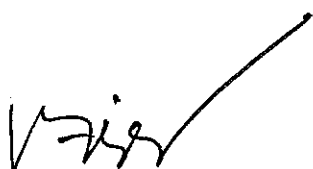


“The Third Joint Coordination Committee”

MINUTES OF MEETING
BETWEEN
AUTHORITIES CONCERNED
OF
THE GOVERNMENT OF THE REPUBLIC OF INDONESIA
AND
JICA EXPERT TEAM ON JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR IMPROVING PLANNING CAPACITY FOR THE
SEWERAGE SYSTEM IN DKI JAKARTA

Jakarta, 23 January, 2017



Mrs. Tuty Kusumawati
Head of Regional Development
Planning Board
Jakarta Capital City Government



Mr. Minoru MATSUMOTO
Chief Advisor
The Project for Improving Planning
Capacity for The Sewerage System
in DKI Jakarta

SUMMARY OF THE 3rd JCC MEETING

Title	The 3 rd JCC meeting, Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta		
Date and Time	11 th January, 2017 09:00am~12:00pm	Place	Sabang 5 Meeting Room, Hotel Mercure Sabang, Jakarta
Chair	Mrs. Tuty Kusumawati, Head of Regional Development Planning Board (BAPPEDA), Jakarta Capital City Government		
Attendee	See Annex A		

ITEM	POINTS	ACTION
Progress of the 3rd semi-year & PO/Annual Work Plan of the 4th semi-year	● Mr. NABETA Takeshi (Coordinator of the Project) presented the Progress of the 3 rd semi-year and PO/Annual Work Plan of the 4 th semi-year	Approved
	● Mr. KANAI Shigeo (Chief of Consultant Team) presented the activities for Output 2.	Approved
Topics of Training	● Mr. Dandi (Assistant Deputy for Water Resource Infrastructure, CMEA) suggested to have training for PPP scheme such as VFM and AP for document bidding in small seminar or workshop for end of the project (May 2017).	● Mrs. Tuty (Head of BAPPEDA) agree with the suggestion by CMEA.
Extension of the project	<ul style="list-style-type: none"> ● Mr. Harada (Senior Representative, JICA) asked the request from the committee for the extension of the project. ● Mr. Matsumoto (Chief Advisor of Project) explained the project design for extension period would be considered further by JCC. 	● Mrs. Tuty (Head of BAPPEDA) asked for project extension until March 2018.

**The Third Joint Coordination Committee,
Project for Improving Planning Capacity for
the Sewerage System in DKI Jakarta
11th January 2017**

A. Introduction

- 1) The third meeting of Joint Coordination Committee (hereinafter referred to as "JCC") was held in Jakarta on 11th January 2017 on the Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta (hereinafter referred to as "the Project"), based on the Record of Discussion between the Government of the Republic of Indonesia and Japan International Cooperation Agency on Japanese Technical Cooperation Project for Sewerage Program of DKI Jakarta signed on 10th December 2014 (hereinafter referred to as "R/D").
- 2) Mrs. Tuty Kusumawati, Head of Regional Development Planning Agency (BAPPEDA), Jakarta Capital City Government (DKI Jakarta) as the Chair, opened by welcoming all participants and expressing her appreciation with the assistance of the Government of Japan. She also delivers her hope with great anticipation that JICA's cooperation for DKI Jakarta would be expand in order to accelerate Jakarta sewerage System.
- 3) **Annex A** contains the list of participants of both Japanese and Indonesian sides. The meeting agenda and meeting materials are attached as **Annex B**.
- 4) The results of JCC held in this time (as shown in separate Minutes of Meeting), the authorities concerned of Indonesia and JICA hereby agreed as follows:

B. Presentations / Plan and progress of the Project

- 1) Mrs. Tuty Kusumawati, Head of BAPPEDA, DKI Jakarta explains about the importance of sewerage development and the necessity to be implemented. Besides, she also explains about aspect which should be built such as planning, budgeting, construction, and competency of human resources
- 2) Mr. Matsumoto, Chief Advisor of Project presented the Project Overview.
- 3) Mr. Nabeta, Coordinator of Project presented the Progress of the 3rd Semi-Year/7 months and Work Plan of the 4th Semi-Year/5 months (PO): the activities for Output 1 (Organizational Function). Beside he also mentioned that the project need to be extended based on several reasons.
- 4) Mr. Kanai, Team leader of Japanese Consultant Team also presented the activities for Output 2: Trainings, Draft of Mid-Term Sewerage Development Plan, Draft of Regional Regulation (provincial level)

C. Exchange of Views

- **Mrs. Tuty (Head of Regional Development Planning Agency, DKI Jakarta Provincial Government)**
 - As for regional regulation, next agenda is drafting academic paper related to the waste water include tariff scheme under process of DSDA (Water Resource Agency).

- It also needs to be referred in academic paper such as comparisons among cities in Indonesia, and best practices from Japan (Kitakyushu and Tokyo) as benchmarking.
 - Communal system can be developed particularly in slum area in the early stage of construction for sewerage system. On-site system and off-site system will be interconnected with the progress of sewer pipe installation
 - We still work on the 15 zones, but the priority is Zone 1 and Zone 6.
 - Have information regarding piping and water standard from communal (E. coli currently 10.000 and the standard is 3,000).
- **Mr. Junifer (Director of Technique and Business, PD PAL Jaya)**
- Regarding Zone10, budget have not allocated for WWTP yet, but World Bank already come to offer for a grant. it would be pleased if JICA would like to offer a grant.
 - Tariff scheme need to be discussed further whether the communal tariff remained the same even there still main trunk but house connection can be connected from communal.
 - Even it is already stated in Governor Regulation the land availability is 11 ha, but in the field only remain 2.5 ha. There are 6 zone D/D (Detail Design) that will be completed by PD PAL Jaya.
 - Zone 2 as the smallest area, it is better that DSDA arrange the budget allocation immediately for the construction
- **Mrs. Tuty (Head of Regional Development Planning Board, DKI Jakarta Provincial Government)**
- It need job allocation for sewerage and water resources in internal DKI Jakarta provincial government.
 - Going forward for cooperation with JICA would be more training for DKI Jakarta government staffs (piping and community level including provide tariff system) and some pilot communal approach.
- **Mr. HARADA Tetsuya (Senior Representative, JICA Indonesia Office)**
- JICA is considering the development of a communal system through JICA's SME support scheme in Malakasari.
 - Pilot project in Malakasari shows to be more relevant to impose tariff system. It is necessary to start collecting user charge at Malakasari regardless of enough legal background.
- **Mrs. Tuty (Head of Regional Development Planning Board, DKI Jakarta Provincial Government)**
- We need the regional regulation regarding sewerage tariff.
- **Mr. Andono (Head of Environmental Impact Management Division, Environmental Agency, DKI Jakarta Provincial Government)**

- In 2011, Environmental Agency get involved in masterplan on Jakarta sewerage system and there will be 20% remaining that would not be covered. And how to covered that area?
 - How to develop the communal system?
 - Desludging program by PD PAL Jaya shall be included in the regional regulation.
- **Mr. Dandi (Division of Water Resource Conservation and Water Damage Control, Assistant Deputy for Water Resource Infrastructure, Coordinating Ministry of Economic Affairs)**
- Related to the capacity building, what's the agenda for the next training in August or September 2017 in Japan?
 - We need material of training about calculating VFM (value for money) regarding AP (Availability Payment) for document bidding.
- **Mr. Matsumoto Minoru (Chief Advisor of Project)**
- We can arrange the course for PPP or AP scheme in the next training if the project will be extended.
- **Mr. Dandi (Division of Water Resource Conservation and Water Damage Control, Assistant Deputy for Water Resource Infrastructure, Coordinating Ministry of Economic Affairs)**
- If the project can't be extended, the alternative to give material of AP can be inserted during small seminar or workshop, the local & central government needs this material.
- **Mrs. Tuty (Head of Regional Development Planning Board, DKI Jakarta Provincial Government)**
- Whether the AP material will be inserted in small seminar, workshop, or the next training, it is clearly that DKI Jakarta government need this material.
- **Mr. Harada (Senior Representative, JICA Indonesia Office)**
- As for the extension of the project, JICA needs the request from the committee and JICA HQ will decide if it can be extended or not.
- **Mrs. Tuty (Head of Regional Development Planning Board, DKI Jakarta Provincial Government)**
- We would be pleased if the project can be extended until March 2018. We agree with the suggestion from Coordination Ministry of Economic Affairs that the material of AP will be accommodated in upcoming small seminar or workshop for end of the project (May 2017). It will be in line with DKI plan to form specific team regarding the PPP and bidding preparation team.
- **Mrs. Erly Silalahi (Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Work and Housing)**
- Minutes of kick off meeting of supplemental study for Zone 6 has not been signed yet and it need to be done immediately for further step.

- The progress of KSB (joint agreement) and PKS (cooperation agreement) cannot be traced currently of divided region between central and local government that will become the main reason of loan offering.
- Regarding the project extension based on the reason that it need to transfer knowledge from JICA Consultant's output to local consultant since they will take in charge in May 2017. If there will be no project extension, the local consultant should be involved in before May 2017
- As mentioned by Vice Governor of DKI Jakarta that 1000 SANIMAS (community based sanitation) will be built until 2019, whereas zone acceleration is one of them and it to service uncovering area beside 14 zones.
- 13 land locations in the Ciliwung River Basin belong to Regional Office of Ciliwung-Cisadane River Basin (Balai Besar Wilayah Sungai Ciliwung Cisadane) that can be used for WWTP construction.
- There are differences between RPJMD and NCICD, Zone 1 and 6 as priority and Zone 4, 5, 8 and 10 as mid-term. But after reviewing Master Plan of NCICD the priority is Zone 1, 6 and 11, and the mid-term is Zone 0, 3 and 7.
- We have some studies about zone mapping with fast revenue and D/D for WWTP Review that can be used as references.
- There is no regional regulation about the management of underground utilities, so it will be a constrain for acceleration project.
- For Zone 6, there will be repositioning of existing STP. Which agency will implement it and who will allocate budget for it?
- D/D for 6 zones should be finished already and submitted to PPLP (Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housings).

➤ **Mrs. Tuty (Head of Regional Development Planning Board, DKI Jakarta Provincial Government)**

- Draft KSB and PKS need to be followed-up.
- Bidding for local consultant for regulation will be do immediately
- Because the development of SANIMAS will hard to do, the possible way for slum or dense area is by using communal based system since there will be difficulties on access and WWTP construction.
- There is no national law of land utility for underground and upper ground under Ministry of Spatial and Land Planning, but there is governor regulation about land utility for underground like for MRT and ducting system.

➤ **Mrs. Yosi (Bureau of City Planning and Environment, DKI Jakarta Provincial Government)**

- Communal sanitation system will be developed by DSDA.
- Zone 2 in Muara Angke can be built under Ministry of Public Works and Housings or by local government budget.
- PD PAL Jaya will arrange governor regulation for sludge treatment include the tariff scheme
- The mechanism of tariff needs the input from JICA expert team.

- **Mrs. Tuty (Head of Regional Development Planning Board, DKI Jakarta Provincial Government)**
 - Start of the construction for the priority zones need to be wait for the result of discussions about NCICD and reclamation of 17 islands that will be discussed on June 2017 in the Presidential Office.
- **Mrs. Erly (Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Work and Housing)**
 - Will the outputs from JICA Consultants be draft of regional regulation? Because the project purpose is improving planning capacity.
- **Mr. Yakuro Inoue (JICA Consultant Team)**
 - DSDA is as a main actor of arranging regional regulation completely but JICA consultant will support it.
 - Regarding the Record of Discussion (R/D) that signed in 2014, JICA expert will give necessary guidance. It also mentioned in the plan of operation that DKI draft mid-term sewerage plan in consultation with JICA Expert team.

D. Conclusions for the Project

- 1) The Committee confirmed the progress in the 3rd semi-year of the Project.
- 2) The Committee endorsed the annual work plan of the 4th semi-year of the Project which has been presented by each representative in presentation.
- 3) Establishment of tariff system for securing sewerage management is one of an important activity. Tariff system considering affordability of users in accordance roles of sewerage system for public and private shall be formulated.
- 4) Human resources in DKI Jakarta shall be acquired in terms of number and quality. Well-designed program of training and technical development will be established to contribute to enhance know-how on sewerage development and operation as well as appropriate technology.
- 5) JCC requests the extension of the project's period until March 2018. Project design will be deemed further by JCC.

E. Other matters

The Committee agreed that the next meeting of JCC will be held in May 2017 to check the progress of the Project's implementation and discuss the next Plan of Operation in the extension term.

Done and signed in Jakarta, Indonesia, on 23 January 2017, by the representative of both parties.

Annex A.

The 3rd Joint Coordination Committee Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta (SWPJT)

Jakarta, 11 January 2017

List of Participants

I. Chairpersons

- Mrs. Tuty Kusumawati (*Chair*),
Head of Regional Development Planning Board (BAPPEDA), DKI Jakarta
Provincial Government
- Mr. Eko Gumelar Susanto (*Co-chair*),
Head of Raw Water, Water Supply and Waste Water Division, Water
Resources Agency, (Dinas Sumber Daya Air), DKI Jakarta Provincial
Government

II. Participants from Japanese Side

- Mr. Harada Tetsuya,
Senior Representative of JICA Indonesia Office
- Ms. Kitamura Keiko,
Project Formulation Advisor / JICA Indonesia Office
- Ms. Juni Melani,
Project Officer / JICA Indonesia Office
- Mr. Matsumoto Minoru,
Chief Advisor, Project for Improving Planning Capacity for the Sewerage
System in DKI Jakarta (SWPJT-JICA)
- Mr. Nabeta Takeshi,
Coordinator / Enhance organization structure, SWPJT-JICA
- Ms. Lailatus Siami
Local Consultant of JICA Project, SWPJT-JICA
- Mrs. Indah,
Secretary of JICA Project, SWPJT-JICA
- Mr. Kanai Shigeo,
Team Leader of Japanese Consultants Team, SWPJT-JICA
- Ms. Takamizawa Kiyoko,
Deputy Team leader, Japanese Consultants Team, SWPJT-JICA
- Mr. Inoue Yakuro,
Expert for Provincial Regulations, Japanese Consultants Team, SWPJT-JICA
- Mr. Gandhi,
Local Consultant of JICA Project, SWPJT-JICA
- Mr. Jana,
Local Consultant of JICA project, SWPJT-JICA

III. Participants from Indonesian Side

DGHS / Direktorat Jenderal Cipta Karya

Ms. Erly Silalahi,

Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housing

Mr. Rinaldy Pradana,

Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housing

Ms. Olsa R.,

Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housing

BAPPEDA

Mr. Tri Rachmat,

Head of Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government

Ms. Tezza Nur Ghina R.,

Head of Sub Division of Water Management, Hygiene and Environment, Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government

Mrs. Anni Maryam,

Head of Sub-Division of Spatial Planning, Human Settlement and Forestry, Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government

Mr. Cipta Aditya,

Head of Sub Division of Highways, Housing & Human Settlement, Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government

Mr. Fadly Haley,

Sub Division of Water Management, Hygiene and Environment, Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government

Mr. Evan Agustin,

Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government

Mr. Hari,

Secretariat, BAPPEDA, DKI Jakarta Provincial Government

Water Resources Agency (Dinas Sumber Daya Air)

Mr. Akhmad Sodikin,

Division of Raw Water, Water Supply and Waste Water, Water Resources Agency (Dinas Sumber Daya Air), DKI Jakarta Provincial Government

PD PAL Jaya

Mr. Junifer Panjaitan,

Director of Technique & Business, Waste Water Management Enterprise of DKI Jakarta (PD PAL Jaya)

Mr. Erwin Marphy Ali,
Technical Manager, Waste Water Management Enterprise of DKI Jakarta (PD
PAL Jaya)
Mr. Johan,
Assistant Manager of Business Development, Waste Water Management
Enterprise of DKI Jakarta (PD PAL Jaya)

BPKLH

Mrs. Yosi Lusia,
Bureau of City Planning and Environment (BPKLH), DKI Jakarta Provincial
Government
Mrs. Retno,
Bureau of City Planning and Environment (BPKLH), DKI Jakarta Provincial
Government

Environmental Agency

Mr. Andono,
Head of Division of Environmental Impact Management, DKI Jakarta
Provincial Government

Bureau of Law

Mr. Heru,
Bureau of Law, Regional Secretariat, DKI Jakarta Provincial Government

Highways Agency

Mr. Josua Lumban Gaol,
Highways Agency, DKI Jakarta Provincial Government

BPAD

Mr. M. Reza,
Regional Asset Management Agency (BPAD), DKI Jakarta Provincial
Government

BAPPENAS

Ms. Kania Mayang,
Directorate of Urban, Housings and Settlements, State Ministry for National
Development Planning/BAPPENAS

Coordinating Ministry of Economic Affairs

Mr. Dandi W.
Division for Water Resource Conservation and Water Damage Control,
Assistant Deputy for Water Resource Infrastructure, Coordinating Ministry of
Economic Affairs
Ms. Eva Caliyaning
Division for Water Resource Conservation and Water Damage Control,
Assistant Deputy for Water Resource Infrastructure, Coordinating Ministry of
Economic Affairs

Annex B.

**The 3rd Joint Coordination Committee
Project for Improving Planning Capacity for the Sewerage
System in DKI Jakarta (SWPJT)**

Jakarta, 11 January 2017

Meeting agenda and Meeting materials



PEMERINTAH PROVINSI DAERAH KHUSUS IBUKOTA JAKARTA

BADAN PERENCANAAN PEMBANGUNAN DAERAH

Jl. Medan Merdeka Selatan No. 8-9 Telepon : 3842061 – 3842062 – 3842871, Fax : 3860521

Website bappedajakarta.go.id E-mail sekretariat@bapedadki.net

J A K A R T A

Kode pos : 10110

Nomor : 16/1.7/3
Sifat: : Segera
Lampiran : 2 (dua) lembar
Hal : Undangan rapat

/0 Januari 2017

Kepada
Yth. Daftar Undangan Terlampir

di
Jakarta

Sehubungan dengan pelaksanaan The Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta, dengan ini saya mengharapkan kehadiran Saudara dalam pertemuan yang akan diselenggarakan pada

hari : Rabu
tanggal : 11 Januari 2017
pukul : 08.30
tempat : Ruang Rapat Sabang 5, Hotel Mercure Sabang,
Jl. H. Agus Salim No. 11, Jakarta Pusat
acara : 3rd Joint Coordinating Committee (JCC) "The Project
for Improving Planning Capacity for The Sewerage
System in DKI Jakarta"

pimpinan rapat : Kepala Bappeda Provinsi DKI Jakarta

Atas perhatian dan kehadiran Saudara, diucapkan terima kasih.

Kepala Badan Perencanaan Pembangunan Daerah
Provinsi Daerah Khusus Ibukota Jakarta,



Tuty Kusumawati

NIP. 196304291986032003

Tembusan :

1. Wakil Kepala Bappeda Provinsi DKI Jakarta
2. Sekretaris Bappeda Provinsi DKI Jakarta

1. Construction and Disaster Management Attache, Embassy of Japan
2. Kementerian Koordinator Bidang Perekonomian
 - up. Asisten Deputi Menko. Perekonomian Bidang Infrastruktur Sumber Daya Air
3. Kementerian Perencanaan Pembangunan Nasional/BAPPENAS
 - up. Direktur Perkotaan, Permukiman dan Perumahan
4. Kementerian Pekerjaan Umum dan Perumahan Rakyat
 - up. a. Direktur Keterpaduan Infrastruktur Permukiman (KIP), Ditjen. Cipta Karya
 - b. Kepala Subdit. Air Limbah, Direktorat Pengembangan Penyehatan Lingkungan Permukiman (PLP), Ditjen. Cipta Karya
 - c. Kepala Subdit. Standardisasi dan Kelembagaan, Direktorat Pengembangan PLP, Ditjen. Cipta Karya
5. Kepala Badan Pengelola Aset Daerah Provinsi DKI Jakarta
6. Kepala Dinas Lingkungan Hidup Provinsi DKI Jakarta
 - up. Kepala Bidang Pengendalian Dampak Lingkungan
7. Kepala Dinas Sumber Daya Air Provinsi DKI Jakarta
 - up. a. Kepala Bidang Air Baku, Air Bersih dan Air Limbah
 - b. Kepala Seksi Perencanaan Air Baku, Air Bersih dan Air Limbah
 - c. Kepala Seksi Pembangunan dan Peningkatan Air Limbah
8. Kepala Dinas Bina Marga Provinsi DKI Jakarta
 - up. a. Kepala Bidang Kelengkapan Prasarana Jalan dan Jaringan Utilitas (KPJU)
 - b. Kepala Seksi Perencanaan Bidang KPJU
9. Kepala Biro Penataan Kota dan Lingkungan Hidup Setda Provinsi DKI Jakarta
 - up. a. Kepala Bagian Lingkungan Hidup
 - b. Kepala Subbagian Sanitasi dan Pencemaran
10. Direktur Utama PD PAL Jaya
 - up. a. Direktur Pengembangan Bisnis
 - b. Manager Teknik
11. Kepala Biro Hukum Setda Provinsi DKI Jakarta
12. Chief Representative of JICA Indonesia Office
13. JICA Experts Team

Kepala Badan Perencanaan Pembangunan Daerah
Provinsi Daerah Khusus Ibukota Jakarta,



Tuty Kusumawati

NIP 196304291986032003

Lampiran II Undangan Kepala Bappeda

Nomor : 161-1.713

Tanggal : 10 Januari 2017

JADUAL ACARA

3rd Joint Coordinating Committee (JCC)

"The Project for Improving Planning Capacity For The Sewerage System in DKI Jakarta"

Waktu	Kegiatan	Penanggung Jawab
08:30 - 09:00	Registrasi Peserta	Panitia
09:00 - 09:10	Pembukaan dan Keynote Speech	Ms. Tuty Kusumawati Kepala BAPPEDA Provinsi DKI Jakarta selaku Project Director
09:10 - 09:20	Perkenalan	Mr. Minoru Matsumoto, Chief Advisor of the Project "Project Overview"
09:20 - 09:50	Presentasi oleh Tim Konsultan JICA	"Progress Report"
09:50 - 10:20		"Network Plan"
10:20 - 11:55	Diskusi	Ms. Tuty Kusumawati Kepala BAPPEDA Provinsi DKI Jakarta selaku Project Director
11:55 - 12:00	Penutup	
12:00 - 13:00	Makan Siang	

Kepala Badan Perencanaan Pembangunan Daerah
Provinsi Daerah Khusus Ibukota Jakarta,



Tuty Kusumawati
NIP-196304291986032003

**OPENING SPEECH
ON EVENT**

***3rd Joint Coordinating Committee
“The Project for Improving Planning Capacity for
The Sewerage System in DKI Jakarta”***

by:

Ms. Tuty Kusumawati

Head of Regional Planning Development Board

PROVINCIAL GOVERNMENT OF DKI JAKARTA

ASSALAMUALAIKUM WR. WB
GOOD MORNING LADIES AND GENTLEMENTS
OHAYOU - GOZAIMAS

His/Her Excellency,

- Mr. Harada Tetsuya, JICA Representative for Indonesia
 - Mr. Minoru Matsumoto, Chief Advisor of The Project for Improving Planning Capacity for The Sewerage System in DKI Jakarta
 - Mr. Shigeo Kanai, Team Leader of JICA Consultant Experts Team
 - Representative participants from Central Government of Republic Indonesia
 - My fellow Provincial Government of DKI Jakarta Officials,
 - Ladies and Gentlemen
- I would like to thank all of you for attending this 3rd Joint Coordinating Committee of “The Project for Improving Planning Capacity for The Sewerage System in DKI Jakarta”. This is a continuation of previous JCC Meeting which held on last June 2016.

Ladies and Gentlements and Distinguished Guests

- Sewerage development system is one of Jakarta priorities in infrastructure development in Jakarta that need to be implemented soon. This direction was stated

by Governor since late 2014. He mentioned that all of waste water development, including off-site and on-site system, which was previously planned to be completed by 2030 could be accelerated to 2022.

- It is also in line with National Mid-Term Development Plan (RPJMN) 2015-2019 which fulfill national sanitation target 100-0-100 (100% clean water connection, 0% slums area, and 100% waste water connection)
- Jakarta needs a lot of efforts to achieve the target. Many aspects should be prepared paralelly; as example planning, budgeting and financing, constructing, operating and maintenance (O/M), and also improving the competencies of human resources.
- I hope the JICA experts team could also transfer knowledge and information needed as much as possible to increase the capability of DKI Jakarta human resources.

Ladies and Gentlements and Distinguished Guests

This project outputs will help improving planning capacity of DKI Jakarta's staff regarding waste water management. At this opportunity, I am delivering a gratitude to JICA for the 2 batches training in Japan on waste water which

successfully conduct on February 2016 and August-September 2016. I am sure it had opened a better understanding for DKI Jakarta's staff in waste water management.

- One of the main output is to give suggestions to Bappeda regarding the Regional Mid-Term Development Plan (RPJMD) 2018-2022 on waste water. It is in line with current focus in Bappeda to evaluate the previous Regional Mid-Term Development Plan 2013-2017 and drafting the new RPJMD 2018-2022.
- The JICA Expert Team will also give suggestions to the drafting of Local Act of Waste Water in the Water Resources Agency which will give a different perspective to DKI Jakarta.
- I hope JICA Expert Team and Central Government could also support us to achieve this project outputs.
- Thank you for your attention.

**WABILLAHII TAUFIK WAL HIDAYAH,
WASSALLAMU ALAIKUM WARAHMATULLAHI WABARAKATUH.**



Project Overview



3rd Joint Coordinating Committee
Project for Improving The Planning Capacity
for Sewerage System in DKI Jakarta



Conceptional
Drawing of
WWTP at Pluit / Zone1

11 January, 2017

Minoru Matsumoto, JICA Expert, Chief Advisor of the Project

JICA's assistance for Jakarta Sewerage System (JSS)

Facility Construction

2010-2012 Master Plan for JSS

< 2 Priority Zones for short-term development >

Zone 1	Zone 6
2012-2013 Feasibility Study	2012 -2013 Feasibility Study
2014-2015 Supplemental Study for E/S	2016- ongoing Supplemental Study for E/S
2014- ongoing E/S for Zone 1 (Loan)	under discussion Development Project Zone 6 (Loan)

2012- Other Pilot Projects using Japanese Technology
(Pipe Jacking, On-site system, Communal WWTP etc.)

Capacity Development

2010- JICA Expert for Sewerage Management in DGHS

2015- Technical Assistance Project for Capacity Development in DKI
(Demarcation of Organization, Training of Staffs, RPJMD, PERDA)

P1

Why we need the Project for Improving Planning Capacity ?

