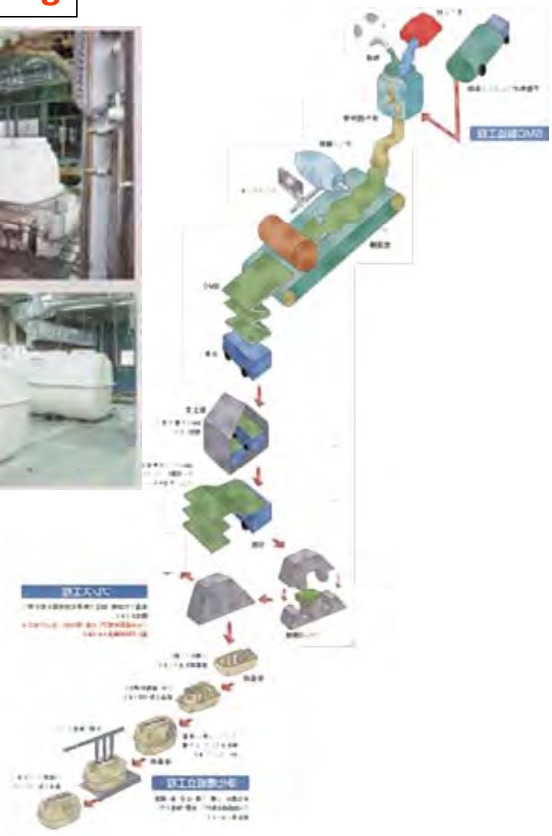
Hospital sewage
(Vietnam 50m3/day)

Sewage of the workers in the factory
(Saudi Arabia 530m3/day)

Manufacturing process

Small size

Press molding



Middle size

Spray molding

Rotary Molding

Installation process

Digging work

Base concrete work

Set up work

Filling water work

Backfill works

Piping work

Upper concrete work


掘削工事


底版コンクリート工事


据え付け(内部設備の確認)


水張り


埋め戻し工事


管の接続


上部スラブコンクリート工事

Features of On-site sewage treatment unit

- **Project can be started step by step by the available budget.**
- **Quality of treated water is same level as the off-site plant.**
  ex) BOD < 20mg/L (Normal type) BOD < 5mg/L (MBR type)
- **Can be fabricated in the factory.**
  → Quality of unit is controlled strictly.
  → Construction period at the field is short.
- **Pipeline work of is easy comparing with off-site sewage plant.**
- **Operation is automatically done without full-time operator.**
  (Sludge is accumulated in the tank and it must be removed periodically.)
- **Long term durability by using FRP material.**
  (More than 30 years)
- **Many record and long history in Japan.**
  Totally 6.7Mil. units installed.

Experiment in Jakarta

● Applying Kubota's on-site sewage treatment unit to Indonesia, field experiment is carried out with PD PAL JAYA, a sewer authority in Jakarta. (Supported by Ministry of the Environment in Japan)


Local circumstance


Carrying-in


Installation

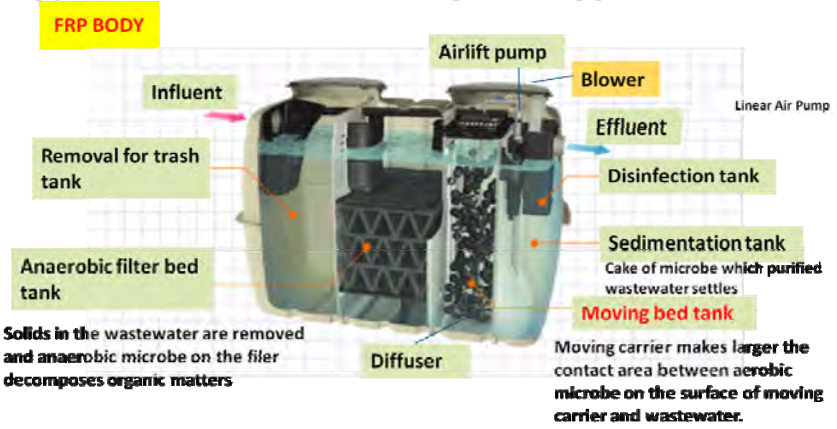

Backfilling

Thank you for your attendant

Terima Kasih !!