Sewerage system management requires technical and financial skills of the administrator



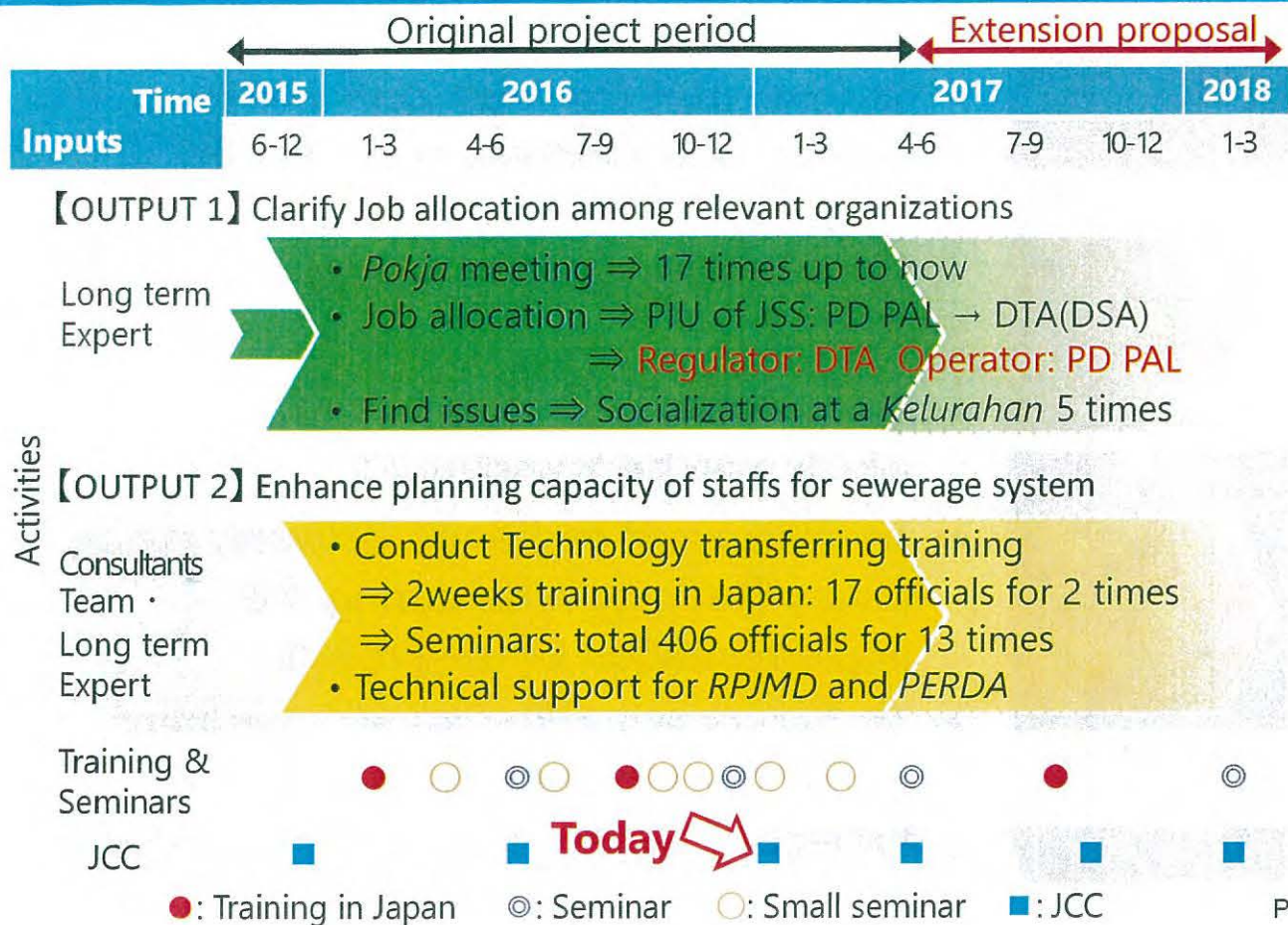
P2

Purpose and Output of the Project



P3

Timeline and Activities of the Project



P4

Forthcoming Challenges for JSS Management

Tariff System

- User charge << O&M Cost
- How to compensate the shortfall in O&M expenses for sustainable management?

Mandatory Sewer adoption

- Accelerate house connection
- Need to avoid double investment by on-site system

Socialization

- Call citizen's attention for water environment and sanitation system
- Changing the behavior of throwing garbage in the river will take time ...

Capacity Development for DKI

- Expansion of PIU and effective training for staffs are needed continuously to develop and operate with fine technology

P5

Purpose of 3rd JCC

- To formulate the work plan and to monitor the progress of the Project
- To review the result of the work plan and to evaluate the progress of the Project
- To show solutions against challenges which may be found in JCC
- To review and exchange views on major issues that may arise during the implementation of the Project
- To discuss any other issue(s) pertinent to the smooth implementation of the Project.

P6

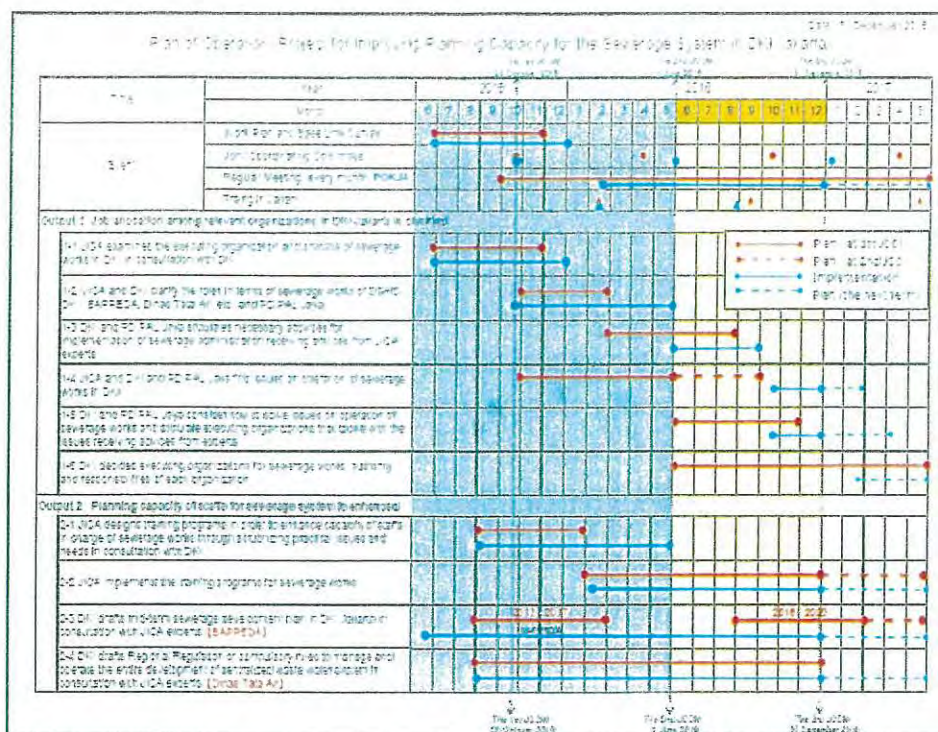
Kemajuan tujuh bulan dan Rencana Kerja lima bulan (PO)

Pertemuan JCC ke-3
11 Januari 2017

1

Pertemuan JCC ke-2
1 Juni 2016





Output 1. Penjelasan kegiatan masing-masing badan/organisasi terkait. / Job allocation among relevant organizations in DKI Jakarta is clarified.

1. Fungsi organisasi / Organizational function:
(Activity 1-1 ~ 1-6)

Output 2. Meningkatkan kapasitas staf untuk perencanaan sistem air limbah. / Planning capacity of staffs for sewerage system is enhanced.

2. Pelatihan / Trainings: (Activity 2-1, 2-2)

3. Draft Rencana 5 Tahun / Draft of Mid-term Sewerage Development Plan: (Activity 2-3)

4. Draft Peraturan Daerah / Draft of Regional Regulation (provincial level): (Activity 2-4)

1. Fungsi organisasi / *Organizational function* (*Demarcation*) (Activity 1-1 ~ 1-6)

Fungsi organisasi

Jun '15 – Mei '16

Jun '16 – Des '16

Step ①: (Activity 1-1) (Activity 1-2)	Koleksi dan analisis data pada sekarang 
Step ②: (Activity 1-3)	Penyusunan draft Alokasi Pekerjaan (dengan grafik) pada sistem sewerage di DKI Jakarta 
Step ③: (Activity 1-4) (Activity 1-5)	Merevisi draft Alokasi Pekerjaan melalui uji coba lapangan. (Masalah temuan dan solusi)
Step ④: (Activity 1-6)	Penyelesaian draft Alokasi Pekerjaan dengan komentar melalui laporan

5

Step ③:

Merevisi draft Alokasi Pekerjaan melalui uji coba lapangan. (Masalah temuan dan solusi)

(Masalah temuan dan solusi > Merevisi Alokasi Pekerjaan.)

③-1. Uji coba lapangan di daerah perumahan (Kelurahan Malakasari)

③-2. Koleksi data di daerah perumahan (Program sosialisasi dan Kuesioner)

③-3. Pembahasan untuk merevisi (Pertemuan POJKA)

* Target tempat pada data koleksi adalah daerah Perumahan: Pengumpulan tarif di daerah perumahan merupakan salah satu tujuan dasar untuk manajemen kelancaran pada sistem sewerage.

6

③- 1. Uji coba lapangan di daerah perumahan

- Uji coba lapangan untuk koleksi data pada sistem sewerage di daerah perumahan telah dilaksanakan oleh DTA dan PD PAL Jaya.



Uji coba lapangan di Malakasari,
Jakarta Timur

Pemeriksaan kondisi sekarang
pada sistem sewerage di daerah
perumahan.

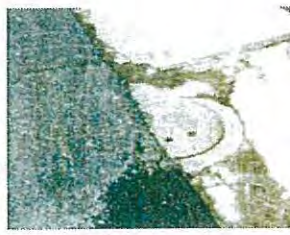
- Hardware : **Fasilitas**
- Software : **Operasi dan Pemeliharaan (OM)**

7

Hardware : **Fasilitas**



Pasir



Tertutup penutup



Pipa lain dalam Manhole

Software : **Operasi dan Pemeliharaan (OM)**



Kerja pemeliharaan



Rusak penutup bak kontrol



Penyedotan

8

③- 2. Koleksi data di daerah perumahan (Program sosialisasi dan Kuesioner)



5 kali sosialisasi di lapangan



Peserta dibagi
dua Grup
(A dan B)

Facilitator
dari
POKJA



**Sesi tanya-jawab
dalam Aktivitas Sosialisasi**

Penjelasan hasil lokakarya oleh
perwakilan grup



9

Koleksi data/suara di Lokakarya (Program sosialisasi)



10

Kuesioner

Kuesioner telah dilakukan untuk mengukur persepsi warga tentang sistem sewerage.

- Pada Program sosialisasi (Malakasari)
- Berkunjung ke daerah perumahan di Zona 0. (Sudirman)



194 org (Malakasari)

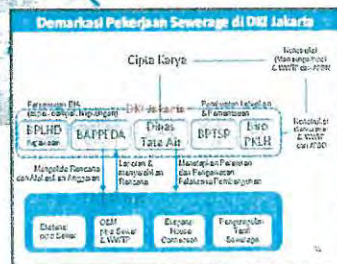


*** org (Sudirman)

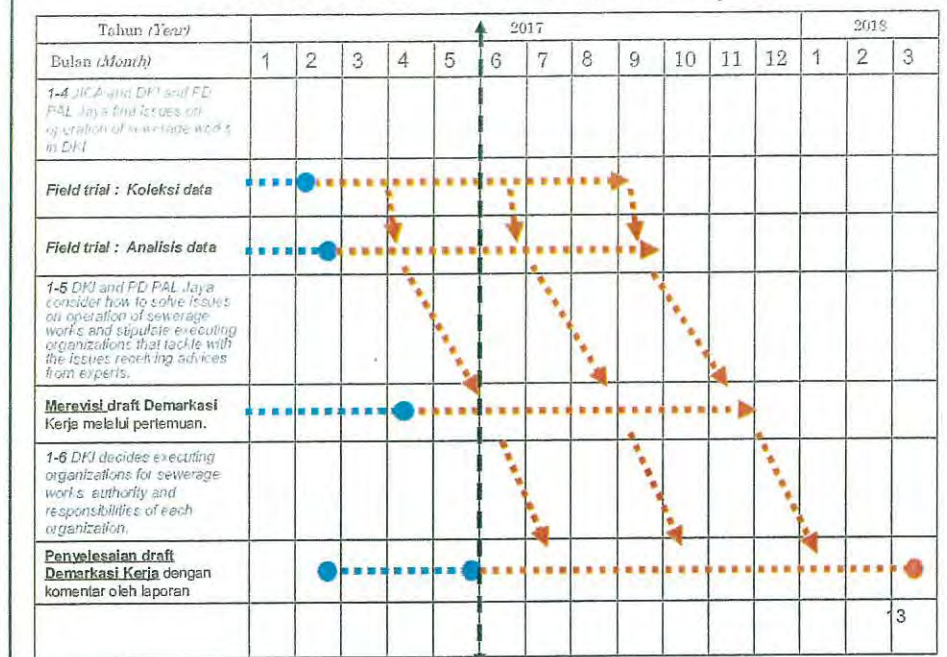
11

③- 3. Pembahasan untuk merevisi

- Diskusi untuk merevisi draft Alokasi Pekerjaan yang telah dilakukan melalui beberapa pertemuan POKJA.



Rencana aktivitas 5 bulan kedepan



2. Pelatihan / Trainings

(Activity 2-1, 2-2)

- ① Preparation of training program of sewerage development
- ② Implementation of training in line with the training Program

Training program ☐ Jun '15 – May '16 ☒ Jun '16 – Dec '16

Course	No.	Date	Pers.	
Small Seminar in Jakarta (SS)	1 st SS	4-7 Apr 2016	97	
	2 nd SS	3 Aug 2016	10	* Total (2 nd – 5 th): 157 pers.
	3 rd SS	5 Aug 2016	21	
	4 th SS	3-6 Oct 2016	90	
	5 th SS	29 Nov 2016	36	
Big Seminar in Jakarta (BS)	1 st BS	31 May 2016	67	
	2 nd BS	1 Dec 2016	85	
Training in Japan (TJ)	1 st TJ	14 Feb – 27 Feb '16	8	
	2 nd TJ	21 Aug – 3 Sep '16	9	

14

Seminar

① Small Seminar



The 3rd Small Seminar
(BAPPEDA) / 5 Okt 2016



The 3rd Small Seminar
(Dinas Tata Air) / 6 Okt 2016

② Big Seminar



The 2nd Big Seminar
(Hotel Mandarin Oriental)
1 Des 2016

15

Pelatihan di Jepang / *Training in Japan*

The 2nd C/P Training in Japan

Title: Improving Planning Capacity for the Sewerage System
in DKI Jakarta / Period: 21 Agu 2016 – 3 Sep 2016



JICA HQ
(Tokyo)



TOTO museum
(Kitakyushu)



Shibaure
WWTP
(Tokyo)



pipe construction
(Kitakyushu)



Sewerage
Science
Museum
(Osaka)



pipe
construction
(Kitakyushu)

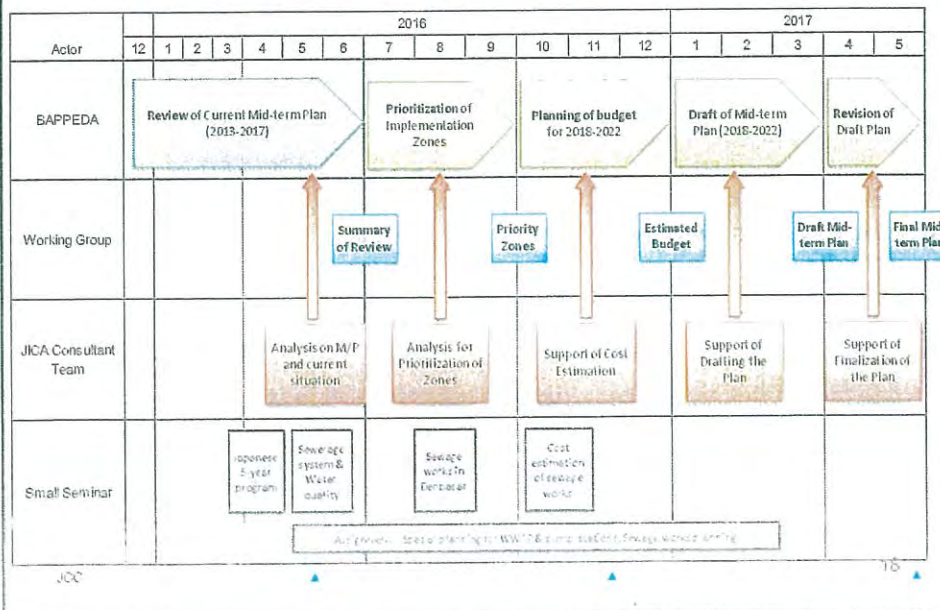
Rencana aktivitas 5 bulan kedepan

The plan for the next 5 months

Tahun (Year)	2017												2018		
Bulan (Month)	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
2-2 JICA melaksanakan program pelatihan untuk pekerjaan saluran air limbah. <i>JICA implements</i> <i>the training</i> <i>programs for</i> <i>sewerage works.</i>															
1) Seminar Kecil Small Seminar															
2) Seminar Besar Big Seminar															
3) Pelatihan di Jepang Training in Japan															

17

3. Draft rencana 5 tahun / Draft of Mid-term Sewerage Development Plan (Activity 2-3)



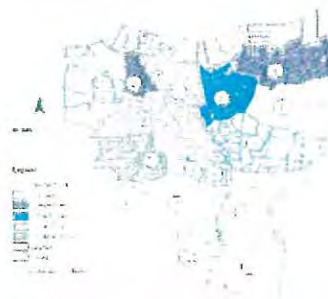
3-1. Target RPJMD 2013-2017 Target of Current RPJMD (2013-2017)

PROGRAM	PROGRAM PI (OUTCOME)	INITIAL CONDITION 2012	PERFORMANCE TARGET PROGRAM					PERFORMANCE CONDITIONS END OF YEAR 2017
			2013	2014	2015	2016	2017	
			Target	Target	Target	Target	Target	
Performance Improvement Program Wastewater Management	Percentage of centralized wastewater systems	Only Zone 0 (4% of DIT)	Preparation of UKL UPL ground breaking Zone 1 and the land acquisition WWTP zone 1	Land acquisition WWTP operations continued Zone 1 and Zone 1 EIA preparation	Land acquisition WWTP continued Zone 1 and EIA preparation Zone 6	Commencement of construction of piping Zone 1	Construction Zone 1 advanced piping and piping construction commencement Zone 6	Facilities of centralized wastewater systems by 8% of the DIT (Zone 0, Zone 1 and Zone 6)
	Percentage of local systems with ITP	0	1	71	21	2,5	9,5	100%
	Number of WWTP for communal system	2	0	8	8	2	1	11
	Volume of desludging of septic tanks and sludge treatment	400m3/d	500 m3/d	700 m3/d	900 m3/d	1,200 m3/d	1,500 m3/d	1,500 m3/d
N.B. Implementation progress and current conditions to be confirmed.								19

3-2. Prioritas untuk RPJMD mengenai Sewerage Prioritization for Mid-term Plan

Suggested criteria

- 1.Consistency with NCICD (location of zone)
- 2.Capital and operational costs (pipe &WWTP)
- 3.Service revenue (population & commercial area)
- 4.Implementation period (technical difficulty)
- 5.Social impacts (land requirement)
- 6.Environmental impacts (water quality)
- 7.Funding agency assistance



Priority	Zone
Short-term	1, 6
Mid-term Priority 1	2, 8
Mid-term Priority 2	3
Mid-term Priority 3	7, 4+10
Mid-term Priority 4	9
Long-term	9, 11, 12, 13, 14

N.B. Result of evaluation will be changed after update of info.

3-3. Jadwal Tahunan & estimasi biaya

Annual schedule & cost estimation

Activities to be budgeted for next 5 years

- Preparation and procedures (AMDAL, land acquisition and survey, socialization etc.)
- E/S and Construction of sewerage systems
- O&M of WWTP and sewer
- On-site management

	2018	2019	2020	2021	2022
Preparation	Zone-2,3,5,7,8, 4+10				
E/S (Design & tendering)	3 Zones		2 Zones		
Construction	Zone-1 & 6		3 Zones		
O&M				Zone-1 & 6	
Onsite	All zones				-

3-4. Langkah ke depan (Jan-Mei 2017)

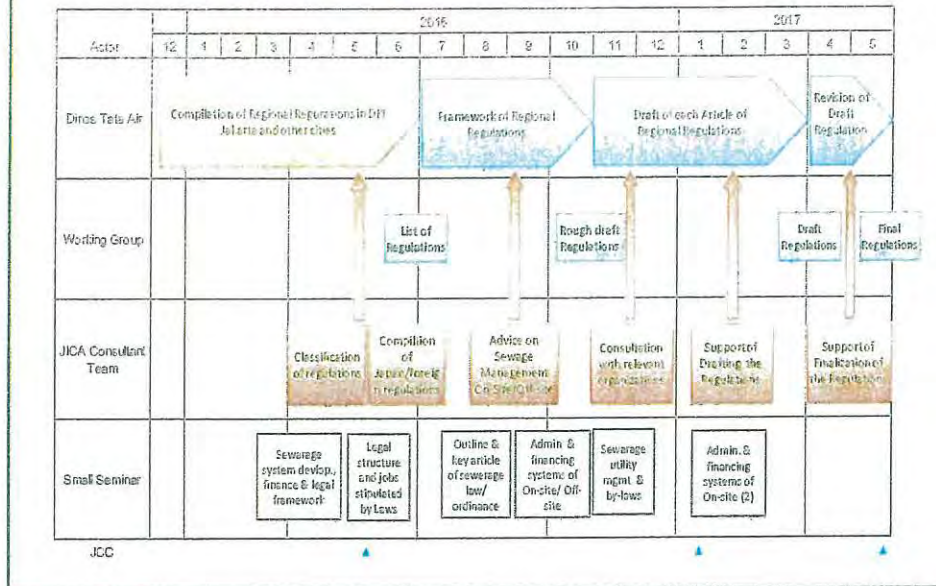
The Way Forward (Jan – May 2017)

- Cost estimation of E/S and construction of sewerage systems.
 - A) Finalization of criteria and prioritization
 - B) Compare of implementation schedules and project costs for different scenario
 - C) Determination of appropriate scenario
- Cost estimation of preparation (AMDAL, Land acquisition, Socialization etc.) and O&M
- Draft RPJMD (2018-2022) sewerage section
- Final Draft RPJMD (2018-2022) sewerage section

N.B. the above activities are carried out in accordance with the results of PD PAL Jaya's DED and discussion with BAPPEDA.

22

4. Draft Peraturan Daerah / Draft of Regional Regulation (provincial level) (Activity 2-4)



4-1. Perlu dukungan hukum Required Legal Background

Sewerage works is public infrastructure as well as private entity.

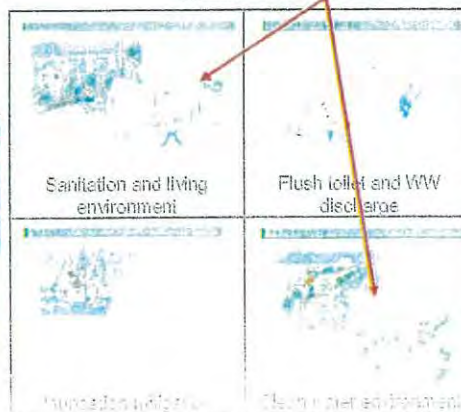
Accordingly;

- Huge amount of tax will be invested.
- Sustainability of O&M shall be secured.

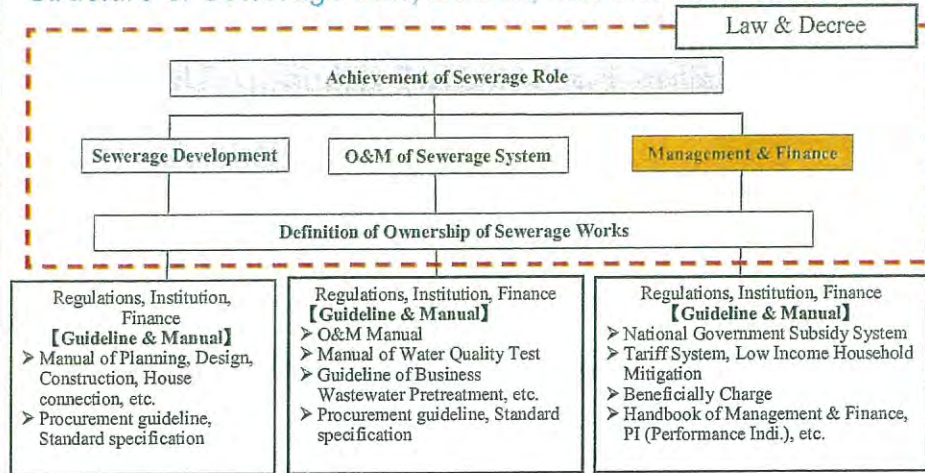
Legal requirement:

- 1 Project implementation in whole Jakarta
- 2 Sustainable operation

Priority role in Jakarta
➢ Sanitation
➢ Water environment & Aesthetic urban



4-2. Struktur keseluruhan mengenai Sewerage Hukum, Keputusan, Institusi & Keuangan terkait Sewerage/ *Overall Structure of Sewerage Law, Decree, and Institution & Financial*



Legal and financial system of sewerage works described in accordance with project flow and Individual role of (1) Sewerage Development, (2) O&M of Sewerage System and (3) Management & Finance.

4-3. Struktur tentang Sewerage Ordonansi *Structure of Sewerage Ordinance (Draft)*

Concept of Sewerage Ordinance

Jobs and right & obligation are grouped into following;

1. Ownership of Administrator
2. Obligation on WW discharge & house connection approval
3. Notification of public sewer use
4. WW discharge standard
5. Plumber registration system
6. Sewerage information database
7. Sewerage tariff
8. Responsibility of owner of houses/building not connected to sewers
9. Regular desludging
10. Qualification & training of operators
11. On-site sludge treatment

Referred regulation;

1. Standard Sewerage Ordinance
2. Sewerage Law in Japan
3. Jokasou Law

Request to DKI

To scrutinize jobs of 1. through 11. which will be required.

Article	Objects
Article-1	Purpose of Ordinance
Article 2	Definition of Terms
Sewerage Law	Stipulation on Planning (if necessary)
Sewerage Law	Stipulation on Construction (if necessary)
Sewerage Law	Stipulation on Finance (if necessary)
Sewerage Law	Qualification of engineers & operator (if necessary)
Article 3 - 5	Installation of house connection and private (building) sewer
Article 6	Registration and order on plumber
Article 7	Inspection of private sewer installation
Article 8 - 12	Pretreatment of wastewater from business and industry
Article 13	Suspension or restriction of wastewater discharge
Article 14	Notification of public sewer use
Article 15 - 17	Sewerage tariff
Sewerage Law	Sewerage Information Database
Article 18	Order for improvement of pretreatment facility
Article 19 - 26	Approval of activity and sewer occupation
Jokasou Law	Responsibility of households and building owners who are not connected to separate sewer system
Jokasou Law	Responsibility for regular desludging of household septic tanks
Jokasou Law	Qualification and training of desludging operators
Jokasou Law	Operation and Maintenance of Independent Treatment Plant (ITP) of commercial buildings and office buildings
Jokasou Law	Qualification and training of supervisors/operators of ITP
Jokasou Law	Inspection of ITP performance
Jokasou Law	On-site Sludge treatment
Article 27	Penalty
(Whole cell)	Standard Sewerage Ordinance of Municipality Government in Japan
	Sewerage Law in Japan (National)
	Jokasou Law in Japan

4-4. Langkah ke depan (Jan-Mei 2017) *The Way Forward (Jan - May 2017)*

- Scrutinizing the required article in DKI Jakarta
 - A) Confirming off-site & on-site service
 - B) Selecting articles appropriate to DKI Jakarta
- Text book of individual article
- Recommendation of institutional design

N.B. the above activities are carried out in accordance with the results of discussion with DSDA.

27

Proyek Landing (**Draft** dari Pertemuan POKJA) *Project's Landing*

1. Periode proyek perlu diperpanjang sampai dengan Maret 2018.

Tujuan perpanjangan periode

- 1) Struktur organisasi akan perlu perluaskan sesuai dengan program saluran air limbah di DKI Jakarta. Terutama adalah struktur DSDA. (Output 1)
 - 2) Masih perlu pelatihan untuk pengembangan sumber daya manusia sebelum memulai konstruksi. (Output 2)
 - 3) Hasil aktivitas tentang draft peraturan pembuangan sewage yang akan dihasilkan oleh konsultan Jepang perlu mentransfer dan menyesuaikan dengan program DSDA sampai, siap draft peraturan 2018. (Output 2)
- Kegiatan rinci dan jadwal akan disusun melalui POKJA. Jadwal tetap mengenai hal tersebut akan disampaikan dalam pertemuan JCC ke-4.

28



Survey Lapangan



Terima Kasih atas Kerjasama

Menghadiri Pertemuan



29

Saran / *Suggestion*

The 3rd meeting of JCC

11 January 2016

1

1. Mengamankan sumber daya keuangan untuk proyek-proyek sewerage / *on Securing financial resources for sewerage projects*

1. Standarisasi sistem tarif Sewerage di DKI Jakarta adalah salah satu persiapan penting untuk mengamankan sumber daya keuangan pada sistem sewerage di pemerintah daerah. DKI Jakarta harus mengadakan pertemuan diskusi mengenai sistem tarif sewerage sesegera mungkin.

* DKI akan menggunakan Sistem Tarif PD PAL Jaya untuk sementara

Standardize Sewerage tariff system in Jakarta is one of the important preparations for securing financial resources on the sewerage system in local government.

DKI Jakarta should hold discussion meeting on sewerage tariff system as soon as possible.

** DKI will use the Tariff System of PD PAL Jaya in temporary*

2

2. Koordinasi dengan instansi lain / *on Coordination with other agencies*

1. Pekerjaan konstruksi pada pembangunan sewerage tidak hanya instalasi pengolahan (IPAL), tapi sebagian besar adalah perpipaan. Oleh karena itu, perlu mendiskusikan dengan lembaga lain (Dinas Bina Marga dan organisasi infrastruktur lainnya), untuk penggunaan ruang bawah tanah jalan di Jakarta lancar.

* Juga, perlu mengkoordinasi dengan seksi lain (aliran sungai) untuk perencanaan sistem Interceptor.

Construction works on sewerage development are not only treatment plants, but a lot of parts are piping works. Thereupon it is important to discuss with other institutions (Road department and other infrastructure organizations) for using the underground space of roads in Jakarta smoothly.

** Also, in order to implement the interceptor system, consultation with the river department is required*

3

3. Pembangunan kelembagaan / *organizational system and human resource*

1. Perlu memperluas organisasi berdasarkan rencana jangka menengah.

* Pertama adalah memperluas kegiatan Dinas Sumberdaya Air sesuai dengan sistem sewerage DKI Jakarta.

It is necessary to expand the organization based on the medium-term plan.

** The first is to expand the activities of the Water Resources Department in accordance with the sewerage system in Jakarta.*

4. Periode proyek perlu diperpanjang sampai dengan Maret 2018 untuk persiapan draft peraturan dan pengembangan sumber daya manusia. / *The project period should be extended until March 2018 for supporting the preparation of draft regulation and human resource development.*

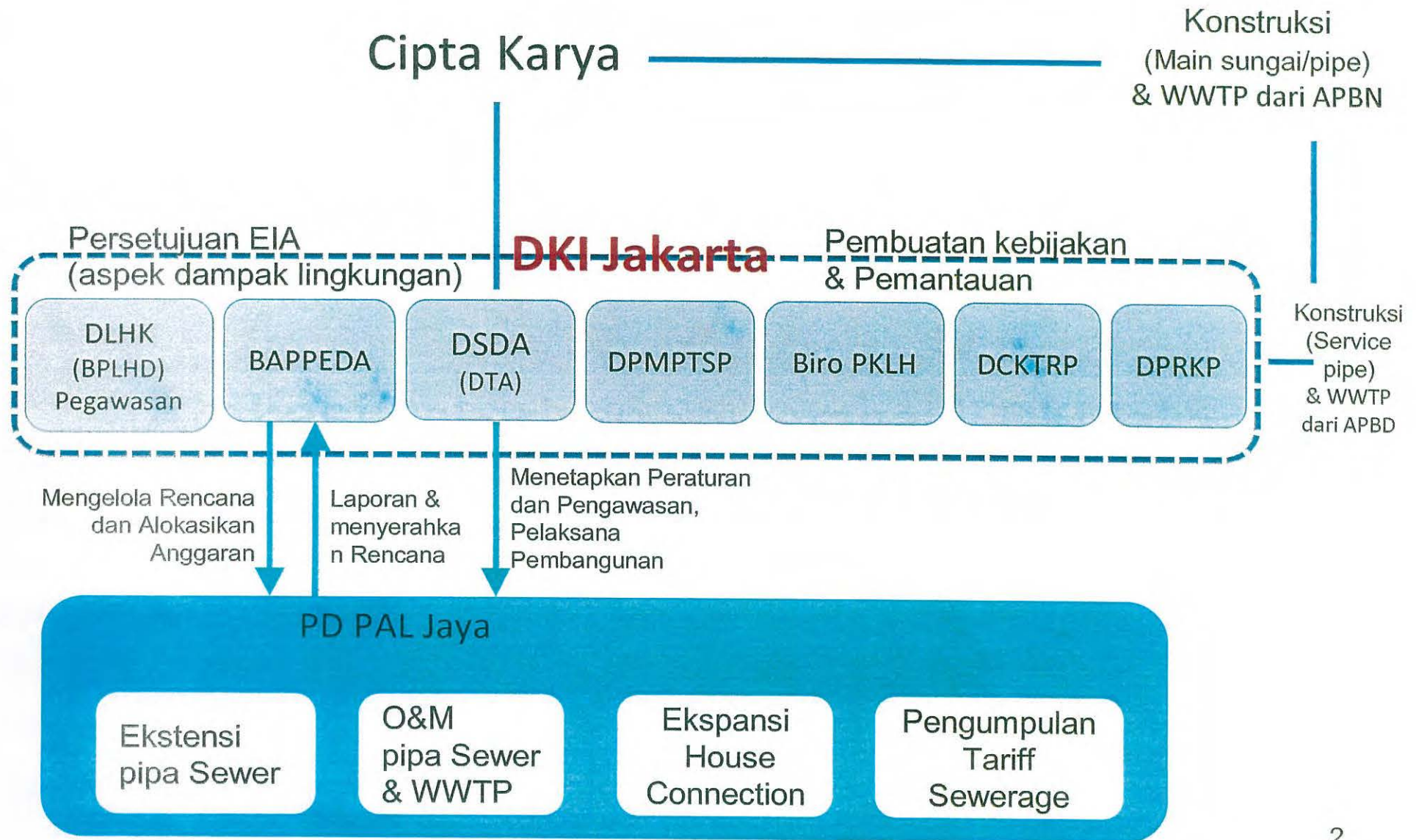
1. Periode proyek setidaknya perlu diperpanjang sampai tahun depan sesuai dengan kemajuan program DKI Jakarta. Khususnya kegiatan dalam persiapan draft peraturan sampai 2018 dan pengembangan sumber daya manusia terkait sewerage di DKI Jakarta.

The project period should be extended until at least next year in accordance with the progress of construction program. Especially for activities of preparation of regulation in 2018 and Human resource development.

5

Alokasi Pekerjaan Sewerage di DKI Jakarta

A4-130



Peran dan Tanggung Jawab pada Pengelolaan Air Limbah Domestik di DKI Jakarta

3 Jan 2017

Administrasi publik					
		Kebijakan	Peraturan atau Standar	Izin konstruksi	Pemantauan / Inspeksi
Pengendalian Lingkungan Air		DLH			
Offsite	Pengguna sewerage	Biro PKLH	DSDA	DSDA via BPTSP	DSDA
Onsite	Dimodifikasi Septic Tank / Jokaso	Biro PKLH	DSDA	DSDA via DPMPTSP	DSDA
	Konvensional Septic Tank				
	Penyedotan dan Pengolahan Sludge	Biro PKLH	DSDA	DSDA via DPMPTSP	

A4-131

Peran dan Tanggung Jawab pada Pengelolaan Air Limbah Domestik di DKI Jakarta

3 Jan 2017

Prosedur Pelaksanaan untuk Sistem Offsite / Sewerage : Sistem Perpipaan Air Limbah									
	Master Plan / Studi Kelayakan	Desain yang rinci. Dokumen tender	Analisis Mengenai Dampak Lingkungan ⇒ EIA	Akuisisi tanah	Perencanaan anggaran, Konstruksi dan O&M(Operasi & Pemeliharaan).	Konstruksi	Asets	Operasi & Pemeliharaan	Audit
Anggaran Pemerintah Daerah / APBD	[Pengelola] BAPPEDA	[Pemeriksa] BPKD	[Persetujuan] DLHK	DSDA	[Pelaksana] BPKD	DSDA	DSDA	[Regulator/ Pengatur] DSDA	[Auditor] BKPM
	[Merumuskan] DSDA	[Mempersiapkan] DSDA	[Menerapkan] DSDA		[Permintaan] DSDA			[Operator] PD PAL Jaya	[Auditee] DSDA
Anggaran Pemerintah Pusat / APBN		[Mempersiapkan] PUPR	[Persetujuan] DLHK	DSDA	[Permintaan] PUPR	PUPR	[Transfer ke DKI]		[Auditee] PUPR
			[Menerapkan] DSDA						

DLHK: Dinas Lingkungan Hidup dan Kebersihan, DSDA: Dinas Sumber Daya Air, BPKD: Finance, BKPM: Regional Audit Office

“The Fourth Meeting of Joint Coordination Committee”

MINUTES OF MEETING
BETWEEN
AUTHORITIES CONCERNED
OF
THE GOVERNMENT OF THE REPUBLIC OF INDONESIA
AND
JICA EXPERT TEAM ON JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR IMPROVING PLANNING CAPACITY FOR THE
SEWERAGE SYSTEM IN DKI JAKARTA

Jakarta, 12 Juni, 2017



Mrs. Tuty Kusumawati
Head of Regional Development
Planning Board
Jakarta Capital City Government



Mr. Minoru MATSUMOTO
Chief Advisor
The Project for Improving Planning
Capacity for The Sewerage System
in DKI Jakarta

SUMMARY OF THE 4th JCC MEETING

Title	The 4 th JCC meeting, Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta		
Date and Time	31 st May, 2017 13:00pm~16:00pm	Place	Tempo Doeloe Meeting Room, 2 nd fl, Balaikota Building, Jl. Medan Merdeka Selatan No. 8-9, Jakarta
Chair	Mrs. Tuty Kusumawati, Head of Regional Development Planning Board (BAPPEDA), Jakarta Capital City Government		
Attended	See Annex A		

ITEM	POINTS	ACTION
Progress of the 4th semi-year & PO/Annual Work Plan of extension period	● Mr. NABETA Takeshi (Coordinator of the Project) presented the Progress of the 4 th semi-year and PO/Annual Work Plan of extension period.	Approved
	● Mr. KANAI Shigeo (Chief of Consultant Team) presented the activities for Output 2 (Planning capacity of staffs for sewerage system is enhanced) with small seminar, special seminar, workshop and training in Japan.	Approved
	● Mr. INOUE Yakuro (Japanese Consultant Team) presented the activities for Output 2, with the result of local regulation comprises of overall structure of regulation, basic model of regulation for recommendation to Jakarta in the textbook	Approved
Topics of Training	<ul style="list-style-type: none"> ● Mr. Wahanudin (Bappenas) suggested to have training for advocating to raise public awareness in overcome non-technical aspect. ● Mr. Oswar Muadzin Mungkasa (Deputy Governor for Spatial Planning & Environment) asked JICA to train DKI Jakarta officer how to do socialization and prepare the module. 	
Others	● Mr. Oswar Muadzin Mungkasa (Deputy Governor for Spatial Planning & Environment) asked JICA to help in location for additional priority area along the river.	

**The Fourth Meeting of Joint Coordination Committee,
Project for Improving Planning Capacity for
the Sewerage System in DKI Jakarta
31 May 2017**

A. Introduction

- 1) The fourth meeting of Joint Coordination Committee (hereinafter referred to as "JCC") was held in Jakarta on 31st May 2017 on the Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta (hereinafter referred to as "the Project"), based on the Record of Discussion between the Government of the Republic of Indonesia and Japan International Cooperation Agency on Japanese Technical Cooperation Project for Sewerage Program of DKI Jakarta signed on 10th December 2014 (hereinafter referred to as "RoD").
- 2) Mrs. Tuty Kusumawati, Head of Regional Development Planning Agency (BAPPEDA), Jakarta Capital City Government (DKI Jakarta) as the Chair, opened by welcoming all participants and introducing each participant. In the speech, Mrs. Tuty delivers what is the best way to solve problem in sewerage especially to match between services and funding in sewerage development. Besides, she also emphasizes that sewerage is one of the priority project that need to accelerate by approaching of combination on-site and off-site system as intermediate plan.
- 3) Mr. Oswar Muadzín Mungkasa, Deputy Governor of Spatial Planning and Environment, DKI Jakarta as the Moderator emphasizes that Jakarta has target 1,000 sanimas. As the national target 100-0-100 must overcome water and sanitation problem by 2019. Meanwhile, there is a problem that around 500,000–800,000 people in Jakarta still practicing open defecation especially along the river according the data from World Bank. Since the target of off-site system by 2022 seems that it does not meet with the real problem in Jakarta, we should consider the area (dense and along the river) as priority area.
- 4) **Annex A** contains the list of participants of both Japanese and Indonesian sides. The meeting agenda and meeting materials are attached as **Annex B**.
- 5) The results of fourth meeting of Joint Coordination Committee (JCC) held in this time (as shown in separate Minutes of Meeting), the authorities concerned of Indonesia and JICA hereby agreed as follows:

B. Presentations / Plan and progress of the Project

- 1) Mr. Matsumoto, Chief Advisor of the Project explained that this JCC is the meeting to monitor and evaluate the output of activity and confirm the work plan for next period. He also delivered that capacity development is important for sewerage management and this project is carried out parallel with coming zone 1 and 6 construction.
- 2) Mr. Nabeta, Coordinator of the Project presented the plan and progress of the Project, especially the activities for the Output 1 (Job allocation among relevant organizations in DKI Jakarta is clarified) with the results of activity.
- 3) Mr. Kanai, Team leader of Japanese Consultant Team also presented the activities on Output 2 (Planning capacity of staffs for sewerage system is enhanced) with small seminar, special seminar, workshop, and training in Japan. In addition, he also

presented the result of mid-term plan (RPJMD) for priority zone and the target (program input) of RPJMD in 2018–2022.

- 4) Mr. Inoue, Member of the Consultant Team presented the activities and those achievements on Output 2 (Planning capacity of staffs for sewerage system is enhanced) with the result of local regulation comprises of overall structure of regulation, basic model of regulation for recommendation to Jakarta in the textbook.
- 5) The Committee endorsed a work plan for the extension period (June 2017 – March 2018) which was presented by the Project/POKJA. The Committee agreed that additional suggestions arose from the meeting; those would be adopted and developed in the implementation of the Plan for the extension period.

C. Exchange of Views

- Mr. Eko Gumelar Susanto (Water Resources Agency (DSDA), DKI Jakarta)
Mr. Eko refers the need of both quantity and quality for DSDA DKI Jakarta staff.
- Mr. Wahanudin (BAPPENAS)
Several things to be confirmed;
 - 1) Clarification to Cipta Karya
Jakarta Sewerage becomes our priority in Greenbook and in the JICA funding for other/Denpasar project proposed by Direktorat Jenderal Cipta Karya (DGHS) will be postponed and shift to this project. It is hoped to be used in bidding 2018.
 - 2) National target of 100-0-100
According to 100% sanitation coverage service, maybe it will take 10-15 years. So that, decentralized system will be the interim solution and it apply for 1,000 sanimas and 90% on-site by 2019.
 - 3) Human resources development for sewerage system should be divided into regulator and operator. So that training needs to be carried out in technical and management aspect separately.
 - 4) Training for advocating to raise public awareness to promote sewerage works to the citizens. It is like we sell the product or give reward and law enforcement in enhancing the sewerage project.
- Mr. Suharsono (Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housing)
In regard of the progress of Zone 1 and 6, we will have meeting with consultant for Zone 1 on Friday. The administration process will progress in a week in Directorate General of Construction Development (DJ Bina Konstruksi). We do hope there will be acceleration in designing and cost estimation of WWTP by adding WWTP expert in order to finish the detail design by 2017 for to bidding. We prepared the MoU.
Regarding Zone 6 supplemental study by JICA, one alternative among three need to be decided immediately, there are option proposed by JICA and options proposed by DKI Jakarta. As for Cooperation Agreement, now it is still in Governance Bureau.

- Mrs. Yosi (Bureau of City Planning and Environment, DKI Jakarta)
We have already sent an official letter for two alternatives that need to be decided by Ministry of Public Work and Housing. The maximum land availability is 6 ha while in M/P 2012 the land is 8.2 ha.
- Mr. Suharsono (Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Work and Housing)
KPPIP (Committee for Acceleration of Priority Infrastructure Delivery) should help for abolition asset by regulation to accelerate the process.
- Mrs. Yosi (Bureau of City Planning and Environment, DKI Jakarta)
Land space for desludging plant in Duri Kosambi is rent by PD PAL Jaya from DKI Jakarta. I don't know the exact process of the abolition, but if they already invest in maintenance, it will be difficult to be abolished.
- Mr. Yus Yuni (Coordinating Ministry of Economic Affairs)
We together with KPPIP do the acceleration by overcome non-technical aspect (asset abolition) that become obstacle of construction.
- Mr. Dandi (Coordinating Ministry of Economic Affairs)
Regarding with the presentation of consultant (slide 7 material "Midterm Sewerage Development Plan"), do Plan A refer to NCICD and do plan B still refer NCICD also? There are sharing scheme to reach 100% water supply by the percentage of piping and non-piping which is 65%: 35%. Is there any similar sharing scheme on wastewater to divide central and local government or it just delivered directly into local government?
- Mr. Suharsono (Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Work and Housing)
There are several schemes on accelerate the sewerage development. The proposed of 44 sanimas location IDB project is from Ministry of Public Work and Housing. Now, we are preparing DED for 4 from 10 sanimas location. We are waiting for 1,000 sanimas location from DKI Jakarta.
- Mr. Oswar Muadzlin Mungkasa (Deputy Governor of Spatial Planning and Environment, DKI Jakarta)
The consultant is more focusing on centralized system in DKI Jakarta. Do we have target for decentralized system? How to connect centralized and decentralized system that sporadic in DKI Jakarta and put it in RPJMD?
- Mr. Minoru Matsumoto (Chief Advisor, Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta)
Based on the Jakarta Sewerage M/P 2012, the target is 80% off-site and 20% on-site by 2050. Micro approach by on-site is also necessary parallel with off-site system because house connection takes time. If we already have house connection,

the pipe can switch to the off-site system. Roughly, on-site area would start with interceptor system then developing communal and finally connect off-site system.

- Mr. Oswar Muadzin Mungkasa (Deputy Governor of Spatial Planning and Environment Planning, DKI Jakarta)

From now on, we will have two area that covered by decentralized system. In 5 years we will have Zone 1 and Zone 6, then what happen with the rest? Which part of the city that need to be covered by decentralized system? Especially for the dense and along the river area need to be developed by sanimas or similar system. JICA need to propose us the answer.

- Mr. Minoru Matsumoto (Chief Advisor, Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta)

We focused on off-site system in the beginning of the project. But on-site system also needed in Jakarta, so it will be put in RPJMD together with off-site system. Now, KPPIP-SF (Committee for Acceleration of Priority Infrastructure Delivery-Support Facility) is also collecting on-site system development plan from relevant organizations with us.

- Mr. Oswar Muadzin Mungkasa (Deputy Governor of Spatial Planning and Environment Planning, DKI Jakarta)

When we are talking about output 2.3 DKI draft mid-term sewerage development in DKI Jakarta in consultation with JICA Expert.

My question is what about the on-site because our problem is 500,000 people still doing open defecation. We cannot wait until 20 years. So, we need additional priority area along the river and dense area like in Kelurahan Tambora which have no septic tank. If not, this is nothing for DKI Jakarta, this is only helping PD PAL Jaya.

- Mr. Shigeo Kanai (JICA Consultant Team)

The construction of centralized system will start more than 5 years later and it maybe takes 20–30 years. Because most of the building or houses have septic tank or communal already, one of the improvement of system is desludging of septic tank.

Open defecation is not the scope of sewerage system but sanitation system. So, another program will be needed.

- Mr. Oswar Muadzin Mungkasa (Deputy Governor of Spatial Planning and Environment, DKI Jakarta)

I mean why we need to build sewerage system in Jakarta? We are talking about sanitation problem in Jakarta. Why we need to have connection all over Jakarta? This is all about sanitation not about putting pipe in the street. Because if our sanitation is bad, we are going to have two big problem, one is our health and second children with stunting. It's ok with priority zone, but we have output 2.3 of RPJMD that related with 3 systems (on-site, off-site, and septic tank). So, what do you think about these?

- Mr. Harada Tetsuya (Senior Representative of JICA Indonesia Office)
As Mr. Matsumoto said we have focused on off-site system and how we can complete each zone. But then communal system issue came up, so we also start to help together with KPPIP-SF support that element. It will be helpful if each organization come together and discuss in the same table. What they are doing is identification of off-site area and on-site area based on GIS mapping for selected zone where factories or buildings or houses area situated. We will have those map for location off-site or on-site system in few weeks. Those will be very good information to be discussed which area is better for communal or centralized system in 5 years. JICA can't support all the thing, but we'll do our best effort in cooperate in your suggestion about communal system.
- Mr. Oswar Muadzin Mungkasa (Deputy Governor of Spatial Planning and Environment, DKI Jakarta)
The project with IUWASH (Indonesia Urban Water, Sanitation, and Hygiene) for mapping communal system in grand design has started a month ago. So, we can combine these two maps for sewerage and on-site system. And this is the answer the question about what can we do until 2050. Thank you for helping us.
- Mr. Harada Tetsuya (Senior Representative, JICA Indonesia Office)
Besides IUWASH Project, are there any other platform to discuss?
- Mr. Oswar Muadzin Mungkasa (Deputy Governor of Spatial Planning and Environment, DKI Jakarta)
So, can you help us? I need the guarantee. Just come to the meeting to discuss.
- Mr. Nabeta Takeshi (Project Coordinator, Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta)
I have one request based on page 35 (laporan pelaksanaan dalam informasi tambahan). Many people still throwing black water to drainage backside of houses even the connection already provide in front of houses. I hope we have socialization program for educate the people.
- Mr. Oswar Muadzin Mungkasa (Deputy Governor of Spatial Planning and Environment, DKI Jakarta)
That is important thing but can you train us how to do socialization and prepare the module because we do not have the capability in persuading people. I agree but the capacity need to be improved.
- Mr. Nabeta Takeshi (Project Coordinator, Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta)
We already cooperate with DSDA DKI Jakarta in socialization program in Kelurahan Malakasari but they are still not familiar with sewerage system. If there is any budget for socialization program, it will be improved. Maybe we also need to

cooperate with PD PAL Jaya or other Institution that have training capability in socialization.

- Mr. Tri Rachmat (BAPPEDA, DKI Jakarta City Government)
As for Plan A (around 30 trillion) and Plan B (around 15 trillion), we also need Plan C that improve on-site system (communal system) and reduce off-site system to accelerate the sewerage development.
- Mr. Shigeo Kanai (JICA Consultant Team)
We are more concentrated on centralized system. Now, we do not have idea how decentralized system would be developed. Therefore it will be difficult to prepare Plan C.
- Mr. Oswar Muadzlin Mungkasa (Deputy Governor of DKI Jakarta City Government)
I think this is BAPPEDA job, I always invite BAPPEDA to compose grand design how to combine sewerage system and communal system, we concentrate along the river and dense area. We are assisted by IUWASH. But when they come up to data collection from BAPPEDA, it is difficult to get the data. So, please help us to prepare Plan C.
- Mr. Suharsono (Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Work and Housing)
We are waiting for Cooperation Agreement (PKS) for Zone 1 from DSDA.
- Mr. Minoru Matsumoto (Chief Advisor, Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta)
Is there any request related to the training program such as training in Japan during the extension period?
- Mr. Oswar Muadzlin Mungkasa (Deputy Governor of DKI Jakarta Provincial Government)
DKI Jakarta need to have training regarding policy and regulation, also advocating training. BAPPEDA will help us on this training agenda. They will discuss first about it internally.

D. Conclusions for the Project

- 1) The Committee confirmed the progress in the 4th semi-year of the Project and endorsed the work plan of the extension period of the project which has been presented by the Project/POKJA.
- 2) Well-designed program of training should be considered according to the job allocation of the organization. Future training activities in the extension period will be discussed in detail.
- 3) Socialization program of sewerage project of DKI Jakarta is needed for smooth sewerage implementation.

- 4) JICA agreed to participate in discussions on communal/on-site system development plan for input of RPJMD 2018–2022.

E. Other matters

The Committee agreed that the next meeting of JCC will be held in Nov 2017 to check progress of the Project activities in line with the Plan of the extension period.

Done and signed in Jakarta, Indonesia, on 12th June 2017, by the representative of both parties.

Annex A.

The 4th Joint Coordination Committee Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta (SWPJT)

Jakarta, 31 May 2017

List of Participants

I. Chairpersons

- Mrs. Tuty Kusumawati (*Chair*),
Head of Regional Development Planning Board (BAPPEDA), DKI Jakarta
Provincial Government.
Mr. Oswar Muadzin Mungkasa (*Co-chair*),
Deputy Governor of DKI Jakarta for Spatial Planning and Environment, DKI
Jakarta Provincial Government.

II. Participants from Japanese Side

- Mr. Harada Tetsuya,
Senior Representative of JICA Indonesia Office.
Ms. Kitamura Keiko,
Project Formulation Advisor / JICA Indonesia Office.
Ms. Juni Melani,
Project Officer / JICA Indonesia Office.
Mr. Jun Tsumori,
JICA Expert to the Ministry of Public Work and Housing.
Mr. Matsumoto Minoru,
Chief Advisor, Project for Improving Planning Capacity for the Sewerage
System in DKI Jakarta (SWPJT-JICA).
Mr. Nabeta Takeshi,
Coordinator / Enhance organization structure, SWPJT-JICA.
Ms. Lailatus Siami,
Local Consultant of JICA Project, SWPJT-JICA.
Mrs. Indah,
Secretary of JICA Project, SWPJT-JICA.
Mr. Kanai Shigeo,
Team Leader of Japanese Consultants Team, SWPJT-JICA.
Mr. Inoue Yakuro,
Expert for Provincial Regulations, Japanese Consultants Team, SWPJT-JICA.
Mr. Ohashi Takafumi
Japanese Consultant Team, SWPJT-JICA.
Mr. Gandhi,
Local Consultant of JICA Project, SWPJT-JICA.