Notes

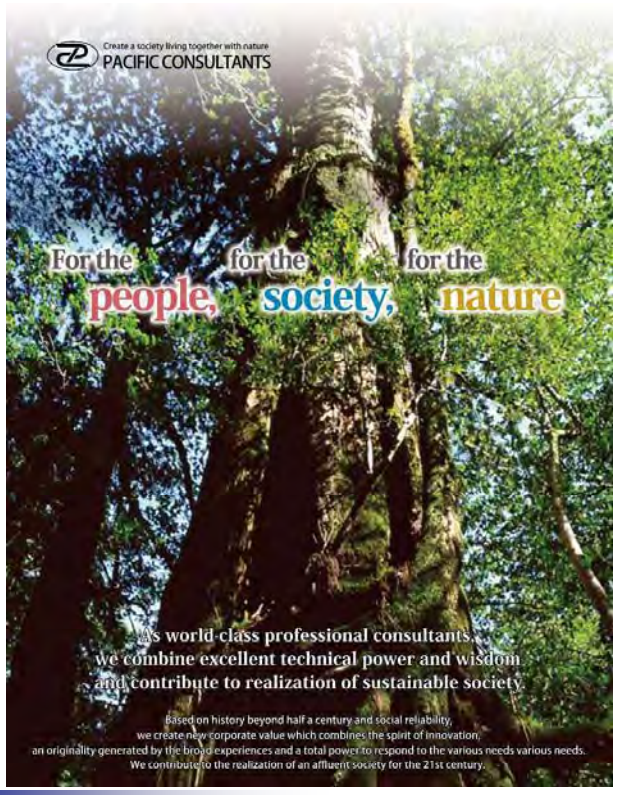
Typical structure (Moving bed type)

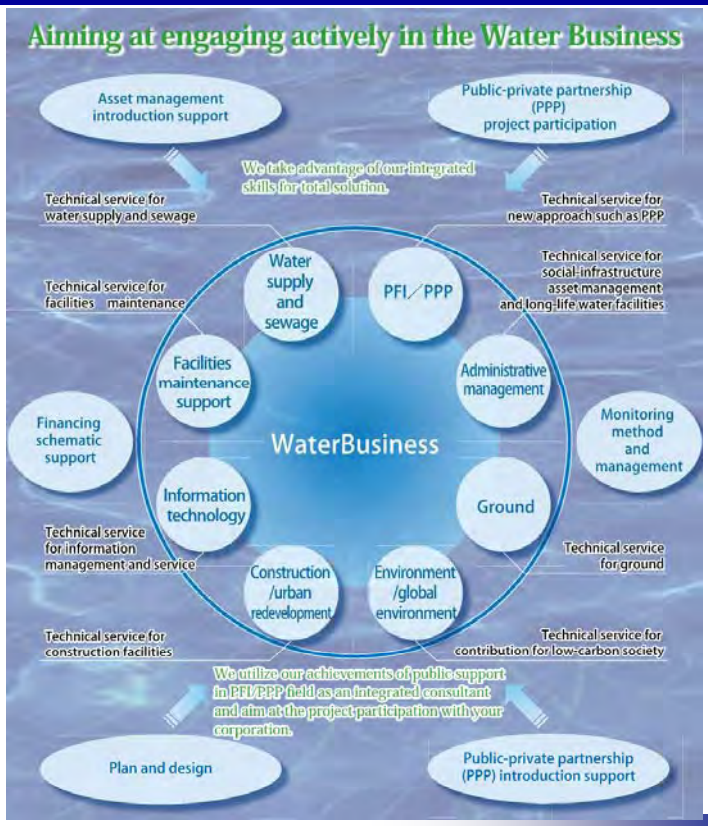


Activities on Water business field in Indonesia

3rd Meeting of the PPP Council for Overseas Water Infrastructure
February 16th, 2012