III. Participants from Indonesian Side

DGHS / Direktorat Jenderal Cipta Karya

Mr. Suharsono,

Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housing.

Ms. Olsa R.,

Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housing.

Ms. Gita Prima,

Directorate of Environmental Sanitation Development, DGHS, Ministry of Public Works and Housing.

Ms. Irika,

Directorate of Integration of Settlement Infrastructure, DGHS, Ministry of Public Works and Housing.

Deputy Governor of DKI Jakarta for Spatial Planning and Environment, DKI Jakarta Provincial Government

Mrs. Riana,

Assistant Deputy Governor of DKI Jakarta for Spatial Planning, Deputy Governor of DKI Jakarta for Spatial Planning and Environment, DKI Jakarta Provincial Government.

Mr. Junaedi,

Assistant Deputy Governor of DKI Jakarta for Environment, Deputy Governor of DKI Jakarta for Spatial Planning and Environment, DKI Jakarta Provincial Government.

Ms. Susanti,

Staff of Deputy Governor of DKI Jakarta for Spatial Planning and Environment, DKI Jakarta Provincial Government.

Mr. Rendy P,

Staff of Deputy Governor of DKI Jakarta for Spatial Planning and Environment, DKI Jakarta Provincial Government.

Mr. Udin W.,

Staff of Deputy Governor of DKI Jakarta for Spatial Planning and Environment, DKI Jakarta Provincial Government.

BAPPEDA

Mr. Tri Rachmat,

Head of Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government.

Ms. Tezza Nur Ghina R.,

Head of Sub Division of Water Management and Environment, Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government.

Mr. Fadly Haley,

Sub Division of Water Management and Environment, Division of City Infrastructure and Environment, BAPPEDA, DKI Jakarta Provincial Government.

Mr. Hari,

Secretariat, BAPPEDA, DKI Jakarta Provincial Government.

Water Resources Agency (Dinas Sumber Daya Air)

Mr. Eko Gumelar Susanto,
Head of Division of Raw Water, Water Supply and Waste Water, Water Resources Agency (DSDA), DKI Jakarta Provincial Government.

Mr. M. Fajri,
Division of Raw Water, Water Supply and Waste Water, Water Resources Agency (Dinas Sumber Daya Air), DKI Jakarta Provincial Government.

Mr. Dicky,
Division of Raw Water, Water Supply and Waste Water, Water Resources Agency (Dinas Sumber Daya Air), DKI Jakarta Provincial Government.

Ms. Dista,
Division of Raw Water, Water Supply and Waste Water, Water Resources Agency (Dinas Sumber Daya Air), DKI Jakarta Provincial Government.

PD PAL Jaya

Mr. Erwin Murphy Ali,
Technical Manager, Waste Water Management Enterprise of DKI Jakarta (PD PAL Jaya).

Mr. Suko,
Waste Water Management Enterprise of DKI Jakarta (PD PAL Jaya).

BPKLH

Mrs. Yosi Lusia,
Bureau of City Planning and Environment (BPKLH), DKI Jakarta Provincial Government.

Environmental Agency

Mr. Dermawan Sembiring,
Functional of Environmental Impact Management, Environmental Agency, DKI Jakarta Provincial Government.

Highways Agency

Ms. Riri Asnita,
Highways Agency, DKI Jakarta Provincial Government.

BPAD

Mr. Sigit,
Regional Asset Management Agency (BPAD), DKI Jakarta Provincial Government.

Mr. Pandu,
Regional Asset Management Agency (BPAD), DKI Jakarta Provincial Government.

BAPPENAS

Mr. Wahanudin,
Directorate of Urban, Housings and Settlements, State Ministry for National Development Planning/BAPPENAS.

Coordinating Ministry of Economic Affairs

Mr. Yus Yuni,

Head of Division for Water Resource Conservation and Water Damage Control,
Assistant Deputy for Water Resource Infrastructure, Coordinating Ministry of
Economic Affairs.

Mr. Dandi W.,

Division for Water Resource Conservation and Water Damage Control,
Assistant Deputy for Water Resource Infrastructure, Coordinating Ministry of
Economic Affairs.

Mr. Putera Utama,

Committee for Acceleration of Priority Infrastructure Delivery, Coordinating
Ministry of Economic Affairs.

Annex B.

**The 4th Joint Coordination Committee
Project for Improving Planning Capacity for the Sewerage
System in DKI Jakarta (SWPJT)**

Jakarta, 31 May 2017

Meeting agenda and Meeting materials



PEMERINTAH PROVINSI DAERAH KHUSUS IBUKOTA JAKARTA

BADAN PERENCANAAN PEMBANGUNAN DAERAH

Jl. Medan Merdeka Selatan No. 8 -9 Telepon : 3842061 – 3842062 – 3842871, Fax : 3860521

Website bappedajakarta.go.id E-mail sekretariat@bapedacki.net

J A K A R T A

Kode pos : 10110

Nomor : 452/1-773-3
Sifat : Segera
Lampiran : 2 (dua) lembar
Hal : Undangan rapat

29 Mei 2017

Kepada
Yth. Daftar Undangan Terlampir

di
Jakarta

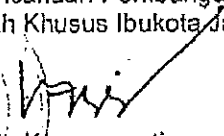
Sehubungan dengan pelaksanaan The Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta, dengan ini saya mengharapkan kehadiran Saudara dalam pertemuan yang akan diselenggarakan pada

hari : Rabu
tanggal : 31 Mei 2017
pukul : 12:30 – 15:00
tempat : Ruang Rapat Seribu Wajah, Lt. 22, Gd. Balai Kota
Blok G, Jl. Medan Merdeka Selatan No. 8-9, Jakarta
acara : 4th Joint Coordinating Committee (JCC) "The Project
for Improving Planning Capacity for The Sewerage
System in DKI Jakarta"

pimpinan rapat : Kepala Bappeda Provinsi DKI Jakarta

Atas perhatian dan kehadiran Saudara, diucapkan terima kasih.

Kepala Badan Perencanaan Pembangunan Daerah
Provinsi Daerah Khusus Ibukota Jakarta,


Tutty Kusumawati
NIP 196304291986032003

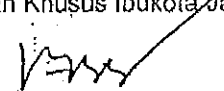
Tembusan :

1. Wakil Kepala Bappeda Provinsi DKI Jakarta
2. Sekretaris Bappeda Provinsi DKI Jakarta

Lampiran I Undangan Kepala Bappeda
Nomor : 452/1.743-3
Tanggal : 29 Mei 2017

1. Construction and Disaster Management Attache, Embassy of Japan
2. Kementerian Koordinator Bidang Perekonomian
 - u.p. a. Asisten Deputi Menko. Perekonomian Bidang Infrastruktur Sumber Daya Air
 - b. Direktur Program Komite Percepatan Penyediaan Infrastruktur Prioritas (KPPIP)
3. Kementerian Perencanaan Pembangunan Nasional/BAPPENAS
 - u.p. Direktur Perkotaan, Permukiman dan Perumahan
4. Kementerian Pekerjaan Umum dan Perumahan Rakyat
 - u.p. a. Direktur Keterpaduan Infrastruktur Permukiman (KIP), Ditjen. Cipta Karya
 - b. Kepala Subdit. Air Limbah, Direktorat Pengembangan Penyehatan Lingkungan Permukiman (PLP), Ditjen. Cipta Karya
 - c. Kepala Subdit. Standardisasi dan Kelembagaan, Direktorat Pengembangan PLP, Ditjen. Cipta Karya
5. Deputi Gubernur Provinsi DKI Jakarta Bidang Tata Ruang dan Lingkungan Hidup
6. Kepala Badan Pengelola Aset Daerah Provinsi DKI Jakarta
 - u.p. Kepala Bidang Perencanaan, Penerimaan, Penetapan Penggunaan dan Patokan Harga
7. Kepala Dinas Lingkungan Hidup Provinsi DKI Jakarta
 - u.p. Kepala Bidang Pengendalian Dampak Lingkungan
8. Kepala Dinas Sumber Daya Air Provinsi DKI Jakarta
 - u.p. a. Kepala Bidang Air Baku, Air Bersih dan Air Limbah
 - b. Kepala Seksi Perencanaan Air Baku, Air Bersih dan Air Limbah
 - c. Kepala Seksi Pembangunan dan Peningkatan Air Limbah
9. Kepala Dinas Bina Marga Provinsi DKI Jakarta
 - u.p. a. Kepala Bidang Kelengkapan Prasarana Jalan dan Jaringan Utilitas (KPJU)
 - b. Kepala Seksi Perencanaan Bidang KPJU
10. Kepala Biro Penataan Kota dan Lingkungan Hidup Setda Provinsi DKI Jakarta
 - u.p. a. Kepala Bagian Lingkungan Hidup
 - b. Kepala Subbagian Sanitasi dan Pencemaran
11. Direktur Utama PD PAL Jaya
 - u.p. a. Direktur Pengembangan Bisnis
 - b. Manager Teknik
12. Chief Representative of JICA Indonesia Office
13. JICA Experts Team

Kepala Badan Perencanaan Pembangunan Daerah
Provinsi Daerah Khusus Ibukota Jakarta,


Tuty Kusumawati
NIP 196304291986032003

Lampiran II Undangan Kepala Bappeda

Nomor : 452 / -1703-3

Tanggal : 29 Mei 2017

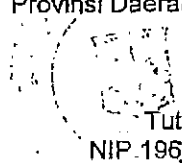
JADUAL ACARA

4th Joint Coordinating Committee (JCC)

"The Project for Improving Planning Capacity For The Sewerage System in DKI Jakarta"

Waktu	Kegiatan	Penanggung Jawab
12:30 - 13:00	Registrasi	Panitia
13:00 - 13:15	Pembukaan dan Kata Sambutan	Kepala Bappeda Provinsi DKI Jakarta selaku Project Director
13:15 - 13:30	Perkenalan peserta rapat	Team Leader JICA Project
13:30 - 14:00	- Progress Report - Next work plan	Tim Konsultan JICA
14:00 - 15:00	Discussion - Verification of Results	Chairman (Project Director)
15:00	Closing Remark	Project Director

Kepala Badan Perencanaan Pembangunan Daerah
Provinsi Daerah Khusus Ibukota Jakarta,


Tuty Kusumawati
NIP.196304291986032003

Kemajuan semi-tahun ke-4 / 5 bulan
dan
Rencana Kerja masa depan / 10 bulan
(PO)

The 4th meeting of JCC
31 May 2017

1

Pertemuan JCC ke-3
11 Jan 2017



2/2

Date 31 May 2017

THE NEW YORK
21 MAR 2017

Output 1. Penjelasan kegiatan masing-masing badan/organisasi terkait. / Job allocation among relevant organisations in DKI Jakarta is clarified.

1. Fungsi organisasi / Organizational function:
(Activity 1-1 ~ 1-6)

Output 2. Meningkatkan kapasitas staf untuk perencanaan system air limbah. / Planning capacity of staffs for sewerage system is enhanced.

2. Pelatihan / Trainings: (Activity 2-1, 2-2)

3. Draft Rencana 5 Tahun / Draft of Mid-term Sewerage Development Plan: (Activity 2-3)

4. Draft Peraturan Daerah / Draft of Regional Regulation (provincial level): (Activity 2-4)

5



1. Fungsi organisasi / Organizational function

(Activity 1-1 ~ 1-6)

Organizational function

Jun '15 – May '16

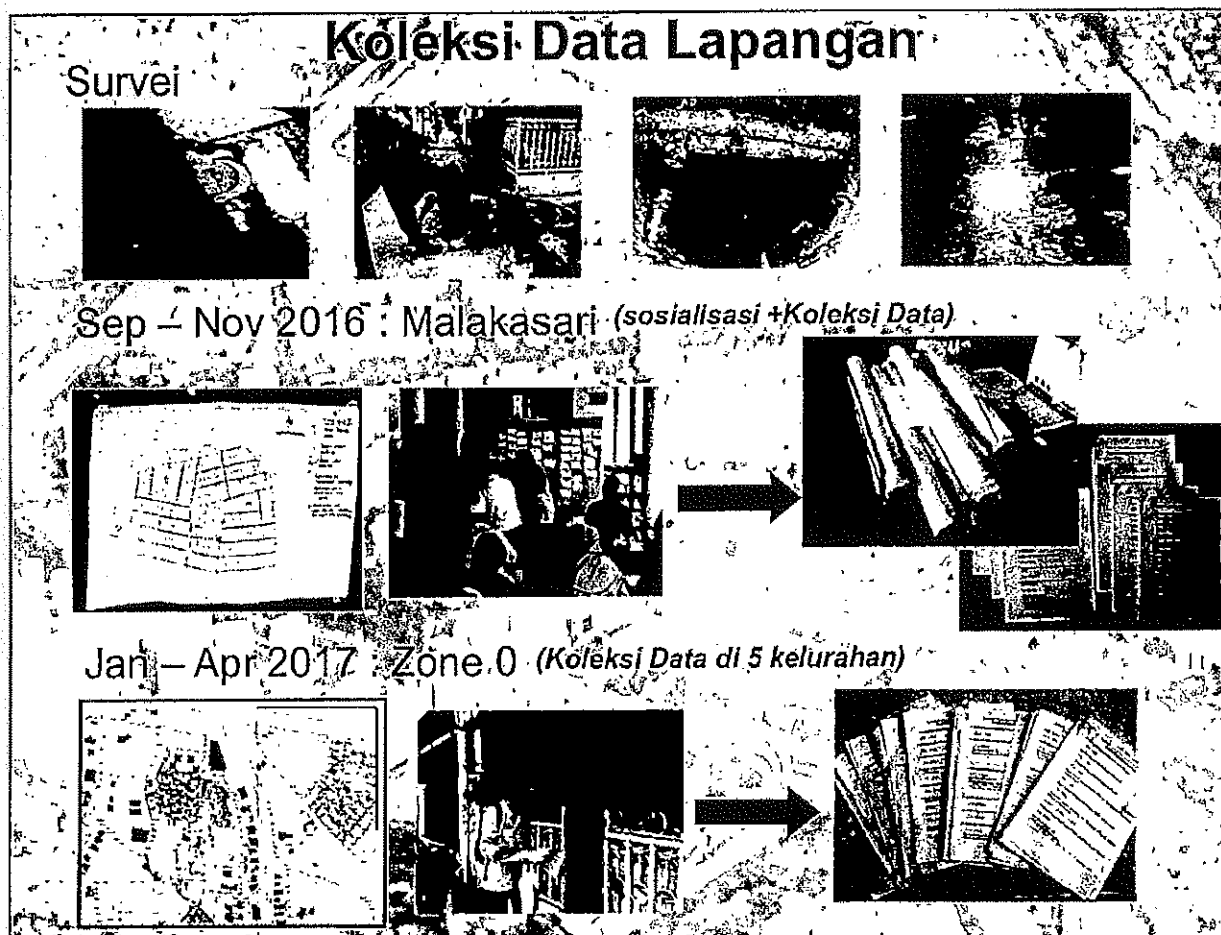
Jun '16 – Apr '17

Step ①: (Activity 1-1) (Activity 1-2)	Koleksi dan analisis data pada sekarang 
Step ②: (Activity 1-3)	Penyusunan draft Alokasi Pekerjaan (dengan grafik) pada sistem sewerage di DKI Jakarta 
Step ③: (Activity 1-4) (Activity 1-5)	Merevisi draft Alokasi Pekerjaan melalui uji coba lapangan. (Temuan masalah dan solusi)
Step ④: (Activity 1-6)	Penyelesaian draft Alokasi Pekerjaan dengan komentar melalui laporan

Output 1, 1-4 & 1-5
Temuan masalah dan solusi

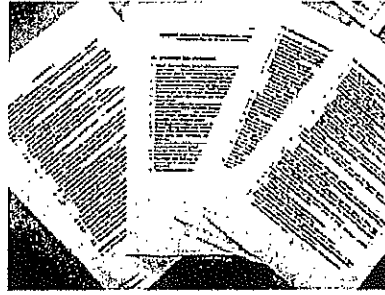
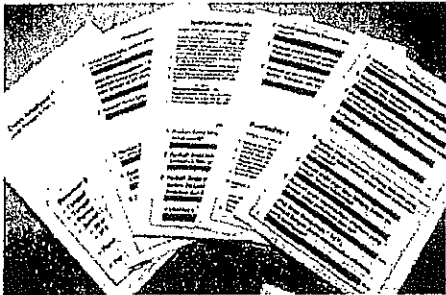
“Kondisi dan Situasi Sistem Sewerage
di DKI Jakarta sekarang”

7



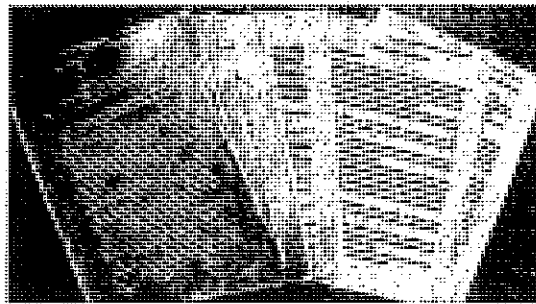
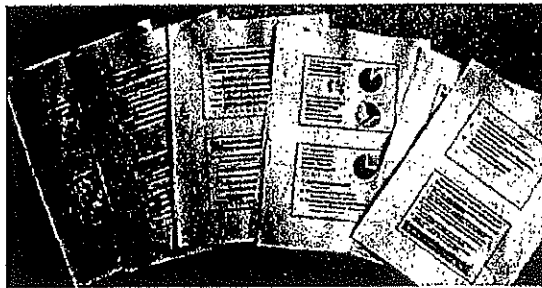
Analisis data

Sep – Nov 2016 : Malakasari



Jan – Apr 2017 : Zone 0

(Guntur, Setiabudi, Karet, Karet Kuningan, Manggarai)



Masalah yg ditemukan (dari hasil analisa koleksi data)

1. House-connection

Peraturan pembuangan limbah masa depan pemerintah daerah tentang House-Connection, perlu mempertimbangkan kondisi rumah masa sekarang.

(1) Kawasan rumah besar

- a. Kebanyakan rumah-rumah besar sudah ada Septic-tank ukuran besar.
- b. Kebanyakan pemilik rumah besar di daerah penelitian tidak tertarik dengan House-connection, yang membutuhkan biaya pribadi konstruksi.

(2) Kawasan rumah kecil

- a. Kebanyakan rumah-rumah kecil sudah menggunakan sistem sewerage (house-connection), karena tidak ada space untuk Septic-tank. Namun, pemilik rumah yang sudah memiliki Septic-tank tidak mau House-connection yang membutuhkan biaya pribadi konstruksi.

Masalah yg ditemukan

2. Sistem Tarif

Sistem tarif tidak seragam dalam pelaksanaan lapangan sebagai berikut.

a. Tidak pernah kumpulkan tarif sewerage di daerah. (Malakasari)

b. Sistem tarif tidak dikontrol secara seragam oleh institusi. ⇔ Kebanyakan penduduk di kawasan rumah kecil membayar tarif sewerage. Tetapi ada juga orang yang tidak pernah bayar karena tidak pernah terima permintaan pembayaran. (Zone 0)

* Add info: Hasil analisis data, kebanyakan pelanggan puas dengan harga sekarang dari Tarif.

11

Masalah yg ditemukan

3. Operation and Maintenance

(1) Sampah masuk ke pipa/sewerage

Masalah penyumbatan pipa dan melimpah air kotor disebabkan oleh masuknya sampah.

(2) Asphalt tutup manhole

Banyak manholes ditutupi oleh aspal.

Situasi seperti itu, perbaikan keadaan darurat tidak bisa dilakukan pada saat dibutuhkan, dan pemeriksaan rutin juga tidak bisa dilakukan.

12

Masalah yg ditemukan

4. Desain dan konstruksi

(1) Pasir masuk ke pipa

Pasir masuk/flow ke sewerage disebabkan oleh posisi tutup manhole yang lebih rendah dari permukaan jalan.

(2) Banyak pipa / tabung telah ditempati di dalam beberapa Manhole, dan juga pipa / tabung itu telah dibungkus oleh badan manhole.

➤ Ruangan dalam manhole diduduki oleh pipa tersebut, sehingga pembersihan dan pemeliharaan lubang tidak bisa dilakukan dengan mudah.

➤ Pipa / tabung yang telah dibungkus oleh badan manhole akan bisa rusak akibat gempa bumi atau tekanan dari luar. (sangat bahaya)

13

Masalah yg ditemukan

5. Kesadaran pada Sewerage

(1) Rendahnya kesadaran pada sewerage dan lingkungan

Banyak masyarakat tidak pernah membahas kondisi air limbah pada waktu pertemuan di daerah mereka.

(2) Kurangnya kegiatan sosialisasi

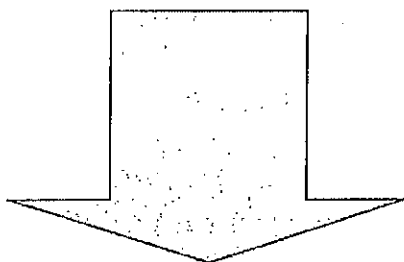
Banyak penduduk harap menerima informasi akurat tentang sewerage melalui Program sosialisasi.

14

Masalah temuan dan solusi				
Aktivitas Masalah	Pertemuan & Forum (Pelatihan)	Regulasi Daerah	SOP (masing-masing Instansi)	Aktivites Lain-lain
1. House-connection				
(1) Masih pakai Septic-tank	Pertemuan Domestic	Diwajibkan house-connection *1)		
(2) Biaya konstruksi	PD			
2. Sistem Tarif				
(1) tidal seragam	PD	Tarif sekarang *2)		
3. O & M				
(1) Sampah masuk ke pipa/sewerage	Forum			Public relations + Related Institutions
(2) Asphalt tutup manhole	Forum		Standard konstruksi	
4. Desain dan konstruksi				
(1) Pasir masuk ke Manhole	Forum		Posisi manholes	Desain
(2) pipa / tabung di dalam Manhole	Forum	Regulasi pemakaian ruang bawah tanah	Standard konstruksi	+ Related institutions
5. Kesadaran pada Sewerage				
(1) lingkungan kesadaran				Sosialisasi 15
(2) Kurangnya sosialisasi	ToT/Facilitator			Sosialisasi *3)

- *1) Diwajibkan house-connection : Diwajibkan house-connection kepada pemilik rumah oleh peraturan daerah. ⇔ Namun pemerintah perlu mempertimbangkan kondisi warga saat ini. (hal itu bukan hanya persiapan sistem subsidi di on-site. Dan juga perlu peningkatan kualitas on-site.)
- *2) Tarif sekarang : Dari tahap pertama, pemerintah harus mencoba koleksi tarif di bawah sistem kontrol pemerintah. Jadi sistem tarif sekarang perlu digunakan sampai pada mulai pengaturan metode perhitungan tarif baru di Jakarta untuk implementasi awal bahkan sementara. (.....dan Sistem tarif baru perlu sesuai dengan rencana BUMD masa depan.)
- *3) Sosialisasi : Sosialisasi pada sewerage harus dilaksanakan untuk meluncurkan program DKI Jakarta. (.....Metode sosialisasi harus disesuaikan dengan tujuan dan target yang sesuai tahap program sewerage₁₆ DKI Jakarta.)

- Beberapa masalah yang ditemukan, akan dilibatkan ke dalam target berikutnya dari periode perpanjangan Proyek.



17

Masalah temuan dan solusi				
Masalah \ Item Aktivitas	Pertemuan & Forum (Pelatihan)	Regulasi Daerah	SOP (masing-masing Insutansi)	Aktivites Lain-lain
1. House-connection				
(1) Masih pakai Septic-tank	Pertemuan Domestlo	Diwajibkan house-connection *1)		
(2) Blaya konstruksi	PD			
2. Sistem Tarif				
(1) tidal seragam	PD	Tarif sekarang *2)		
3. O & M				
(1) Sampah masuk ke ppa/sewerage	Forum			Public relations + Related institutions
(2) Asphalt tutup manhole	Forum		Standard konstruksi	
4. Desain dan konstruksi				
(1) Pasir masuk ke Manhole	Forum		Posisi manholes	Desain
(2) pipa / tabung di dalam Manhole	Forum	Regulasi pemakaian ruang bawah tanah	Standard konstruksi	+ Related institutions
5. Kesadaran pada Sewerage				
(1) Kurangnya kesadaran				Sosialisasi 18
(2) Kurangnya sosialisasi	ToT/Facilitator			Sosialisasi *3)

Extension period of the Project

Output 1. Penjelasan kegiatan masing-masing badan/organisasi terkait. / Job allocation among relevant organizations in DKI Jakarta is clarified.

Activitas (* Required activities)

1-4 (1) Roundtable Meeting

Pembahasan masa depan DKI Jakarta dengan peneliti/pelaksana sewerage di Indonesia.

(2) Forum

Meningkatkan koordinasi dan kerjasama dengan instansi terkait lainnya. (Bina Marga, PAM Jaya, PLN, Gas, Telkom, dan Lain-lain)

(3) Monitoring and studying

Memantau dan mempelajari Struktur Kerja Sewerage terutama peraturan baru yang akan dipublikasikan dimasa depan.

+ add. **Sosialisasi** (seperti Brosur PR)

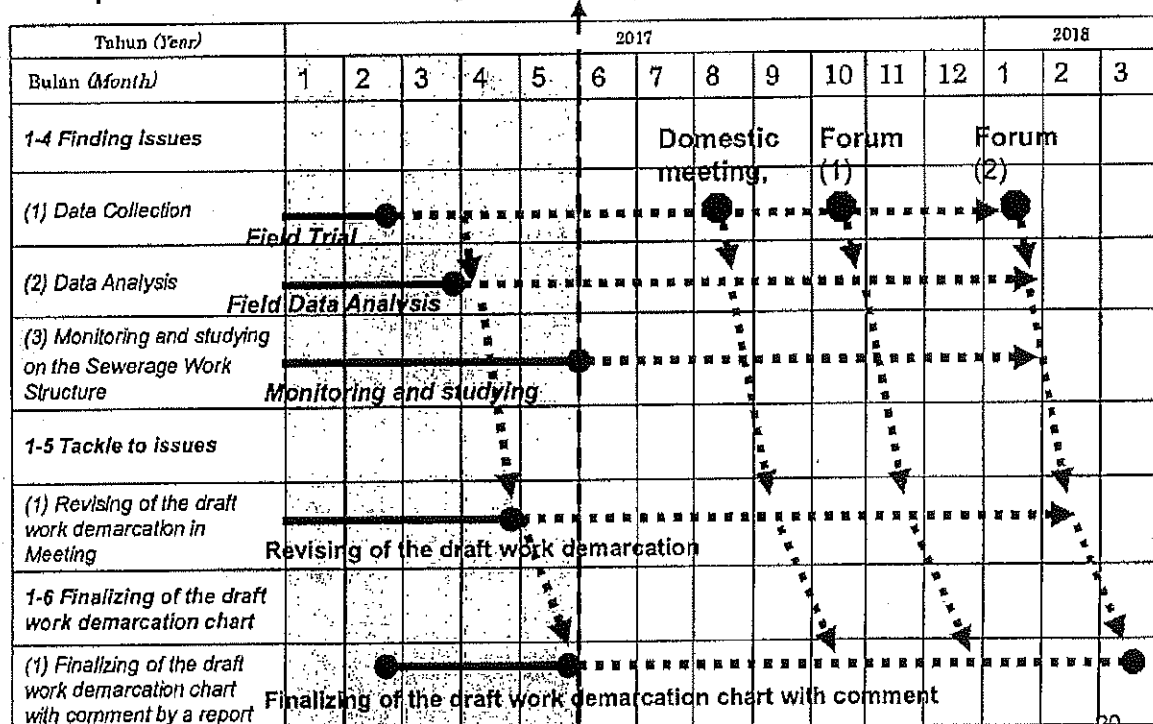
1-5 Analisis data yang dikumpulkan dari 1-4.

1-6 Laporan akhir tentang komentar dan saran pada Sistem Sewerage DKI Jakarta di masa depan melalui hasil 1-5.

19

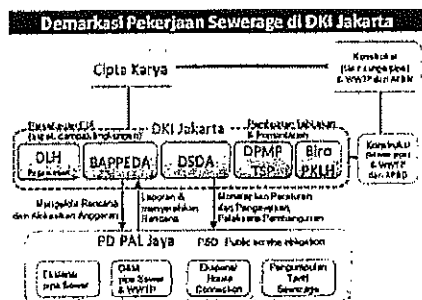
The plan for the extension period

Output 1. Job allocation among relevant organizations in DKI Jakarta is clarified



20

Pembagian kerja saat ini



Peran dan Tanggung Jawab pada Pengelolaan Air Limbah Domestik di DKI Jakarta

Administrasi publik					
		Kebijakan	Peraturan dan Standar	Idin konstruksi	Pemeriksaan / Inspeksi
Pengendalian Lingkungan Air					
Onsite	Pengguna sewerage	Biro PKUH	DSOA	DSOA via DPMPTST	DSOA
	Demodifikasi Septic Tank / Jukasa	Biro PKUH	DSOA	DSOA via DPMPTST	DSOA
	Konvensional				
	Penyedotan dan Pengalihan Skala	Biro PKUH	DSOA	DSOA via DPMPTST	

Peran dan Tanggung Jawab pada Pengelolaan Air Limbah Domestik di DKI Jakarta

Prosedur Pelaksanaan untuk Sistem Offsite / Sewerage : Sistem Persipaan Air Limbah									
	Master Plan / Studi Kelayakan	Desain yang akan Dokumen tender	Analisis Mengenai Dampak Lingkungan → EIA	Akuisisi Tanah	Perencanaan anggaran, Konstruksi dan O&M (Operasi & Pemeliharaan)	Konstruksi	Aset	Operasi & Pemeliharaan	Audit
Pengurusan Pemerintah Daerah / APBD	[Pengelola] BAPPEDA	[Pemerintah] BPKD	[Persetujuan] DUH	DSOA	[Pelaksanaan] BPKD	DSOA	DSOA	[Regulator/ Pengatur] DSOA	[Auditor] BPKMD
	[Memusyawahi] DSOA	[Memperhatikan] DSOA	[Menerapkan] DSOA		[Permintaan] DSOA			[Operator] PD PAL Jaya	[Auditor] DSOA
Pengurusan Pemerintah Pusat / APBN		[Memperhatikan] PUPR	[Persetujuan] DUH	DSOA	[Permintaan] PUPR	PUPR	[Transfer ke DKI]		[Auditor] PUPR
			[Menerapkan] DSOA						

21

2. Pelatihan / Trainings (Aktivitas 2-1, 2-2)

- ① Penyusunan program pelatihan pengembangan sewerage / Preparation of training program of sewerage development
- ② Pelaksanaan pelatihan sesuai dengan program pelatihan / Implementation of training in line with the training Program

Program Pelatihan / Training program ☐ Jun '15 – Dec '16 ☐ Jan '17 – Apr '17

Kursus /Course	No.	Tanggal	Pers.	
Seminar Kecil di Jakarta (SS)	1 st – 5 th	Apr 2015 - Nov 2016	254	Seminar Kecil (Small Seminar)
	5 th – 6 th	1-6 Feb 2017	177	Jumlah: 431 pers.
Seminar Besar di Jakarta (BS)	1 st	31 Mei 2016	57	Seminar Besar (Big Seminar)
	2 nd	1 Des 2016	79	Jumlah: 136 pers.
Lokakarya	1 st	23 – 24 Mar 2017	22	2 hari lokakarya/workshop di Bogor
C/P Training in Japan (TJ)	1 st	14 Feb – 27 Feb 2016	8	C/P Training in Japan
	2 nd	21 Agust – 3 Sep 2016	9	Jumlah: 17 pers.

22

Seminar

① Seminar Kecil / *Small Seminar*



PUPR-PPLP / 1 Feb
2017



BAPPEDA / 1 Feb 2017



DSDA / 2 Feb 2017



PD PAL Jaya /
3 Feb 2017



BAPPEDA / 6 Feb 2017

23

Lokakarya / *Workshop*

"Lokakarya selama 2 hari di Bogor / *The 2 days workshop in Bogor*"

Judul: Management and Sewerage Development

Periode pelaksanaan: 23 Mar 2017 – 24 Mar 2017

Tempat: Hotel Rancamaya, Ciawi, Bogor



Tujuan:

- Meningkatkan kapasitas staf yang terlibat didalam proses Penyusunan Rencana Pembangunan Sewerage Jangka Menengah dan Peraturan Daerah.
- Menemukan konsep pengelolaan Sewerage yang berkelanjutan dan sesuai di DKI dengan cara staf brainstorming.

24

3. Rancangan rencana Pembangunan sewerage Jangka Menengah 5 tahun / *Draft of Mid-term Sewerage Development Plan* (Activity 2-3)

Tujuan Kegiatan

Mendamping DKI untuk mempersiapkan
Rancangan Rencana Pembangunan Sewerage
Jangka-Menengah

Alur Kegiatan

- (1) Konfirmasi Rencana Saat ini
- (2) Konfirmasi terhadap Permasalahan Dasar untuk Perencanaan yang Baru
- (3) Pertimbangan pada Zona Prioritas
- (4) Pertimbangan pada Jadwal Konstruksi dan Pembiayaan di Setiap Tahunnya
- (5) Penyusunan Rancangan pada Standar Prosedur Operasional

25

4. Rancangan Peraturan Daerah / *Draft of Regional Regulation (provincial level)* (Activity 2-4)

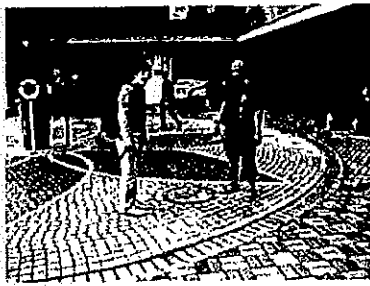
Tujuan Kegiatan

Mendampingi DKI untuk mempersiapkan
Rancangan Peraturan mengenai Sewerage

Alur Kegiatan

- (1) Memperkenalkan Contoh di Negara Jepang dan Asia Tenggara
- (2) Perihal Utama yaitu: Pemberitahuan Pelayanan Sewerage, Kewajiban Menyambungkan ke Sewerage, Biaya Pengguna, etc.
- (3) Penyusunan Rancangan Artikel dimana Maksud dan Isinya Telah Dijelaskan

26



Survei Lapangan

"Kunjungan lapangan untuk studi banding tentang pengelolaan sistem sewerage di Yogyakarta dan Jakarta"

Terima Kasih atas Kerjasama

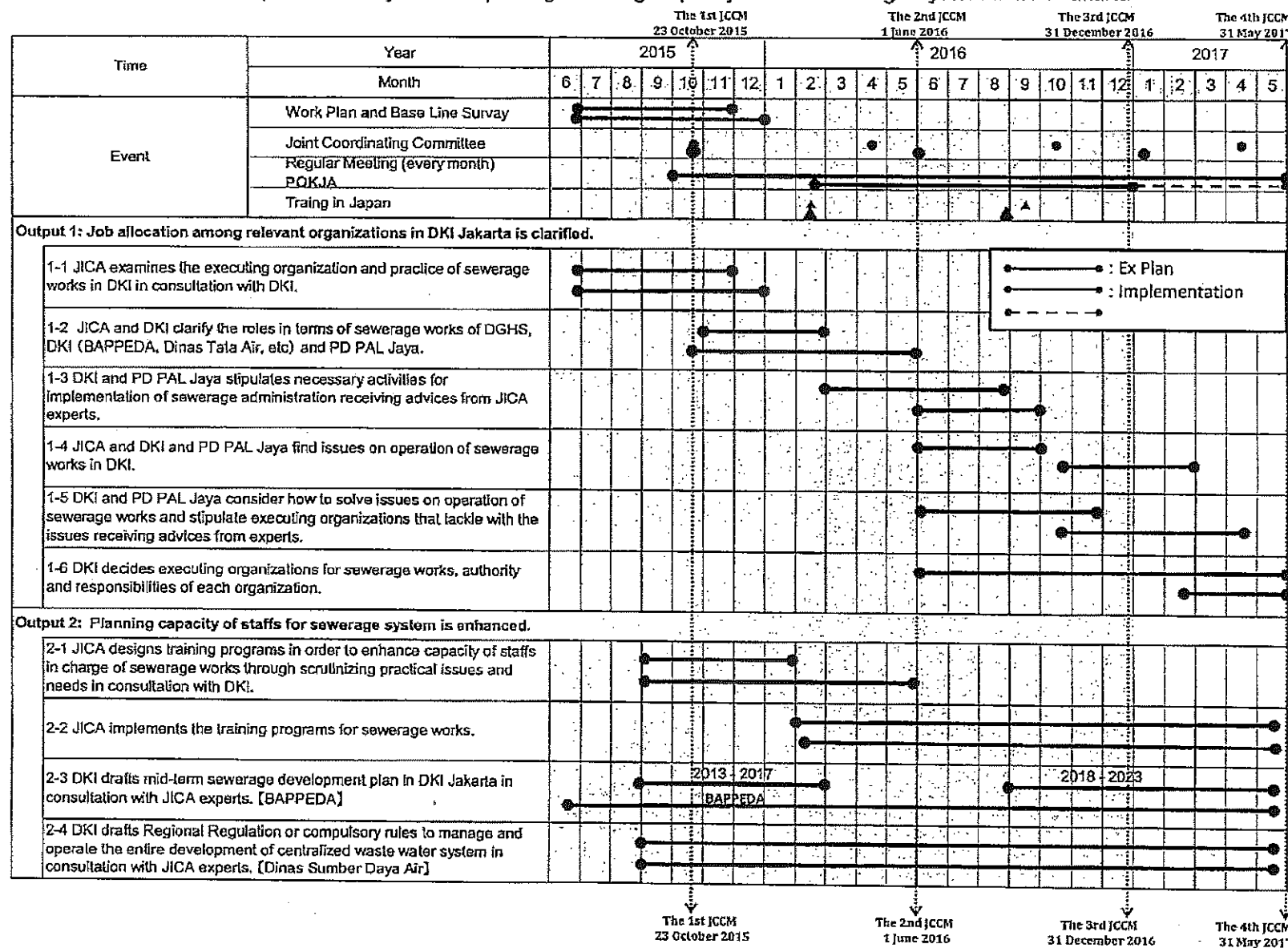
Menghadiri
Pertemuan



"Pertemuan DSDA dan KPPIP (Komite Percepatan Penyediaan Infrastruktur Prioritas)"
Menginformasikan dan menjelaskan skema pendukung olel KPPIP

27

Plan of Operation: Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta



Activity plan for extension period

The 4th JCCM
31 May 2017

Time	Year	2017												2018		
	Month	6	7	8	9	10	11	12	1	2	3					
Event	Work Plan and Base Line Survey															
	Joint Coordinating Committee															
	Regular Meeting (every month) POKJA															
	Training in Japan															

Output 1: Job allocation among relevant organizations in DKI Jakarta is clarified.

1-1 JICA examines the executing organization and practice of sewerage works in DKI in consultation with DKI.																
1-2 JICA and DKI clarify the roles in terms of sewerage works of DGHS, DKI (BAPPEDA, Dinas Tata Air, etc) and PD PAL Jaya.																
1-3 DKI and PD PAL Jaya stipulates necessary activities for implementation of sewerage administration receiving advices from JICA experts.																
1-4 JICA and DKI and PD PAL Jaya find issues on operation of sewerage works in DKI.	1) Domestic meeting, 2) Forum 3) Monitoring															
1-5 DKI and PD PAL Jaya consider how to solve issues on operation of sewerage works and stipulate executing organizations that tackle with the issues receiving advices from experts.	To create of Comments & Suggestions															
1-6 DKI decides executing organizations for sewerage works, authority and responsibilities of each organization.	To finalise of the report on comments & suggestion															

● ———— ● : Ex Plan
 ● ———— ● : Implementation
 ● - - - - ●

DM (1) F (1) F (2)
 Monitoring and studying

Field Data Analysis

Finalizing of the work demarcation

Output 2: Planning capacity of staffs for sewerage system is enhanced.

2-1 JICA designs training programs in order to enhance capacity of staffs in charge of sewerage works through scrutinizing practical issues and needs in consultation with DKI.																
2-2 JICA implements the training programs for sewerage works.																
2-3 DKI drafts mid-term sewerage development plan in DKI Jakarta in consultation with JICA experts. [BAPPEDA]																
2-4 DKI drafts Regional Regulation or compulsory rules to manage and operate the entire development of centralized waste water system in consultation with JICA experts. [Dinas Sumber Daya Air]																

DSDA

The 4th JCCM
31 May 2017

Result of Consultant Activities

JICA Consultant Team

2

1. Project Activities

- JICA designs training programs in order to enhance capacity of staffs in charge of sewerage works through scrutinizing practical issues and needs in consultation with DKI.
- JICA implements the training programs for sewerage works.
- DKI drafts mid-term sewerage development plan in DKI Jakarta in consultation with JICA experts.
- DKI drafts Regional Regulation or compulsory rules to manage and operate the entire development of centralized waste water system in consultation with JICA experts.

3

2 Actual Activities

➤ Consultant prepared four means of capacity building.

- (1) small seminar
- (2) special seminar
- (3) Workshop
- (4) Training in Japan

➤ Consultant collected information and discussion material concerning mid-term plan and regional regulation. DKI drafts them in consultation with consultant.

4

2. Result of Activities

2- 1 Small Seminar

- The purpose of the small seminar was to provide information about mid-term sewerage development plan and regional regulations to participants and general information sewerage.
- Consultant visited BAPPEDA, Dinas Tata Air, PD PAL JAYA offices and made presentation and discussion.
- Small seminar was held totally 14 times.
- Total number of participants was 318.

5

(1) Theme of Small Seminar

Category	Theme
Mid-term sewerage development plan	Mid-term Sewerage Development Plan Required WWTP Area Step-wised construction plan Several points of sewerage Early stage mid-term sewerage development plan in Yokohama City
Regional Regulation for sewerage	Organization and Legislation for sewerage Organization and Legislation for sewerage in foreign countries
Advanced Treatment	Advanced treatment technology Advanced treatment technology and cost
Sludge Treatment	Sludge Treatment and disposal Financing to Sludge treatment
Operation and Maintenance	Operation and Maintenance of sewerage facility Efficient operation and maintenance of sewerage facility Operation and maintenance of WWTP
On-site Treatment	Improvement of O&M at on-site treatment facilities at commercial area Operation and maintenance in on-site treatment in Japan
Financing for Sewerage	User charge system in urbanized area in Japan Financial system and its improvement
Public Relations	Public relations in Kitakyusyu City
Others	Experience of sewerage works management in Kitakyusyu City Environmental issues in sewerage in Jakarta Asset management in sewerage entities Sewerage facilities in Japan

6

(2) Small Seminar (2016.8.5)

BAPPEDA



7

(3) Small Seminar (2016.10.6)

Dinas Tata Air



8

(4) Small Seminar (2016.11.29)

PD PAL JAYA



2-2 Special Seminar

- The purpose of Special Seminar is to learn wider knowledge and experience concerning sewerage from foreign and domestic cities and sewerage entities.
- Three Special Seminar have been held in total.

(1) Theme of Special Seminars

Number	Date	Participants	Topic
1	31st May	67 persons	Improvement of O&M in on-site treatment facility Japan's sewerage law Governer Degree 41/2016 Implementation of sewerage and water pollution improvement, Financing of sewerage and user charge in Japan
2	1st Dec.	85 persons	Sewerage works in Denpasar Gray water management in Baudon Waste water management by on-site system in Surakarta Sewerage development in forein countries and suggestion to Jakarta Factors which affect to waste water management
3	23rd May		Sewerage in Jakarta, Kuala Lumpur, Bangkok and Ho Chi Minh

11

(3) Special Seminar

(2016.12.1)



(2017.5.31)



12

2 - 3 Workshop

- Relevant personnel to Jakarta sewerage implementation exchange their view and have same notion for the implementation of sewerage system in Jakarta.
- Workshop was held from May 23rd to 24th.
- The number of participants was 36.

(1) Workshop (2017.3.23~24)



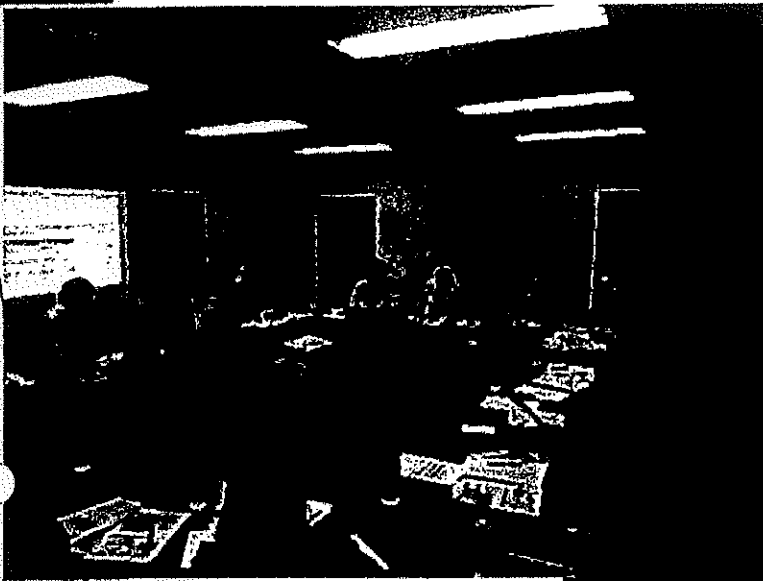
3. Training in Japan

- Through listening the lecture and site visit, trainees are expected to understand how sewerage works are executed in Japan.
- Training was held twice in February and August 2016.
- Target trainees for the first training were high rank officials, and second training were practical level.
- It is necessary to use on-site system for long time, lecture and site visit to treatment plant where the plant treat not only sewage but also septage.

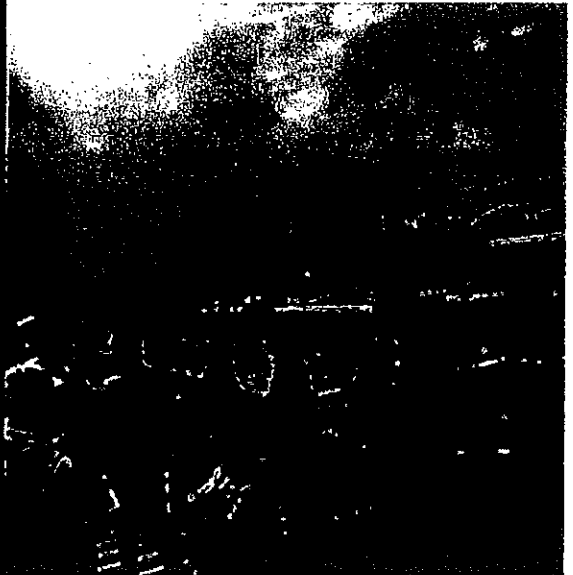
15

(1) Training in Japan

(2016.8.24)



(2016.8.23)



16

4. Mid-term Sewerage Implementation Plan

Objectives of the Activity

Assist DKI to prepare the Draft of Mid-term Sewerage Development Plan

Flow of Activity

- (1) Confirmation of Current Plan
- (2) Confirmation of Basic Issues for New Plan
- (3) Consideration on Priority Zone
- (4) Consideration on Construction Schedule and Cost in Each Year
- (5) Preparation of Draft RPJMD sewerage section

17

(1) Meeting on Mid-term Sewerage Development Plan (2016.11.28) BAPPEDA



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5. Regional Regulation

Objective of the Activity

Assist DKI to prepare the Draft of Regulation on Sewerage

Flow of Activity

- (1) Introduction of Example in Japan and Southeast Asia
- (2) Major Items are: Notification of Sewerage Service, Obligation of Connection to Sewerage, User Charge, etc.
- (3) Preparation of Draft Article in which the Purpose and Contents are explained



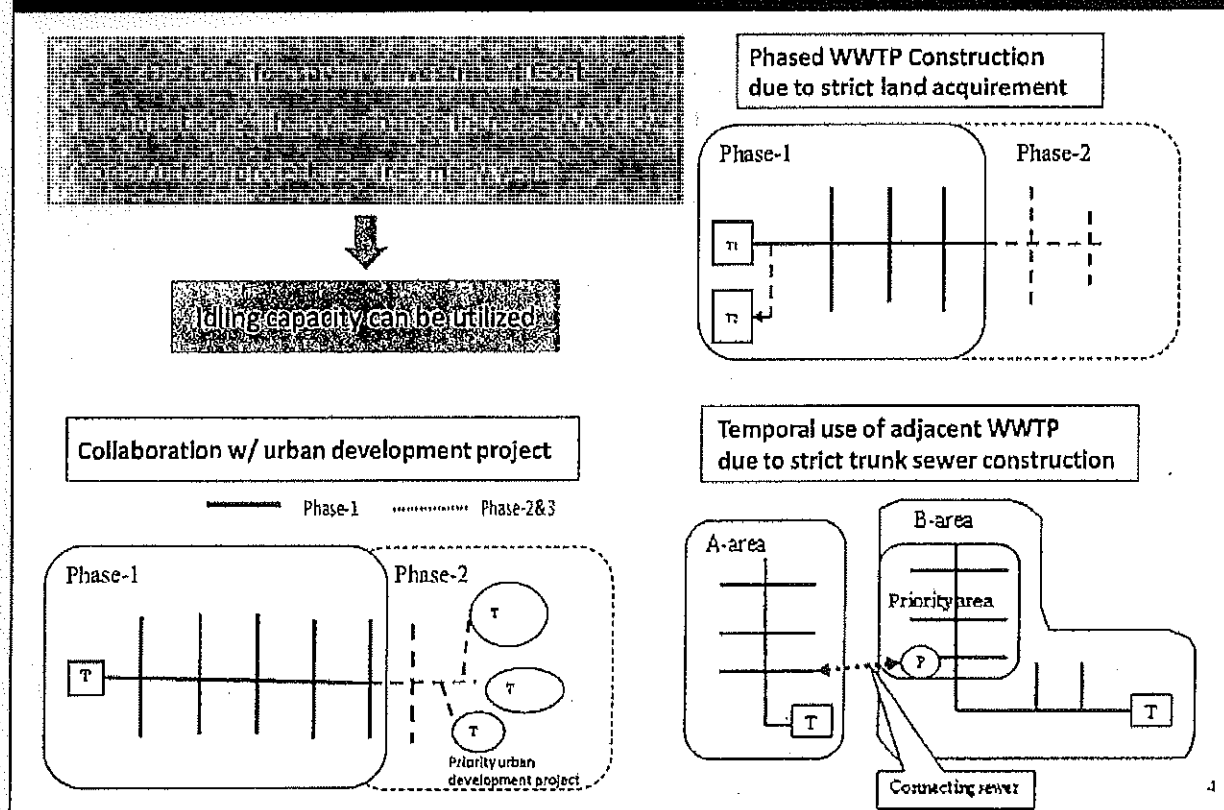
Thank you
for your listening

2. Reviewing M/P, NCICD, Acceleration Plan

- BAPPEDA has been reviewing the current RPJMD (2013-2017), JICA M/P, NCICD and Acceleration Plan of PD PAL Jaya since beginning of 2016.
- The current RPJMD (2013-2017) was formulated based on the JICA M/P 2012.
- NCICD and Acceleration Plan, prepared in 2014, define the different priority zones of implementation and target years from JICA M/P in order to improve the water quality and environment.
- The next Mid-term Plan (2018-2022) needs to be adjusted with those development plans.