Proposal from PACIFIC CONSULTANTS

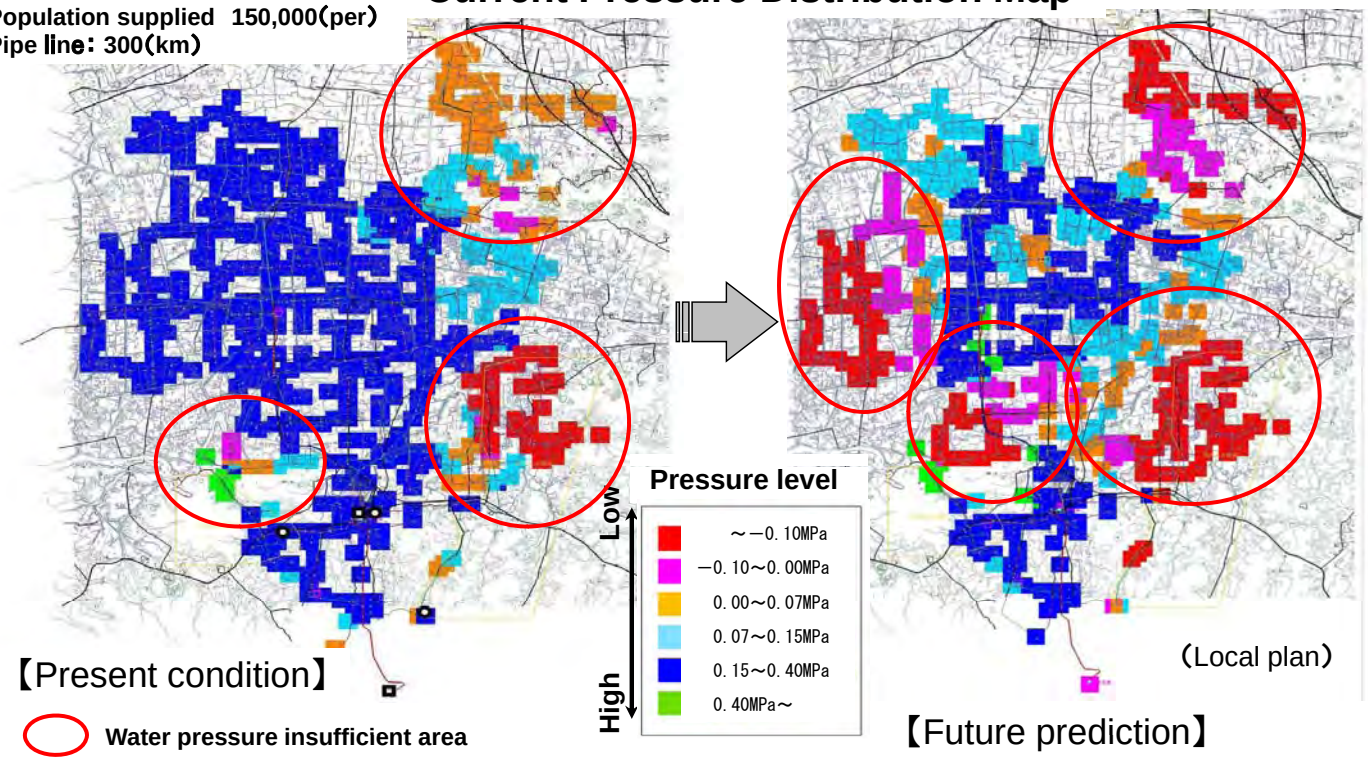




Investigation, Analysis and Consulting

Area: 300(km²)
Population supplied 150,000(per)
Pipe line: 300(km)

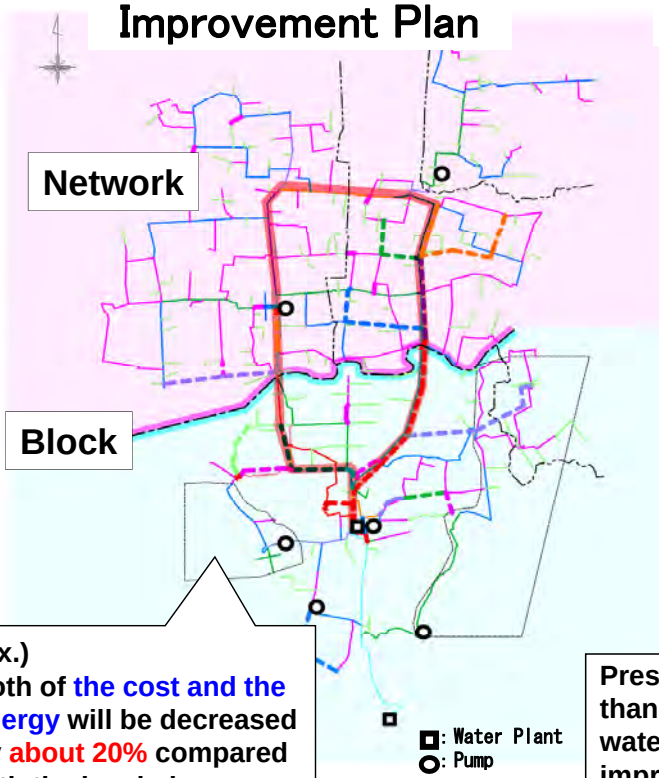
Current Pressure Distribution Map



PACIFIC CONSULTANTS CO.,LTD

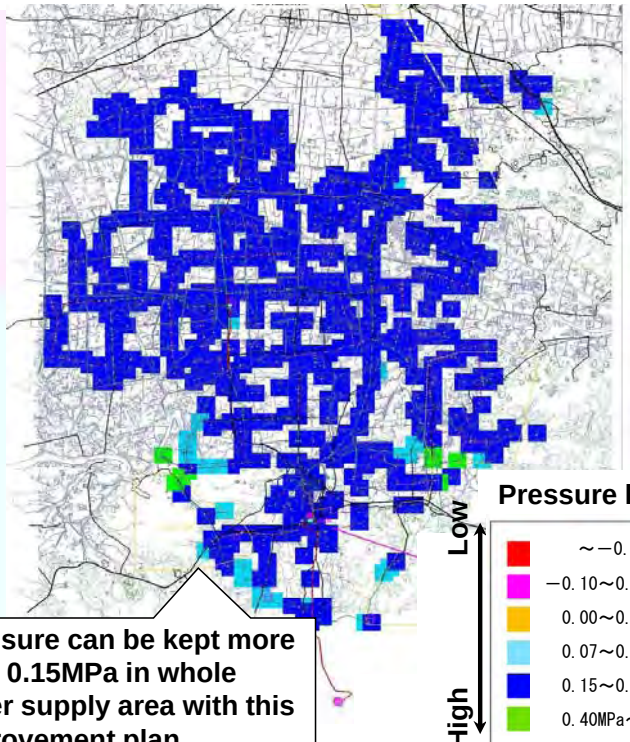
Investigation, Analysis and Consulting

Improvement Plan



(Ex.)
Both of the cost and the energy will be decreased by about 20% compared with the local plan.

Current Pressure Distribution Map



Pressure can be kept more than 0.15MPa in whole water supply area with this improvement plan.

PACIFIC CONSULTANTS CO.,LTD

Meeting and Field Survey

For the next step seeking opportunity for cooperation in water sector in Indonesia,

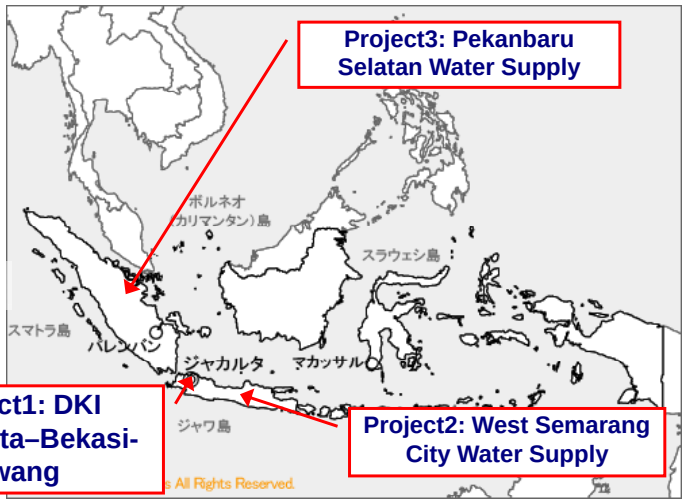
JAPAN TEAM which is composed of about 20 participants including MHLW visit the following three projects form Feb 20th to Feb 29th:

Project1: DKI Jakarta–Bekasi-Karawang Water Supply
Project2: West Semarang City Water Supply
Project3: Pekanbaru Selatan Water Supply

Meeting with Cipta Karya

Field Survey in BEKASI

Meeting with BPPSPAM



Closing from PACIFIC CONSULTANTS

Thank you.
Terima kasih.