3

3. Features of Step-wised Sewerage Development



4.1 Criteria for Prioritization

Suggested criteria

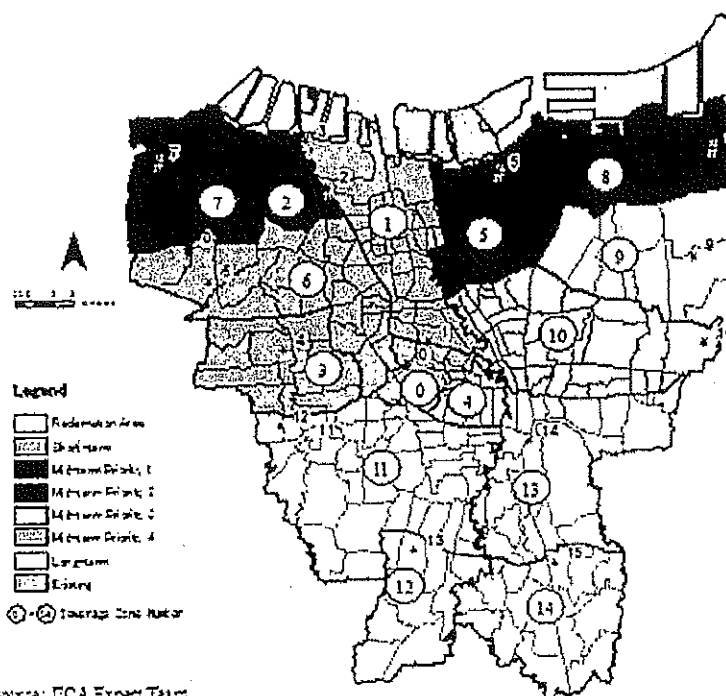
1. Consistency with NCICD (location of zone)
2. Capital and operational costs (pipe & WWTP)
3. Service revenue (ratio of revenue-gross floor area (GFA))
4. Investment efficiency (sewer construction cost per wastewater volume)
5. Land availability for WWTP
6. Environmental impacts (water quality)
7. Difficulty of underground penetration (land subsidence and groundwater level)

5

4.2 Priority for Midterm Plan (suggested by JICA consultant)

Priority	Zone
Short-term	1, 6

Mid-term	4+10
Priority 3	
Mid-term	3
Priority 4	
Long-term	9, 11, 12, 13, 14



Source: JICA Expert Team

6

5.1 Implementation schedule

PLAN-A (Acceleration)

- In line with the Acceleration Plan and the Governor Regulation 41/2016
- Completion of construction of WWTP, main sewer (interceptor) and P/S of Zone-1 & 6, and Zone-2, 3, 5, 7, 8, 4+10 before 2022
- WWTPs in all the zones will start operation before 2022
- 2ndary & 3rtiary sewers and HC will be all installed in the next 5 years

PLAN-B (Step-wised)

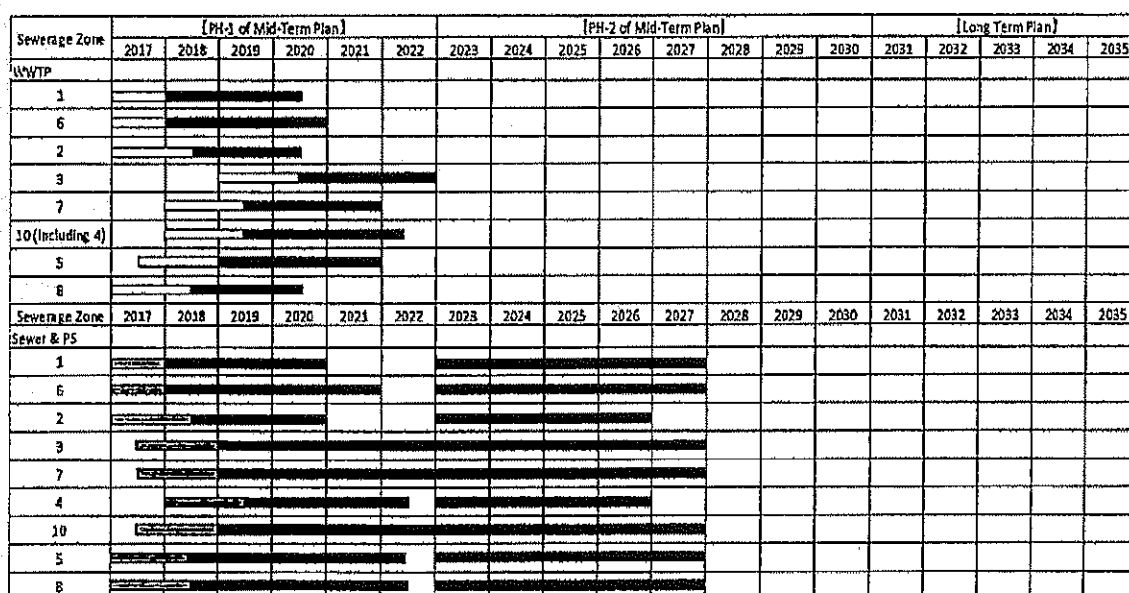
- Completion and commencement of service of and Zone-2, 3, 5, 7, 8, 4+10 is 2030 (closure of the outer seawall of NCICD)
- Construction of main sewer in 5 years or more from priority sub-zones
- 2ndary & 3rtiary sewers implemented after the main sewer in 10 years
- Construction of WWTP is also step-wised, the first phase construction will require 70% of total construction cost
- after 5 years from completion, the 2nd phase starts to increase the capacity of WWTP

7

Plan A : Acceleration plan

Plan-A

Is it practicable budgetary and technically such as traffic congestion?



Source: JICA Consultant Team based on the MLIT report

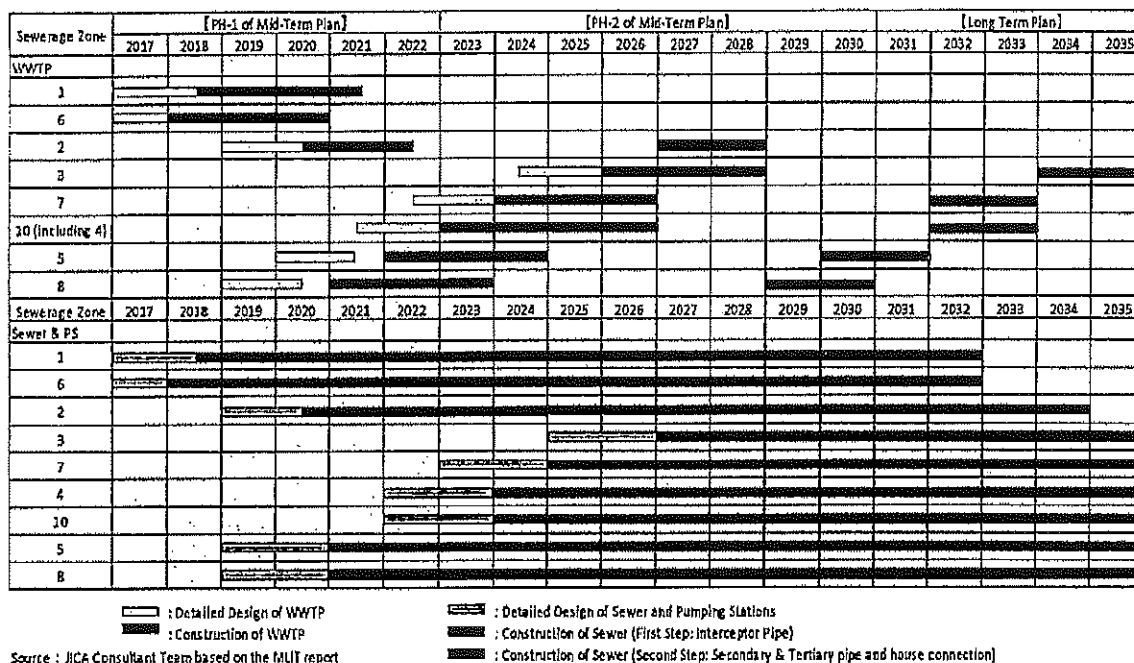
: Detailed Design of WWTP
 : Construction of WWTP
 : Detailed Design of Sewer and Pumping Stations
 : Construction of Sewer (First Step: Interceptor Pipe)
 : Construction of Sewer (Second Step: Secondary & Tertiary pipe and house connection)

S

Plan-B : Step-Wised Plan

Plan-B

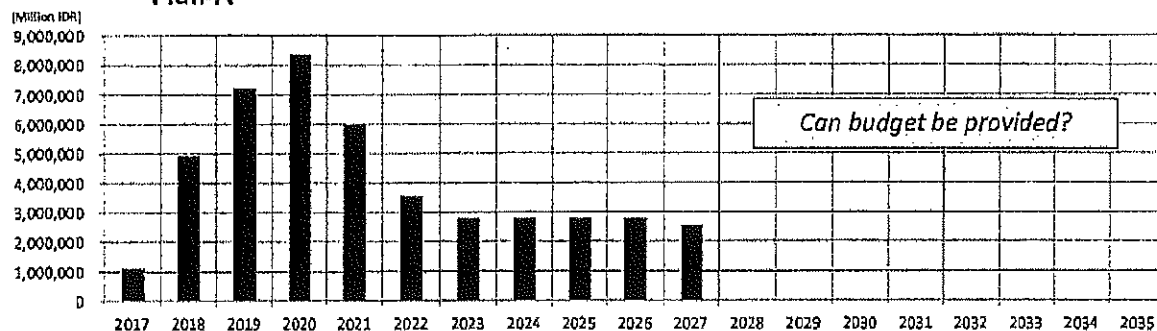
Plan-B is still changeable and careful provision is required.



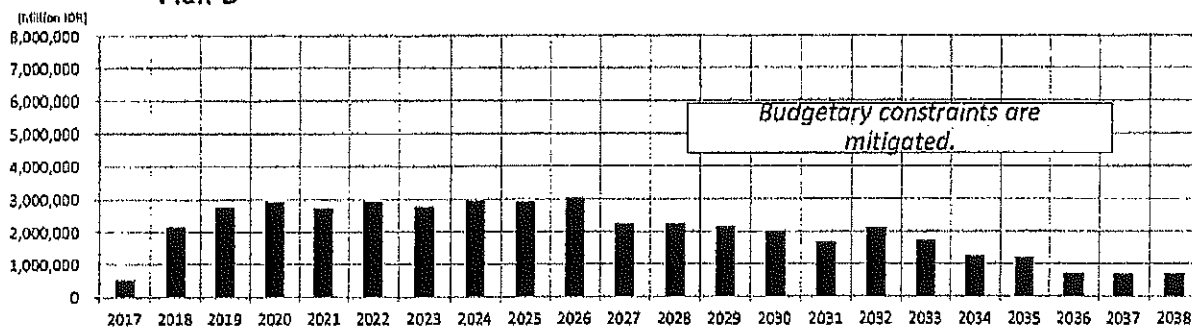
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5.2 Required budget for two scenarios

Plan-A



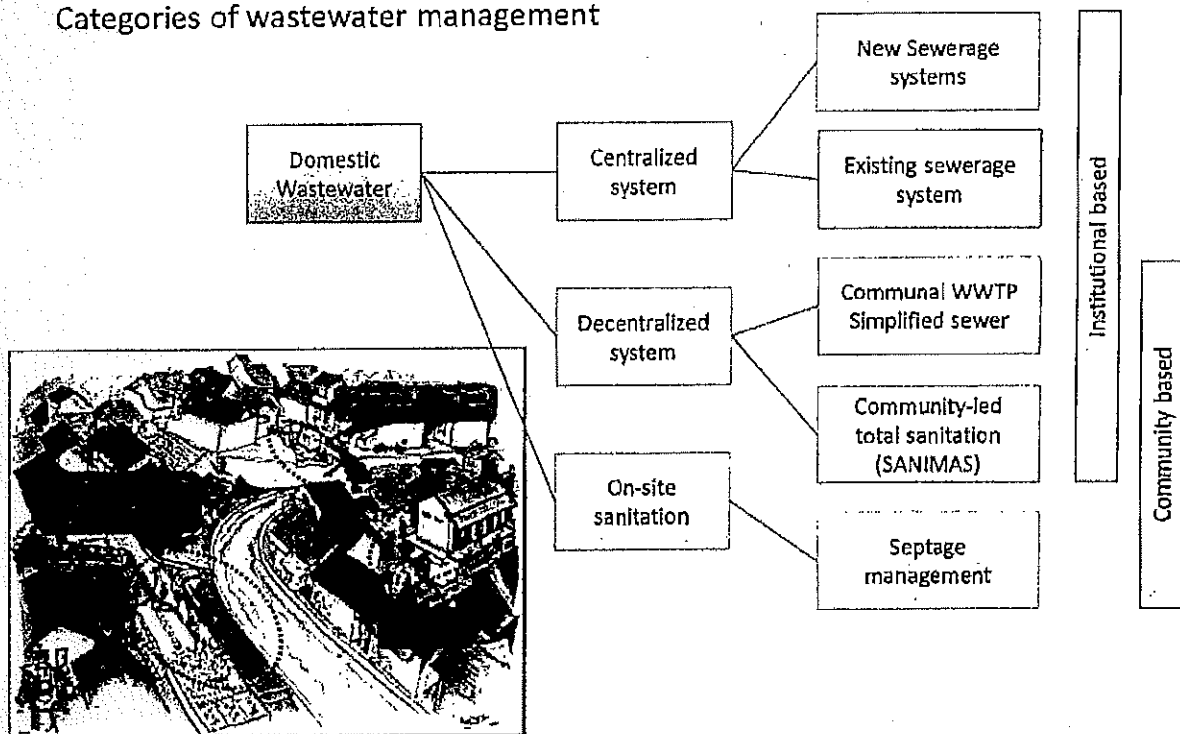
Plan-B



10

6.1 Decentralized and on-site wastewater management

Categories of wastewater management



11

6.2 SANIMAS in Jakarta

IDB project: total 44 Locations. 25 locations are already decided, 19 has been installed (8 started in 2015, 11 in 2016).

Budget for one location= 425 million IDR

Material: 65%
Wage: 35%
Operational: 5%

- One SANIMAS covers 50HH or 500pe.
- Construction of one SANIMAS takes 3 months generally.
- Design & Supervision are by 3 TFL (PR, Management, Technical) employed by PUPR.
- O&M will be done by KPP (user association). User fee also collected by KPP.

Vice governor's plan: total 1,000 Locations until 2019

→ SANIMAS is one of effective solutions to treat wastewater where the Sewerage systems will not immediately installed.

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7. Performance Indicators and Annual targets

What kind of activities needs to be counted for the next 5 years?

Off-site

- ☐ Construction of sewerage systems
- ☐ Engineering service and tender process
- ☐ Preparation and procedures before the implementation
(AMDAL, land acquisition and survey, socialization etc.)
- ☐ O&M of WWTPs and sewers in service

On-site

- ☐ Implementation of Communal WWTP/SANIMAS systems
- ☐ Regular desludging of septic tanks
- ☐ Construction of sludge treatment plants

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7.1 Target of Next RPJMD (2018-2022)

PROGRAM	PROGRAM PI (Output)	INITIAL CONDITION 2017	PERFORMANCE TARGET PROGRAM					PERFORMANCE CONDITIONS END OF YEAR 2022
			2018	2019	2020	2021	2022	
			Target	Target	Target	Target	Target	
Wastewater Management Performance Improvement Program	Percentage of centralized systems	8% (Zone-0, part of Zone-1,6)	33 (Zone-0,1,6, 2,8)	40 (Zone-0,1,6, 2,8,5)	54 (Zone-0,1,6, 2,8,5,4+10)	60 (Zone-0,1,6, 2,8,5, 4+10, 7)	65 (Zone-0,1,6, 2,8,5,4+10, 7,8)	65%
	Number of Zones EIA procedures	2 (Zone-1,6)	2 (Zone-2,8)	1 (Zone-5)	1 (Zone-4+10)	1 (Zone-7)	1 (Zone-3)	8
	Number of Zones E/S & tender process	2 (Zone-1,6)	2 (Zone-2,8)	3 (Zone-2,8,5)	2 (Zone-5,4+10)	2 (Zone-4+10, 7)	2 (Zone-3,7)	8
	Number of Zones construction	1 (Zone-0)	2 (Zone-1,6)	2 (Zone-1,6)	5 (Zone-1,6, 2,8,5)	5 (Zone-1,6, 2,8,5)	6 (Zone-1,6, 2,8,5,4+10)	6
	Number of Communal WWTP @200HH		4	4	4	4	4	20
	Number of SANIMAS	19	81	200	200	250	250	1000
	Number of Truck for Regular desludging	31	69	100	100	100	100	500

14

7.2 Suggested Schedule and Calculation for Percentage

The percentage was calculated in accordance with intervention and implementation of Sewerage Project, not completion of construction.

Zone	Population	2017	2018	2019	2020	2021	2022
Zone-0	1.8%	3%	3%	3%	3%	3%	3%
Zone-1	9.8%	10%	10%	10%	10%	10%	10%
Zone-2	1.7%	1%	1%	1%	1%	1%	1%
Zone-3	5.7%						6%
Zone-4+10	14.5%				15%	15%	15%
Zone-5	6.3%			6%	6%	6%	6%
Zone-6	11.6%	12%	12%	12%	12%	12%	12%
Zone-7	5.5%					5%	5%
Zone-8	8.7%		9%	9%	9%	9%	9%
Total	65%	23.2%	33.0%	39.3%	53.8%	59.3%	65.0%

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8. Way Forward for RPJMD (2018-2022)



- ☐ Draft RPJMD (2018-2022) sewerage section
→ May 2017
- ☐ Inauguration of new governour
→ October 2017
- ☐ Compilation & Finalization of RPJMD (2018-2022) and Submitted to Regional Assembly (DPRD)
→ April 2018
- ☐ Approval from (DPRD)
→ June 2018
- ☐ Publishing of RPJMD (2018-2022)
→ August 2018

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JCC Meeting

Wastewater Management & Sewerage Development – Regional Sewerage Regulation –

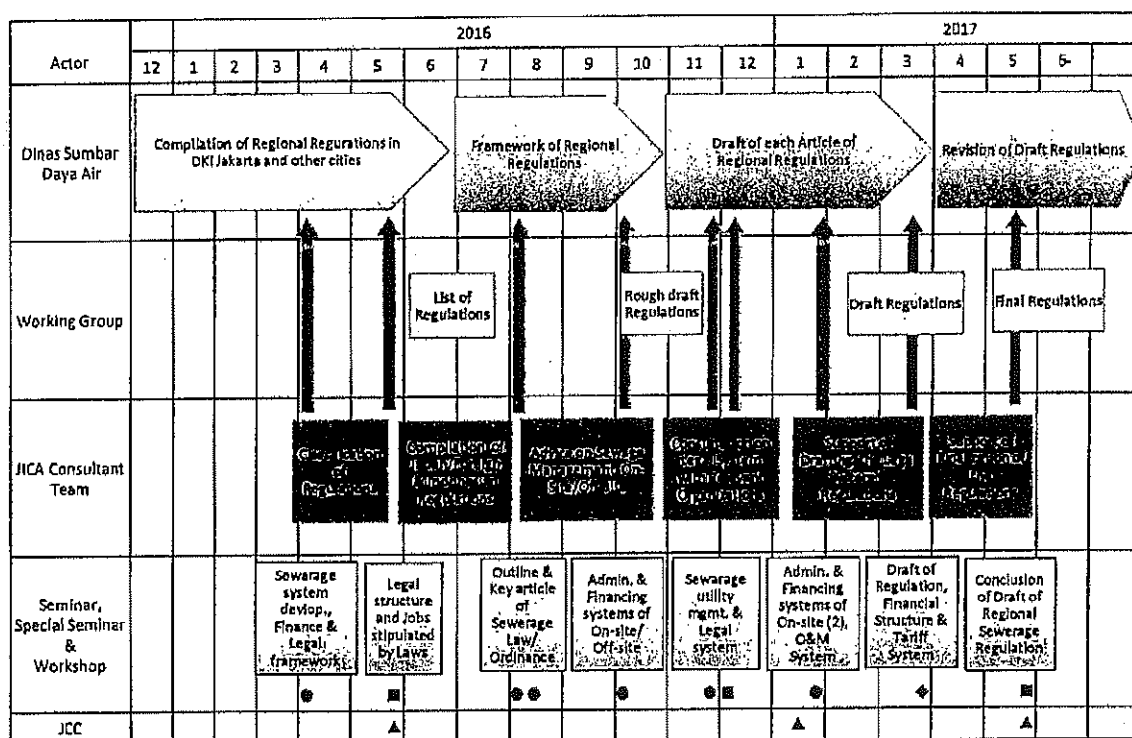
May 31, 2017

Consultant Team

Contents

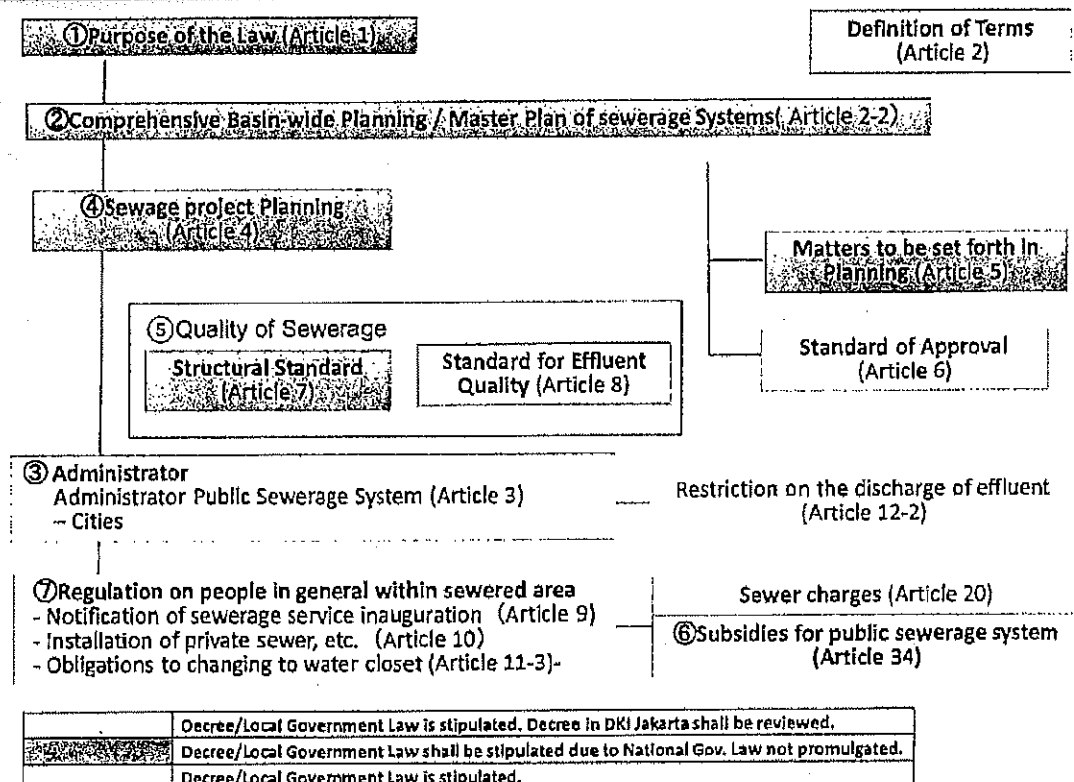
- 1. Activities on Regional Sewerage Regulation**
- 2. Overall Structure of Regulation**
- 3. Basic Model of Regulation (Recommendation to JKT)**
- 4. Introduction of Textbook**
- 5. Roadmap of Enactment of Governor Decree**

1. Activity on Regional Sewerage Regulation



3

2. Overall Structure of Regulation



4

3: Basic Model of Regulation (Recommendation) (1/2)

Integrated by Standard Sewerage Ordinance of Municipal Gov., Sewerage Law and Jhokasou Law in Japan

Article	Right / Obligation
Article-1 Purpose of Ordinance	Administrative power 【Reference-1】
Article 2 Definition of Terms	Defining terms
Stipulation on Planning (if necessary)	Responsibility of Planning of Domestic (Municipal) Wastewater Management
Stipulation on Construction (if necessary)	Responsibility of PIM establishment
Stipulation on Finance (if necessary)	Responsibility of Financing
Article 3 - 5 Installation of house connection and private (building) sewer	Obligation of public sewer connection (discharge to public sewer) 【Reference-2】
Article 6 Registration and order on plumber	Plumber registration, Qualification / certification of professional engineer 【Reference-3】
Article 7 Inspection of private sewer installation	Inspection of installation work 【Reference-4】
Article 8 - 12 Pretreatment of wastewater from business and industry	Installation of pretreatment facility, Restriction on wastewater discharge of specified factory Assignment of water quality management professional Notification of installation, suspension or removal of pretreatment facility 【Reference-2】 & 【Reference-5】
Article 13 Suspension or restriction of wastewater discharge	Right on suspension or restriction of wastewater discharge
Article 14 Notification of public sewer use	Application / notification of public sewer use, suspension, resume or abandonment

5

3: Basic Model of Regulation (Recommendation) (2/2)

Integrated by Standard Sewerage Ordinance of Municipal Gov., Sewerage Law and Jhokasou Law in Japan

Article	Right / Obligation
Article 15 - 17 Sewerage tariff	Right of tariff levy and collection, request on data submission 【Reference-2】 & 【Reference-6】
Sewerage Law Article 23 Sewerage Information Database	To create sewerage (asset) information data base To open data base if requested 【Reference-7】
Article 18 Order for improvement of pretreatment facility	Right / Order on facility improvement and operation practice of pretreatment facility
Article 19 - 26 Approval of activity and sewer occupation	Right on sewer facility occupation and user charge 【Reference-8】
Article 28 Responsibility of households and building owners who are not connected to separate sewer system	Responsibility for proper installation of on-site facilities, and proper operation and maintenance of them
Article 29 Responsibility for regular desludging of household septic tanks	Who is responsible for regular desludging of household despotic tanks? (residents?, PD PAL JAYA?, both of them?)
Article 30 Qualification and training of desludging operators	Who will approve them? What are the conditions for approval? Who will train them?
Article 31 Operation and Maintenance of Individual Treatment Plant (ITP) of commercial buildings and office buildings	Obligation of building owners to appoint ITP Technical Supervisor or ITP operator
Article 32 Qualification and training of ITP technical supervisors and ITP operators	Who will qualify the ITP Technical Supervisor or ITP operator? Who will train and examine the capacity of the Technical Supervisor or ITP operator?
Article 33 Inspection of ITP performance	BPLHD designate the inspection job to the designated inspection agency
Article 34 On-site Sludge treatment	Who is responsible for providing sludge treatment capacity? Who will pay the sludge treatment cost?

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4. Introduction of Textbook (1/2)

"Establishment of Legal Framework for the Sewerage System"

1. Aim of Textbook

- (1) Understanding sewerage development methodology and sewerage works management is essential in order to establish sewerage regulatory system.
- (2) Textbook tries to commentate briefly the relationship between legal background and sewerage development methodology as well as institutional design.
- (3) Institutional design appropriate to DKI Jakarta is elaborated through scrutinizing experiences of sewerage development methodology and sewerage works management. Best management practices in overseas and Indonesia are introduced for regional sewerage regulation which is appropriate to DKI Jakarta.
- (4) Institutional design is deemed in order to establish sewerage development methodology and sewerage works management appropriate to DKI Jakarta.
- (5) Individual Article as well as description in overseas are introduced.
- (6) Individual Article and description are difficult to be understood, accordingly References-1 through Reference-8 are provided as concept of Operation Procedure.

2. Content of Textbook

Part-1: Issue and Circumstances of Sewerage in DKI Jakarta

Part-2: Experience of Overseas

Part-3: Outline of Legal System / Sewerage Law in Japan

Part-4: Basic Model of Sewerage Ordinance / Local Government Law (Recommendation to Regional Sewerage Regulation of DKI Jakarta)

Part-5: Appendixes

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4. Introduction of Textbook (2/2)

"Establishment of Legal Framework for the Sewerage System"

3. Jobs versus Stipulation of Articles

- (1) Jobs of sewerage works are defined.
- (2) Institutional system is designed as legal background for executing individual job of sewerage works.
- (3) Reference-1 through Reference-8 help understanding individual institutional system.

4. Procedure of Drafting Regional Sewerage Regulation of DKI Jakarta

- (1) Jobs of sewerage works necessary to DKI Jakarta are carefully reviewed along with Basic Model of Regional Regulation.
- (2) Institutional system is designed as legal background for individual job.
- (3) Individual Article is selected for realizing individual institutional system.
- (4) Key words of individual Article is deemed for realizing individual institutional system as Legal Background.
- (5) Stipulation and/or description of individual Article are refined through referring relevant Articles of Appendixes of Textbook in order to realize individual institutional system as legal background.

5. Appendixes

1. Standard Sewerage Ordinance of Municipality Government in Japan
2. Sewerage Law in Japan
3. Structure of Sewerage Related Law in Overseas in 10 Countries and Regions
4. PI (Performance Indicator)
5. Governor Decree No. 41 of 2016 Master Plan

6. Governor Regulation on PIU No. 1658 Year 2016
7. Wastewater Discharge Standard--No.68/2016
8. The Greater Jakarta Governor Decree No. 1040/1997
9. Tariff of PD PAL Jaya 2016
10. Local Regulation of Sewerage Works, Denpasar-Bali

8

5. Roadmap of Enactment of Governor Decree (1/2)

For prioritized Decree

Step-wised approach

- Institutional design: What type of institutional system is appropriate to DKI?
- Selecting prioritized Article
 - Amendment of present Decree on Tariff
 - Notification of sewerage service
 - Obligation to sewerage connection
 - Certification and Registration on plumber and private business operator

	Preparation	Implementation
	<ul style="list-style-type: none"> Institutional design strategy on legal system development Selecting prioritized Article and drafting, Tariff legislation progresses separately Public hearing, Academic paper, Explanation to Diet / Committee Member on sewerage works institution Promulgation of prioritized Article Drafting 2nd prioritized Article and/or Integrating to comprehensive legal system on sewerage management 	<ul style="list-style-type: none"> Detail Design ES for ODA LA Agreement Construction start of Trunk sewer and WWTP Detail design of service pipe Consultation on house connection

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5. Roadmap of Enactment of Governor Decree (2/2)

For Decree which takes time

	Preparation	Implementation
	<ul style="list-style-type: none"> Budget provision for 2018 Research on Institutional / Financial system Alternative study on Tariff System Financial simulation on O&M cost and tariff revenue Drafting Amendment of Decree on Tariff Public hearing, Academic paper, Explanation to Diet / Committee Member on Financial and Tariff System Authorization by Diet of Decree Amendment Promulgation of Amended Decree Levy of Tariff 	<ul style="list-style-type: none"> Detail Design ES for ODA LA Agreement Construction start of Trunk sewer and WWTP Detail design of service pipe Consultation on house connection Construction of service pipe Construction of house connection Inauguration of Sewerage service

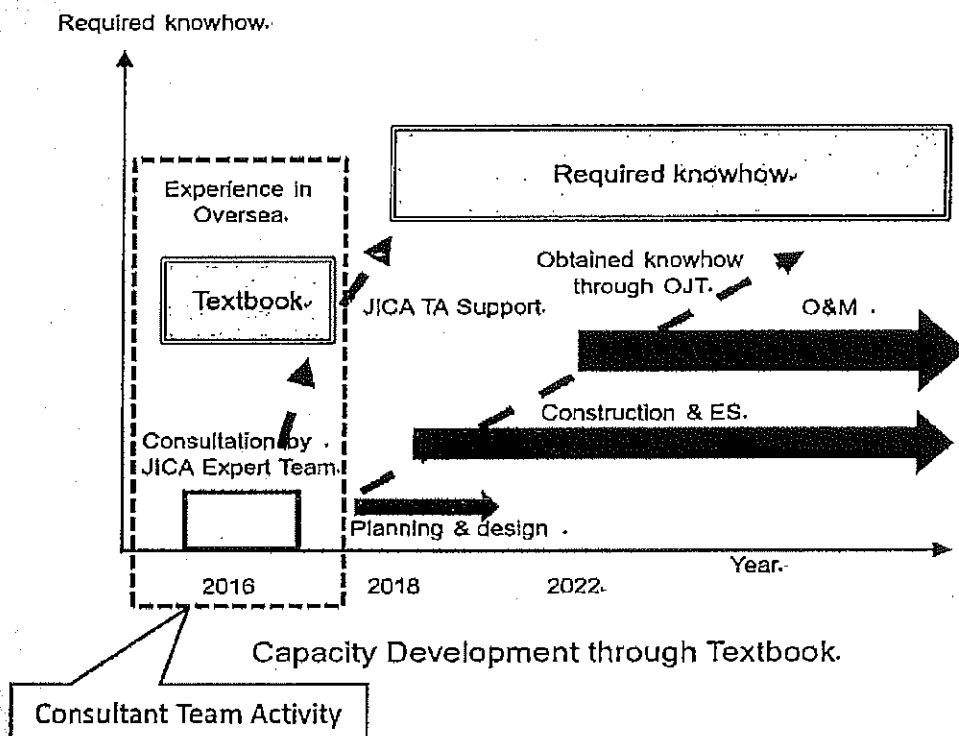
Assumptions

1. The construction works are 3 years

2. The construction works are 3 years

10

Capacity Building Upward through OJT

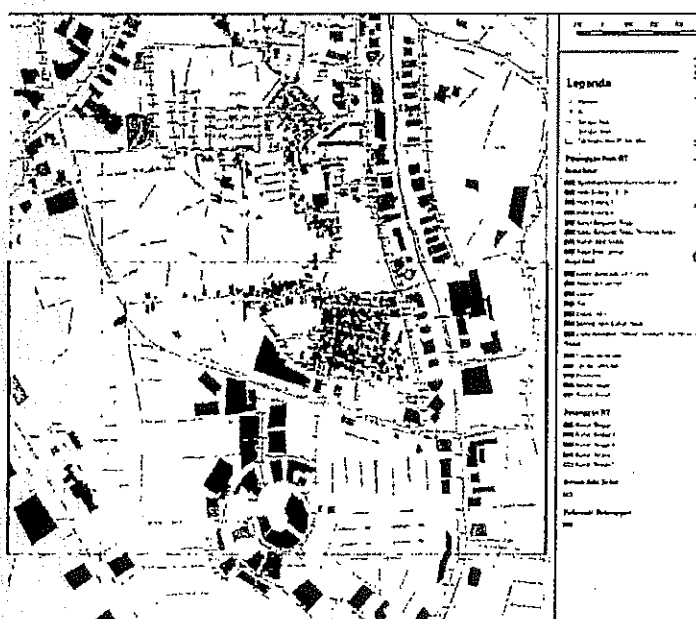


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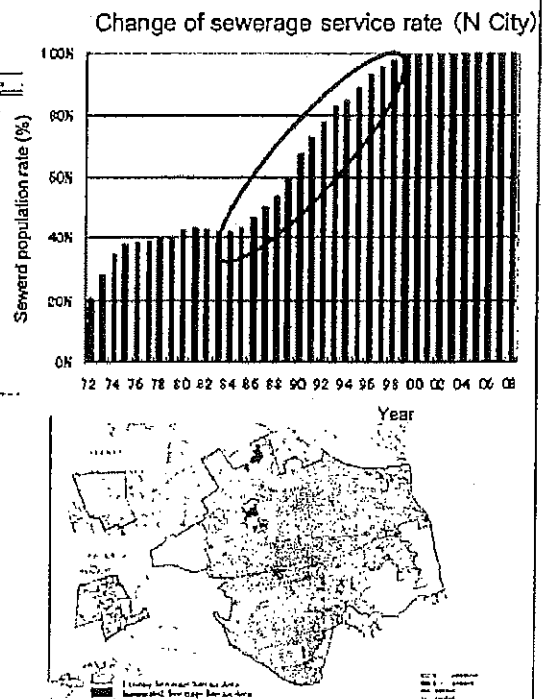
Feature of Article [Reference-1 in Textbook]

(1) Notification of Sewerage Service Area (1/2)

Why notify is required? Obligation of House connection / wastewater discharge



Blue color is planned, and the other colored are connected during 1991 - 2015.



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Feature of Article [Reference-1 in Textbook]

(1) Notification of Sewerage Service Area (2/2)

The Greater Jakarta Governor Decree
No. 1040 of 1993

Regarding
Standard Quality of Sewerage Wastewater in the Greater Jakarta

The Greater Jakarta Governor
CHAPTER III CONTROL

"Article 5" does not work well.
Solution is practical institutional design."

Article 5:
Each owners/inhabitant/responsibility bearers of the buildings as located within the service area of installed public wastewater pipeline canals shall dispose their wastewater into such public wastewater pipeline canals.

Article 6:
Each owners/inhabitant/responsibility bearers of the buildings as stipulated under Article 5 above shall construct parcel wastewater channeling structure and connect properly to the public wastewater pipeline canals under supervision of PD PAL Jaya and related Government Services.

Article 7:
Each owners/inhabitant/responsibility bearers of the buildings as stipulated under Articles 5 and 6 above and have been using the public wastewater pipeline canals shall observe the disposed wastewater quality to comply with the pipeline system wastewater quality standard in order to prevent from disturbances in the wastewater canals and other structures.

CHAPTER IV SUPERVISION AND MONITORING
Article 8:
(1) Supervision and Monitoring against the Quality Standard of the Public Pipeline System Wastewater shall be executed by PD PAL Jaya.
(2) In execution of the supervision as stipulated under point (1) above of this Article, PD PAL Jaya shall coordinate with the related government services and report its supervision results to the Greater Jakarta Governor.
(3) The supervision task as stipulated under point (1) above of this Article include inter alia:
a. monitoring and evaluation of quality standard of wastewater that enter into the pipeline system;
b. sampling and evaluation of data that relate to activities as stipulated under point a. above shall be executed by PD PAL Jaya.
(4) The supervision shall be conducted periodically and any time as required.
(5) If the results of the supervision and monitoring indicate quality standard deviation, the Government service in charge of guidance provision shall, on behalf of the Greater Jakarta Governor, request the owners/inhabitant/responsibility bearers of the buildings concerned to take needed measures and, if required, enforce penalties based on the pertaining provisions.
(6) Provisions on implementation procedure of the supervision and monitoring shall be established separately that include its implementation guidance and technical guidance.

Practical institutional design is carefully

Good Practice of Overseas
Law stipulates "shall install house sewer", "shall discharge wastewater to public sewer", etc.

Japan Sewerage Law

Article 9 Public Notice of Commencement of Sewerage Service

Municipal sewerage operator has to issue a public notice on the dates of commencement of new sewerage service, drainage/treatment area, and the others stipulated in the ordinance of sewerage while ensuring public access to the plans & sections in the offices of municipal governments.

Article 10 Mandatory Connection

10.1 Once sewerage service becomes available, land owners, tenants, or occupants shall install house or lateral sewers without delay by the following classification.

10.1.1 Where a land has a building, the building owner has the duty.

10.1.2 Where a land does not have a building, the land owner has the duty.

10.1.3 Where a land is public roads or used by other public authorities, the concerned authorities have the duty.

10.2 The repair & rehab of house or lateral sewers shall be made by those who shall install them. The cleaning and other maintenance work shall be conducted by the occupants of the land.

10.3 The installation work & structure of house or lateral sewers shall comply with Building Law & the Order of Sewerage Law.

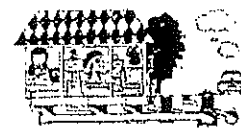
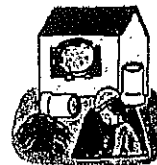
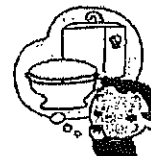
13

Feature of Article [Reference-3 in Textbook]

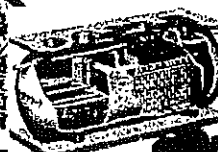
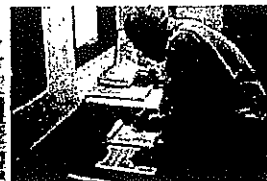
(2) Certification & Registration on Plumber / Private Business Operator

Aims of Certification & Registration

- To secure the good quality with acceptable price for house connection, building sewer construction, and installation and operation of on-site treatment plant.
- To promote wastewater treatment through installation of house connection and/or on-site treatment plant
- To secure the qualification of professional engineers
- To secure the capacity of business entity
- To enhance management capacity through examination and training
- Technical claim raised by sewerage user and first-aid can be out-sourced.



Sewer connection application -
Cost estimation - Construction
contract - Commissioning - Sewer use



On-site Treatment Plant
Installation - O&M - Desludging

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【Tariff and Finance in Textbook】

(1) Tariff Level

Tariff of PD PAL Jay, 2016

Tarif Jasa Pelayanan Penyediaan Air Limbah

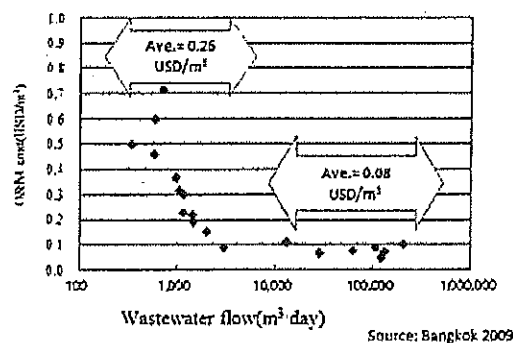
The Price of Wastewater Disposal Service

KOL KATEGORI PELANGGAN

KATEGORI PELANGGAN	TARIF (Rp.)
I. RUMAH TANGGA / Household	
1. Rumah Tangga Tipe A (Daya Listrik < 450 Watt)	131
2. Rumah Tangga Tipe B (Daya Listrik < 750 Watt)	184
3. Rumah Tangga Tipe C (Daya Listrik < 1.300 Watt)	256
4. Rumah Tangga Tipe D (Daya Listrik < 2.200 Watt)	349
II. NIAGA KECIL / Small Scale Commercial	
1. Toko / Shop	525
2. Kantor / Kantoran < 3 Lantai / Office up to 3 floors	525
3. Gedung Pertemuan / Assembly hall	525
4. Seta	525
5. Restoran Kecil Rumah Makan / Small restaurant	525
6. Lounge / Inn	525
7. Usaha Pendidikan / Pendidikan Swasta / Pendidikan Tinggi / School	525
8. Usaha Kecil Lainnya / (Tempat, Restoran, Rumah Sewa / Others)	525
III. NIAGA BESAR / Large Scale Commercial	
1. Kantor / Kantoran Tinggi / High rise building	578
2. Kantor / Kantoran Tinggi / (Tempat, Restoran, Patiseri) / High rise office with restaurant	614
3. Pusat Perbelanjaan / Mall / Super Market / Show Room / Shopping mall	614
4. Hotel / Hotel / Star II, III	614
5. Rumah Sewa / Rumah Sewa / Apartemen	614
6. Hotel / Hotel / IV star hotel	714
7. Apartemen / Kondominium	714
8. Tempat / Tempat / Restoran Besar / Later / Restaurant	840
9. Rumah Sewa / Rumah Sewa / Private Hospital	840
10. Hotel / Hotel / V star hotel	840
11. Usaha Besar Lainnya / Others	840
IV. SOSIAL / Social	
1. Tempat / Tempat / Religious	52
2. Sekolah / Sekolah / Public School	267
3. Puskesmas / Community health center	267
4. Instansi Pemerintah / Government Institution	315
5. Lembaga / Lembaga / Others	315
6. Rumah Sakit Pemerintah / Government Hospital	315
7. Klinik / Klinik / Private Clinic	315
8. Rumah Sakit Lainnya / Others	315
V. INDUSTRI / Industry	
1. Kecil / Small	548
2. Menengah / Medium	620
3. Besar / Large	728

O&M cost level, Bangkok-Thailand

O&M Unit Cost (USD m³) 2008, Bangkok



O&M cost vs. Tariff Level

O&M cost: $0.1-0.3 \text{ USD/m}^3 \times 15 \text{ m}^3/\text{month}/\text{HH}$
 $= 1.5 - 4.5 \text{ USD/month}/\text{HH}$
 Tariff: $131 \text{ IDR/m}^3 \times 70-100 \text{ m}^3 = 10,000 - 13,000 \text{ IDR}$
 $= 1 \text{ USD/month}/\text{HH}$
 Tariff revenue = "20 - 60%" of O&M cost

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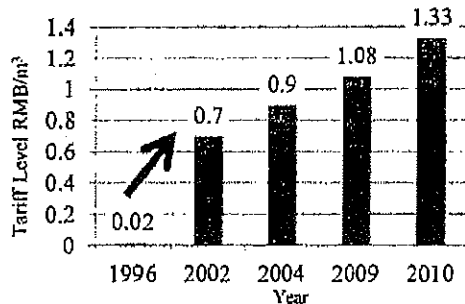
【Tariff and Finance in Textbook】

(2) Principles of Tariff

Principles of Tariff

- 1. Cross elasticity
- 2. Cross elasticity tariff "Manila Water introduced even when low rate of increased water"
- 3. Affordability & Poverty alleviation
- 4. Step-wise tariff setting

Domestic Wastewater Tariff Level Shanghai



NOTICE TO MANILA WATER CUSTOMERS AND THE PUBLIC NEW WATER RATES FOR THE EAST ZONE



Effective June 1, 2015, Manila Water Company, Inc. will implement a 24.7% adjustment of the regional 2014 Basic Charge (BASIC CHARGE) and the 2014 Volumetric Rate (VOLUMETRIC RATE) for the East Zone. The adjustment is based on the 2014 Basic Charge and the 2014 Volumetric Rate for the East Zone. The adjustment is based on the 2014 Basic Charge and the 2014 Volumetric Rate for the East Zone.

Manila Water Company, Inc. (MWC) is a public utility company that provides water supply services to the East Zone of Manila. The company is committed to providing high-quality water supply services to its customers. The company is committed to providing high-quality water supply services to its customers.

The new rates of water supply services for the East Zone are as follows:

WATER CHARGE	Old Rate	New Rate	Old Rate	New Rate
A. BASIC CHARGE				
RESIDENTIAL				
1. Single-Dwelling Unit				
2. Commercial/Industrial				
3. Government/Institutional				
4. Other				
B. VOLUMETRIC RATE				
1. Residential				
2. Commercial/Industrial				
3. Government/Institutional				
4. Other				

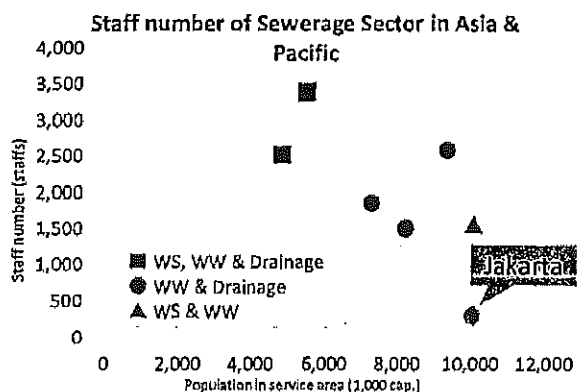
4 Groups and Progressive Rate
 Residential
 Semi-Residential
 Commercial
 Industrial

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【Staff Number, Part-2 in Textbook】

Staffing & Job description

- >What is end-point & intermittent target?
- >What jobs are provided?
- >Competitive professional can be recruited?
- >How many no. of professional field?
- >How to enhance personnel capacity?



Staffing and Service of Sewerage Sector in Asian & Australian Cities

City	Service Type	Population in Service Area (1,000 Cap.)	House Connection (1,000 HC)	Staff Number (Staffs)	Staff / 1,000 HC
Manila Water	WS & WW ▲	10,000	1,092	1,555	1.4
Singapore PUB	WS, WW, Drainage & WWR ■	5,399	1,424	3,382	2.4
Malaysia IWK	WW	21,000PE		3,236	n.a.
Ho Chi Minh UDC	WW & Drainage ●	8,146		1,500	
Hong Kong DSD	WW & Drainage ●	7,188	2,468	1,856	0.8
Sydney Water	WS, WW, Drainage & WWR ■	4,755	1,848	2,509	1.4
Tokyo Sewerage Bureau	WW, Drainage & WWR ●	9,257	5,384	2,579	0.5

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Thank You/Terima Kasih

資料 5 P0

活動		月順	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
		西暦年	2015										2016										2017										2018			
		年次	2015年度										2016年度										2017年度													
		月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月	2月	3月	
全体活動	JCCを開催する。																																			
成果1（ジャカルタ特別州における、下水道事業の業務分担が明確になる。）に関する活動																																				
1-1	JICA専門家が、DKIの協力により、ジャカルタ特別州における下水道関連事業の実施体制、実施状況を確認する。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
1-2	JICA専門家とDKIが、DKIの下水道事業に関し、DGHSとBAPPEDA、Dinas Tata Air等、PD PAL Jayaの担当業務を明確にする。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
1-3	DKI及びPD PAL Jayaが、専門家の助言を得ながら、自らの担当業務執行に必要な活動を具体的に規定する。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
1-4	JICA専門家、DKI、PD PAL Jayaが下水道事業の実施に係るそれぞれの機関の課題を抽出する。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
1-5	JICA専門家とDKIが、DKIの下水道事業に関し、DGHSとBAPPEDA、Dinas Tata Air等、PD PAL+D47 Jayaの担当業務を明確にする。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
1-6	下水道事業の実施組織、担当業務、権限等の実施体制をDKI内で組織決定する。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
成果2（下水道事業を計画するための職員の能力が強化される。）に関する活動																																				
2-1	JICAが下水道事業の実務担当者を育成するため、現地の課題、ニーズを調査し、基本的な知識を修得する研修計画を立案する。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
2-2	下水道に関する研修を行う。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
2-3	DKIの職員が、専門家の助言を得ながら、ジャカルタ特別州の中期下水道整備計画案を作成する。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		
2-4	DKIの職員が、専門家の助言を得ながら、ジャカルタ特別州の下水道事業の運営や実施に関する地方条例案や実施細則案を作成する。	計画（2014年11月）																																		
		修正計画（2017年3月）																																		
		実績（2017年5月）																																		

資料 6 現地研修計画書

インドネシア国
ジャカルタ特別州下水道整備にかかる計画策定能力向上プロジェクト

現地研修計画書

目 次

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4-1 研修全体概念図	2
4-2 研修対象者	3
4-3 講義ごとの達成目標	3
4-4 授業計画（シラバス）	4

1. 現地研修の概要

現地研修の概要について、以下に示す。

表 現地研修の概要

項目	研修内容・実施手法
研修目標	下水道事業の実施体制の構築を目的とし、DKI ジャカルタ及びPD PAL Jaya 等ら職員が、下水道整備に係る計画、設計、施工管理等について、技術面だけでなく、財務面等も含めた広範な基礎知識の習得を図ることができる。
研修対象者	BAPPEDA、Dinas Sumber Daya Air（旧 Dinas Tata Air）、PD PAL Jaya、DGHS の幹部職員およびエンジニア
研修科目	① 下水道概論（下水道の役割、日本の経験） ② 日本の下水道実施体制 ③ 地方自治体のケーススタディ ④ 下水道整備手法（事例紹介） ⑤ 行財政制度（日本・海外の事例紹介） ⑥ 維持管理計画・民間事業者の活用施策 ⑦ 下水道経営 ⑧ 広報・広聴 ⑨ 分散型污水管理の改善
研修回数（現地）	各科目複数回実施（詳細は「表 2-16 研修・セミナー実績の詳細」、 「添付資料 6 現地研修計画書」参照）
研修場所	BAPPEDA、Dinas Sumber Daya Air、PD PAL Jaya、DGHS 等の会議室
講師	コンサルタントチーム

2. 現地研修の目的

本技術プロジェクトのカウンターパートである各組織（DGHS、BAPPEDA、Dinas Sumber Daya Air、PD PAL Jaya）の職員への現地研修を通じて、下水道事業を計画するための職員の能力が強化される。

3. 到達目標（研修計画全体）

下水道事業の実施体制の構築を目的とし、DKI ジャカルタ 及び PD PAL Jaya 等ら職員が、下水道整備に係る計画、設計、施工管理等について、技術面だけでなく、財務面等も含めた広範な基礎知識の習得を図ることができる。

4. 研修内容

4-1 研修全体概念図

研修全体の概念図は次頁の通り。

4-2 研修対象者

DKI ジャカルタに関連する下水道関係者（BAPPENAS、BAPPEDA、Dinas Sumber Daya Air、PD PAL Jaya）と DGHS に所属する職員（幹部職員およびエンジニア）

研修目標

研修科目

研修内容

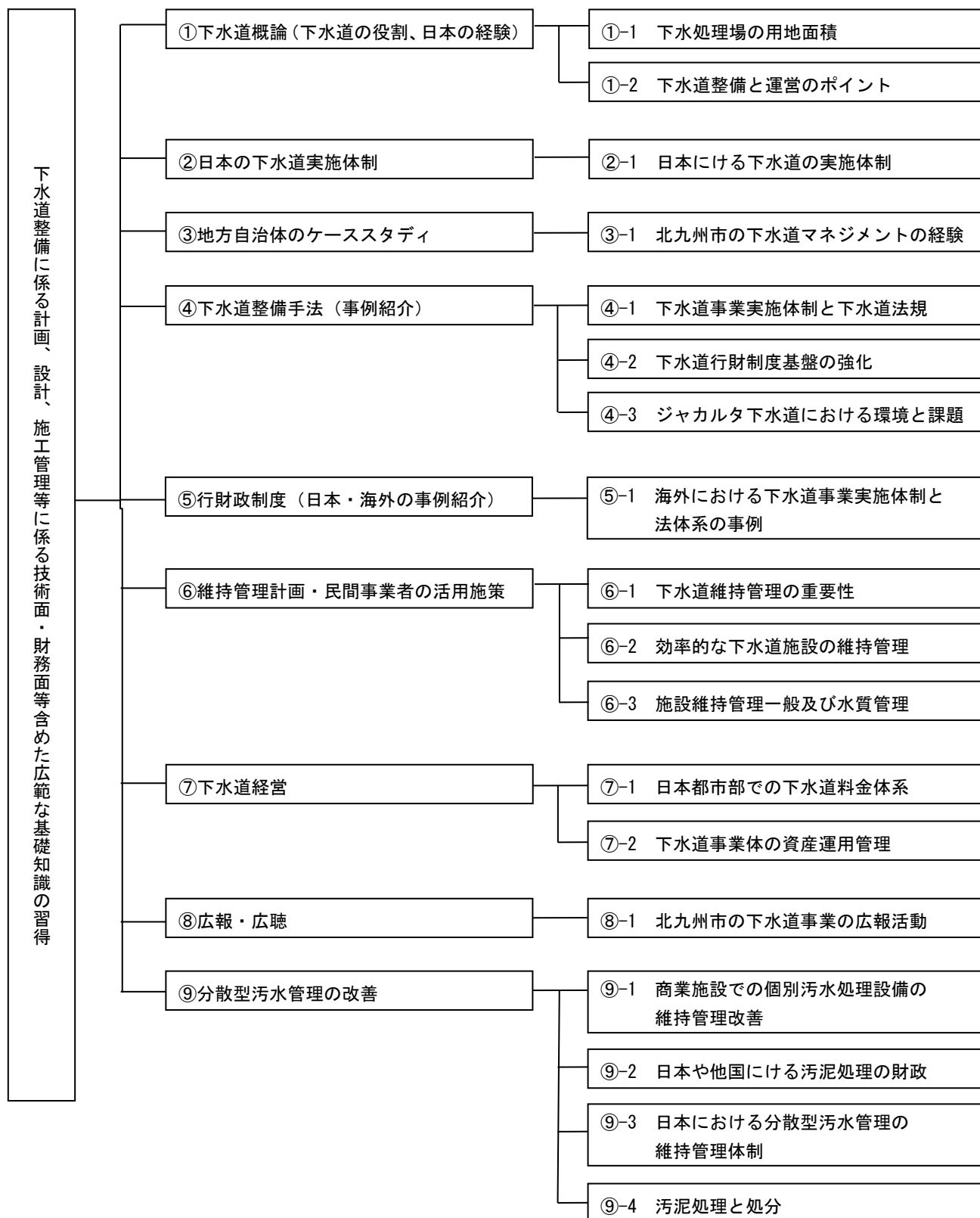


図 研修全体概念図

4-3 講義ごとの到達目標

前述の 3. 到達目標（研修計画全体）を達成するべく、今回実施する 8 つの講義に係るそれぞれの到達目標を以下に示す。

表 講義と到達目標

講義名	到達目標
講義 1：下水道概論（下水道の役割、日本の経験）	DKI ジャカルタの下水道関係者が、下水道の設置目的、その仕組み、事業の運営方法、DKI ジャカルタの下水道に求められる事項について理解を深め、DKI ジャカルタの下水道の建設、事業運営のポイントを理解する。
講義 2：日本の下水道実施体制	日本における経験を参考にして、DKI ジャカルタにおける下水道事業実施体制が構築される。
講義 3：地方自治体のケーススタディ	北九州市の下水道事業の経験を参考に DKI ジャカルタが地方自治体による下水道マネジメントを理解する。
講義 4：下水道整備手法（事例紹介）	DKI ジャカルタが下水道実施体制の整備方針を持つことが出来るようになる。
講義 5：行財政制度（日本・海外の事例紹介）	DKI ジャカルタが、ジャカルタに適する下水道行財政制度を提案できるようになる。
講義 6：維持管理計画・民間事業者の活用施策	下水関連部署の全ての人が維持管理の重要性を認識できるようにする。それにより、①予算担当部署は適切な予算確保が出来るようし、②設計・工事関連部署は維持管理を考慮した設計及び施設物を建設するようにし、③維持管理担当部署は効率的な維持管理が出来るようになる。
講義 7：下水道経営	DKI ジャカルタの下水道行政関係者が、下水道経営の基本原則を理解し下水道条例に反映させることができるようになる
講義 8：広報・広聴	下水道を整備することによる生活環境の改善がDKI ジャカルタ市民にもたらす社会的・経済的な便益について市民と行政が共有することで市民理解が深まり、下水道事業を効果的に推進することができるようになることについて理解を深める。
講義 9：分散型汚水管理の改善	DKI ジャカルタの関係部局や公社が、分散型汚水管理の改善のための諸制度（下水道条例を含む）を整備することが出来るようになる

4-4 授業計画（シラバス）

講義ごとの授業計画（シラバス）を次表に示す。

表 講義ごとの授業計画（シラバス）

研修講義 1：下水道概説

到達目標	DKI ジャカルタの下水道関係者が、下水道の設置目的、その仕組み、事業の運営方法、DKI ジャカルタの下水道に求められる事項について講義及びディスカッションを通じて、理解を深め、DKI ジャカルタの下水道の建設、事業運営のポイントを理解し、関係者自身が自分の考えを持つことを目指すこととする。また今後重要な課題となると考えられる処理場用地及び面積の決定、下水汚泥の広域処理に関しても講義、討議を通じて理解を深める。それにより、今後本格化する下水道事業をより合理的、効率的に実施できるようにする。				
概要	<p>本講義では、①下水道概説、②処理場用地及び面積、③汚泥の広域処理の3テーマについて講義を行う。</p> <p>①下水道概説では、下水道全般についての理解を深めるとともに、DKI ジャカルタに特徴的な課題を理解し、事業を進めるうえで特に留意する点を理解する、②処理場用地及び面積では、処理場用地の決め方、その必要面積の求め方を理解する、③汚泥の広域処理では、現在の処理区割りとその想定される処理場用地を考えるといずれも面積が狭小であると想定され、その課題解決の1手段がと想定汚泥の広域処理の概要とその課題についての講義を行うとともに、DKI ジャカルタへの適用に関するディスカッションを行う。</p>				
回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容（詳細）	講師
第1回	2016年8月	下水処理場の用地面積	処理場用地とその面積の決め方について論点を講義、討議する。	1. 計画汚水量 2. 処理場の必要面積 3. 処理場用地の選定	金井
第2回	2017年1月	下水道整備と運営のポイント	下水道の概要について講義するとともに、DKI ジャカルタの課題について討議を行う。	1. 下水道の歴史と目的の変遷 2. 管渠の計画 3. 処理場の計画 4. 維持管理 5. 財源 6. 事業運営	金井

研修講義 2：日本の下水道実施体制

到達目標	日本における経験を参考にして、DKI ジャカルタにおける下水道事業実施体制が構築される。				
概要	<p>本講義の目的は、インドネシア側の職員が、DKI ジャカルタにおいて下水道の実施体制、条例等の法的枠組みを自らが構築するための材料や事例を伝え、ディスカッションを通じてインドネシア側が組織や運営方法を構築することである。</p> <p>そのための講義内容として、①日本の下水道の歴史、②法制度（条例を含む）、③事業運営体制、④下水道財政（国の補助、下水道使用料など）、⑤技術基準、⑥人材育成などについて日本の事例を参考となるように紹介する。</p>				
回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容（詳細）	講師
第 1 回	2017 年 5 月	日本における下水道事業の実施体制	下水道事業のプロジェクトサイクル（計画、設計・建設、維持管理）における事業実施方法について解説	下水道事業のステップ（計画、設計、建設、維持管理）ごとの実施主体や関係団体、関係する基準などを説明し、下水道事業に関係する関係団体や法律条例、資金等の必要な要素について説明し、ディスカッションする。	河井

研修講義 3：地方自治体のケーススタディ

到達目標	北九州市の下水道事業の経験を参考に DKI ジャカルタにおける下水道マネジメントを理解する。				
概要	<p>日本では、下水道事業の実施主体は地方自治体が担っており、事業実施に必要な事業運営の方針決定や経営マネジメント、自治体条例の策定などは国の法律（下水道法や水質汚濁防止法など）に従い自治体が独自に行っている。</p> <p>さらに、円滑な下水道事業運営を図るため、自治体の業務は、下水道施設整備（管渠・ポンプ場・処理場など全ての施設）に係る計画策定から設計、施工、竣工検査、維持管理業務など、多岐に渡っている。</p> <p>そこで、本研修では、国と地方自治体との役割分担、地方自治体と住民との役割分担や自治体の組織体制づくり、経営の考え方、各種条例・基準づくりなど、自治体がつなぐノウハウの移転を図る。</p> <p>具体的な講義課目としては、①自治体の業務と組織体制、②自治体条例・基準の策定、③下水道事業の経営管理、④下水道の整備効果と経営改善の取組み、など講義を行う予定である。</p>				
回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容（詳細）	講師
第 1 回	2016 年 10 月	北九州市の下水道マネジメントの経験	国と地方自治体、地方自治体と住民との役割分担、自治体の組織体制づくり、経営の考え方、各種条例・基準づくりなど、自治体がつなぐノウハウの修得	1. 下水道概要 2. 下水道の進捗 3. 紫川の水質改善と都市開発 4. 市民啓発イベント 5. 下水道事業体制 6. 北九州市の下水道の歩み（ビデオ）	中村

研修講義 4：下水道整備手法（事例紹介）

到達目標	DKI Jakarta が下水道実施体制の整備方針を持つことが出来るようになる。																									
概要	<p>下水道整備は、中長期の整備目標を実行可能とするための行財政制度との組み合わせが重要である と考える。まずは、中長期目標を前提とし、整備方式の違いによる得失を、カウンターパートが理 解することが重要である。実施可能な整備計画であるのか、検証し、中長期目標にフィードバック する。</p> <p>また、行政の財 政支出を抑え るために、民間 都市開発プロ ジェクトと連 携し、公共事業 の一部を肩代 わりさせるな ど、下水道の接 続義務や建築 確認申請等の 法制度と連携する運用が有効である。都市開発プロジェクトの事業地内では分流式下水道を整備 し、公共下水道が整備された時点で、我が国は公共へ移管する方式を採用している。ジャカルタに おいても、財政負担能力の高い富裕層（高層ビル等の大規模再開発プロジェクト）を公共下水道へ 取り組むことは、下水道経営の観点からも重要な手法である。</p> <p>ハウスコネクションが整備されるまでの長期間において、下水道処理区域においてもセプティック タンクが存知されるので、公共下水道によるセプティックタンク汚泥処理は、日本の多数の都市、 マニラ、バンドン、マレーシア等で実施されている。</p> <p>日本が経験してきた様々な下水道整備手法を使い分けることで、ジャカルタの社会的・経済的条件 に適した下水道整備手法が考案できる。</p>																									
	<div>表 整備方式の違いによる整備効果の得失</div> <table><tr><th></th><th>分流式下水道</th><th>インターセプター方式下水道</th></tr><tr><td>下水道のサービス水準</td><td>高い</td><td>水環境・衛生環境改善に特化する</td></tr><tr><td>下水道整備の速度</td><td>遅い</td><td>段階的に整備水準を引き上げる</td></tr><tr><td>交通への影響</td><td>極めて深刻</td><td>比較的容易</td></tr><tr><td>事業費の配分</td><td>幹線管路（公費）～ハウスコネクション（私費）まで、均衡ある投資が必要</td><td>根幹的施設に重点投資</td></tr><tr><td>下水道の役割の発現効果</td><td>遅い</td><td>早い</td></tr><tr><td>下水道料金の賦課</td><td>接続時の契約事項で、容易</td><td>処理区域の告示・接続義務等の法的裏付けを要する。</td></tr></table>						分流式下水道	インターセプター方式下水道	下水道のサービス水準	高い	水環境・衛生環境改善に特化する	下水道整備の速度	遅い	段階的に整備水準を引き上げる	交通への影響	極めて深刻	比較的容易	事業費の配分	幹線管路（公費）～ハウスコネクション（私費）まで、均衡ある投資が必要	根幹的施設に重点投資	下水道の役割の発現効果	遅い	早い	下水道料金の賦課	接続時の契約事項で、容易	処理区域の告示・接続義務等の法的裏付けを要する。
	分流式下水道	インターセプター方式下水道																								
下水道のサービス水準	高い	水環境・衛生環境改善に特化する																								
下水道整備の速度	遅い	段階的に整備水準を引き上げる																								
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回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容（詳細）	講師																					
第1回	2016年4月	下水道事業 実施体制と 下水道法規	下水道の整備方 策、下水道法の 体系	下水道経営の観点からの下水道整備 方策を、日本、海外の事例を知る。 下水道法の体系を知ることにより、下 水道に求められる業務の全容を修得 する。	井上																					
第2回	2016年10月	下水道行財 制度基盤の 強化	海外の下水道事 業者の整備手法 および実施体制	日本を含む海外の下水道事業者の業 務、組織、規模、整備手法を研究する。	井上																					
第3回	2017年1月	ジャカルタ 下水道にお ける事業環 境と課題	ジャカルタに適 する下水道実施 体制	ジャカルタの下水道整備計画を踏ま えた下水道実施体制の段階的な整備 方策を研究する。	井上																					

研修講義 5：行財政制度（日本・海外の事例紹介）

到達目標	DKI Jakarta が、ジャカルタに適する下水道行財政制度を提案できるようになる。				
概要	<p>講義 4 に記述する下水道整備手法と行財政制度の観点から、下水道条例や要綱類等について、事例を紹介する。</p> <p>下水道条例は、下水道の整備・管理責任を明確にすること、良質の下水道を整備するための下水道の構造・技術者の資格・土地の使用・排水設備の設置届け、開発指導要綱、下水道を良好な状態に維持するための事業場排水指導、財政的裏付けとなる下水道への接続義務・供用開始区域の告示・下水道料金の賦課・下水道使用料体系で構成される。標準的な条例とその運用について例示し、ジャカルタに適した行財政制度を構築するための研修とする。カウンターパートの理解を促すためには、単に、事例を紹介するのみならず、歴史的な経緯を示すことで、各条項の必要性を解説することが重要であると考え。</p>				
回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容（詳細）	講師
第 1 回	2016 年 11 月	海外における下水道事業実施体制と法体系の事例	各国の事例紹介を通じ、下水道整備手法と行財政制度の観点から、下水道条例や要綱類等の習得	<p>各国における下水道整備方針、下水道法の体系を紹介し、下水道整備手法と行財政制度の観点から、下水道条例や要綱類等について学ぶ。</p> <ul style="list-style-type: none"> ・インターセプター方式下水道の事例と特長を理解し、都市開発プロジェクトと連携した分流化の方策の修得。 ・下水道におけるセプティックタンク汚泥処理の成功事例の修得。 ・下水道の接続義務・排水設備の設置届け等の指導に関する実務の修得。 ・下水道統計資料・PI 指標を活用する経営改善の方策の修得 	井上

研修講義 6：維持管理計画・民間事業者の活用施策

到達目標	下水関連部署の全ての人が維持管理の重要性を認識できるようにする。それにより、①予算担当部署は適切な予算確保が出来るようし、②設計・工事関連部署は維持管理を考慮した設計及び施設物を建設するようし、③維持管理担当部署は効率的な維持管理が出来るようにする。				
概要	<p>本講義では、①施設維持管理の重要性、②施設維持管理一般、③水質管理及び施設メンテナンス、④効率的な維持管理方法といった維持管理全般をテーマとした研修を行う。</p> <p>各研修では、まず下水道施設の維持管理一般的概念・概要に関する講義を行う。次に、DKI ジャカルタの下水道事業の現状を踏まえて、現存施設及び今後整備される施設の維持管理について議論を行い、DKI ジャカルタ政府が①効率的な維持管理技術の確保、②有能な維持管理技術要員の確保、③効率的な維持管理政策の確保を行う上で必要となる能力の強化を図る。現地研修では講師による一方的な講義だけではなく、講師と研修員が討論を行うことにより、DKI ジャカルタにおける問題点を明確に認識し、解決策を導き出す手法を学ぶこととする。</p>				
回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容 (詳細)	講師
第 1 回	2016 年 4 月	下水道施設 維持管理	日本の下水処理 施設の維持管理 費用等を例示 し、維持管理の 重要性を認識さ せる。	維持管理の重要性について 1. 維持管理費用 2. 財源問題 3. 省エネルギー施設設計・建設の重 要性等を中心に説明、討議を行なう。	金
第 2 回	2016 年 11 月	効率的な下 水道施設の 維持管理	日本の例などを 挙げて、効率的 な維持管理の必 要性を説明	効率的な維持管理について 1. 施設設計 2. 建設 3. 維持管理の面から 説明、討議を行なう。	金
第 3 回	2017 年 1 月－ 2 月	同上	同上	同上 (第 2 回のフォローアップ)	金
第 4 回	2017 年 2 月	施設維持管 理一般及び 水質管理	日本の例などを 挙げて、施設維 持管理の一般及 び水質管理につ いて説明	施設維持管理手法及び水質管理の一 般的な方法の説明、討議を行なう。	金

研修講義 7：下水道経営

到達目標	DKI の下水道行政関係者が、下水道経営の基本原則を理解し下水道条例に反映させることができるようになる				
概要	<p>DKI の下水道の実施体制は、日本の多くの都市におけるような下水道行政と実施を同一の機関（下水道局又は下水道公社）が一元的に担う体制とはなっておらず、下水道行政・計画・施設整備は DKI ジャカルタ Dinas Sumber Daya Air が担い、料金徴収も含めた下水道施設の運転維持管理を別会社の PD PAL Jaya が担当する、という体制になっている。</p> <p>このような状況を踏まえ、下水道経営に関する講義には、DKI ジャカルタ Dinas Sumber Daya Air と PD PAL Jaya が一体となって、DKI の下水道事業を円滑に経営出来る能力を身に付けることを目指すべく、①運営指標に基づく下水道事業経営、②日本の自治体の下水道予算と下水道会計の仕組み、特に、自治体の一般会計から下水道会計への「繰り入れ」の仕組みの説明、③日本の下水道料金の仕組みについての説明、④アセットマネジメント、⑤他の開発途上国の下水道料金制度の紹介、を含むものとする。</p>				
回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容（詳細）	講師
第 1 回	2016 年 10 月	日本都市部での下水道料金体系	日本の下水道事業経営の基本原則が下水道条例にどのように反映しているか、を説明する。	日本の下水道事業経営の基本原則が下水道条例にどのように反映しているか、を説明する。	橋本
第 2 回	2017 年 1 月	下水道事業体の資産運用管理	日本の地方自治体の下水道事業会計、運営指標に基づく下水道事業経営、アセットマネジメント、について説明する。	① 日本の地方自治体の下水道事業会計 ② 運営指標に基づく下水道事業経営 ③ アセットマネジメント	橋本

講義 8：広報・広聴

到達目標	下水道を整備することによる生活環境の改善がジャカルタ市民にもたらす社会的・経済的な便益について市民と行政が共有することで市民理解が深まり、下水道事業を効果的に推進することができるようになる。				
概要	<p>下水道事業を発展・持続的に進めていくためには、下水道の利用者である住民に対して、下水道の必要性や下水道事業の理解を深める事が必要となる。一方、サービスを提供する地方自治体においても、住民意見・ニーズ把握が必要である。そこでは、住民と自治体間における良好な関係を構築するための緊密なコミュニケーションづくりは事業推進に必要不可欠であるため、広報・広聴活動は、重要な取り組みとなる。</p> <p>広報・広聴活動の具体的な活動として、北九州市では、下水道整備による水環境改善の事例を伝えることのほか、施設計画や工事着手前の段階における住民説明会の開催、施設供用開始後の利用マナー向上に向けた啓発、料金徴収における住民理解の促進、下水道の正しい理解と知識の定着を図るため、幼少期からの環境教育にも注力し、上下水道の仕組みを分かりやすく解説した冊子の作成、さらに、市民モニター制度の創設、施設見学会や市民参加型イベントの開催等、住民と行政との双方向のコミュニケーションを図る活動を実施している。</p> <p>これら長年にわたり実施してきた広報・公聴活動に関する経験を踏まえ、DKI の実情に合致した活動提案を含む効果的な技術移転を進めていく。</p>				
回数	時期	授業内容 (タイトル)	授業内容 (概要)	授業内容（詳細）	講師
第 1 回	2017 年 2 月	北九州市の 下水道事業 の広報活動	北九州市の下水 道事業の広報活 動	1. 下水道広報 2. 下水道広報の変遷 3. 「下水道の普及」に向けた広報活動 4. 「下水道の理解」に向けた広報活動 5. その他	中村

講義 9：分散型污水管理の改善

到達目標	DKI の関係部局や公社が、分散型污水管理の改善のための諸制度（下水道条例を含む）を整備することが出来るようになる				
概要	<p>ジャカルタ污水管理マスタープラン（2012 年）では、ジャカルタの污水管理は下水道整備を主な手段として行うこと、ただし、下水道整備には長時間を要することから、下水道が整備されるまでの間、分散型污水管理システム（家庭のセプティックタンク及び商業ビルの個別污水处理プラント（ITP））の維持管理を改善することにより、総合的に污水管理を改善することを提案している。具体的には、現状、ジャカルタのセプティックタンクや ITP の汚泥管理が適切に行われていないことにより、水域汚染や地下水汚染を引き起こしていることから、汚泥管理の改善のため、定期汚泥引き抜き制度の導入と汚泥処理能力の強化、それを実現するための諸制度の改善を提案している。又、既存の家庭用セプティックタンクの大部分がブラックウォーターのみを処理し、グレーウォーターを処理しないタイプ（Conventional Septic Tank（CST））であるため、グレーウォーターが未処理のまま放流され水域汚染の原因となっていることから、ブラックウォーターとグレーウォーターの双方を処理するタイプ（Modified Septic Tank（MST））への転換を促すことも提案している。</p> <p>同マスタープランの分散型污水管理システムの改善提案を実現するために、必要な助言を行う。分散型污水管理システムの改善には、DKI だけでも、BAPPEDA, Dinas Tata Air, BPLHD, PD PAL Jaya など多数の機関が関係し、又、改善項目によっては、Cipta Karya など中央政府機関も関係することから、先ず、分散型污水管理において必要な項目を列挙して説明し、日本では各項目について誰が何をしているか、を説明し、それを踏まえて、ジャカルタにおいて改善するためには何が必要か、を議論し、それを条例化するための実習を行う。</p>				
回数	時期	授業内容 （タイトル）	授業内容 （概要）	授業内容（詳細）	講師
第 1 回	2016 年 10 月	商業施設での個別污水处理設備の維持管理改善	商業施設の個別污水处理設備に類似する中・大型浄化槽の維持管理に係る日本の規制制度を紹介。	① JICA N/P 等におけるジャカルタの商業施設の個別污水处理設備の維持管理改善策をレビュー。 ② 日本の浄化槽法及び関連省令における中・大型浄化槽の維持管理に関する規制内容を説明。	橋本
第 2 回	2017 年 1 月	日本や他国における汚泥処理の財政	オンサイト汚泥管理の財政制度の事例として、日本、マニラ市、ハイフォン市、マレーシアの制度を説明。	① 定期汚泥引き抜きの環境改善効果に関する研究事例を紹介。 ② 日本のオンサイト汚泥管理に関する財政の仕組みを説明。 ③ マニラ市、ハイフォン市、マレーシアにおけるオンサイト汚泥管理の財政制度を比較し説明。	橋本
第 3 回	2016 年 11 月	日本における分散型下水処理施設の維持管理	オンサイト污水处理設備の具体的な維持管理手法を概説。	① 日本の家庭用浄化槽の具体的な維持管理項目を説明。 ② ジャカルタの商業施設の個別污水处理設備は日本の中・大型浄化槽	雲川

		体制		に類似することを指摘し、日本の中・大型浄化槽の具体的な維持管理項目を説明。	
第4回	2017年2月	同上	同上	同上	橋本
第5回	2016年11月	汚泥処理と処分	オンサイト汚水処理施設の維持管理の要諦である汚泥管理のポイントにつき概説。	① オンサイト汚泥の発生量の予測方法の説明。 ② 汚泥引き抜き・運搬・汚泥処理・処分/再利用の各段階における汚泥管理のポイントにつき、説明。 ③ オンサイト汚泥の処理技術について説明。	森田
第6回	2017年2月	同上	同上	同上	橋本

資料 7 本邦研修概要と評価会要旨

資料 7-1 評価会要旨（第 1 回本邦研修）

資料 7-2 評価会要旨（第 2 回本邦研修）

資料 7-1 評価会要旨（第 1 回本邦研修）

コース名	インドネシア下水道事業経営
日時・場所	平成 28 年 2 月 26 日 (14 : 00～15:00) JICA 九州 第一会議室
出席者	神野右文 北九州市上下水道局海外・広域事業部海外事業担当課長
	黒田誠 北九州市上下水道局海外・広域事業部海外事業担当係長
(○印は司会者)	松本実 北九州市上下水道局 (本プロジェクトチーフアドバイザー)
	大橋隆史 日本テクノ株式会社
	河井竹彦 一般財団法人下水道事業支援センター
	横内宣明 JICA 地球環境部 環境管理グループ (*TV 会議にて参加)
	○多久和さやか JICA 九州 研修業務課
	研修員 6 名、研修監理員 1 名
<p>(敬称省略)</p> <p>冒頭、司会者より評価会の趣旨が伝えられた。案件目標を確認した後、研修員に対して以下の項目について発言を求めた。発言に際して各研修員より日本側に対する感謝が寄せられた。</p> <p>●案件目標の達成度について</p> <p>Agus : 下水道は初めて担当する分野。研修の講義・視察とも有益であった。ジャカルタ (以下、「DKI」) の下水道整備ではさまざまな問題に直面すると思うが、日本チームと一緒に解決していきたい。</p> <p>Arie : 新たな知見を得ることができた。DKI の下水道整備の大きな課題は、用地の確保と組織体制である。組織体制のあり方については本研修が多いに参考になった。できる限り視察を増やして欲しい。</p> <p>Yudi : 多くの知見を得た。自国での下水道整備を迅速に進めるために、条例を含む法令の整備と予算の確保が必要。公債の発行には議会や市民の理解を得る必要がある。この 2 点についてもっと知りたい。</p> <p>Erwin : 日本が関わっている DKI の処理区 (ゾーン) 1 と 6 については、どの処理方法を採用するか、早急に決める必要がある。研修ではさまざまな処理方法について学んだ。下水道整備には関係機関の連携が必要。研修で得た知見を活かしていくつもりだ。</p> <p>●有益だった研修項目について</p> <p>Arie : 視察。特に下水処理場の視察。</p> <p>Cipta : 計画、財政、アセットマネジメント、人材育成。計画が良ければ良い成果が得られると思う。</p> <p>Erwin : DKI は起伏に乏しい地形のため、自然流下が期待できない。オンサイト処理も必要。</p> <p>Agus : 下水道は収益を生み出せる「事業」で、経営の視点が必要だということ。</p> <p>Rizky : 下水道事業の普及には、行政、市民、民間の協力が欠かせない。</p> <p>Yudi : 市民や子供向けの広報施設の視察。展示物や体験を通じて環境保全や下水道の役割に関する認識を高めることができる。DKI でも簡易な展示会を催して、市民への啓発を行いたい。また、下水道の整備や維持管理の財源に関する項目も大変参考になった。</p> <p>●本邦研修に対する要望</p> <p>Arie & Cipta : 事例研究を取り入れた演習を研修の後半で行う。</p> <p>Agus : 期間を 1 ヶ月にし、研修内容を増やす。またすべての関係部署が研修に参加できるようにする。</p> <p>Arie : 議会や市民の理解を高めるために、指導的な立場の人を研修に参加させるようにしてほしい。</p> <p>●プロジェクトに関連して日本側へ期待すること</p> <p>Arie : 下水道事業に対する利害関係者 (特に議会) の理解を得るための日本の経験を共有してほしい。</p>	

Erwin : DKI と北九州市が下水道分野で特別な協力体制を築けないか。

●日本側のコメント

神野 : 北九州市は DKI 下水道公社に対しては、これまで研修員の受入れや長期専門家の派遣などにおいて協力をしている。行政・市民・民間の協力が不可欠であるが、その中でも行政が中心になるべき。市民に対してわかり易く伝える工夫が必要。今後も JICA を通じて DKI と協力していく。下水道の普及については 20 年～30 年という長いスパンで見る必要がある。インドネシア側と意見交換をしながら進めていきたい。

横内 : プロジェクトの成功のために有意義な研修になったと思う。研修で得た知見を多くの関係者に広げていってほしい。下水道事業の普及には、良い計画だけではなく、継続性が必要。組織体制も常にあるべき姿を自律的に検討することが求められる。そのためには人材の育成が必要である。事例研究による演習は、日本のコンサルタント・チームが DKI を訪問する際に一緒に検討すると思う。日本とインドネシアが一緒に力を合わせていくことによってプロジェクトの成功につながると思う。

最後に司会者が研修員の協力を感謝を述べて、評価会を終了した。

資料 7-2 評価会要旨（第 2 回本邦研修）

コース名	インドネシア下水道事業経営
日時・場所	平成 28 年 9 月 2 日 (14 : 00～15:00) JICA 東京 302 会議室
出席者	大橋 隆史 日本テクノ株式会社
	河井 竹彦 一般財団法人下水道事業支援センター
(○印は司会者)	○柏村 正允 JICA 地球環境部 環境管理グループ
	角田 聡子 JICA 東京 経済基盤開発・環境課
	研修員 9 名、研修監理員 1 名
<p>(敬称省略)</p> <p>冒頭、司会者より評価会の趣旨が伝えられた。案件目標を確認した後、研修員に対して以下の項目について発言を求めた。発言に際して各研修員より日本側に対する感謝が寄せられた。</p> <p>●本邦研修に対する感想</p> <p>E r l y : 研修内容について、理論と実践のバランスがとれており、非常に素晴らしかった。下水処理場、再生水、汚泥処理を始めとして、全てよい学びであった。</p> <p>また、研修員が、皆所属先が異なっていた点もよかった。下水道に係るあらゆる関係者皆で同じビジョンを持てて、共通できたため。これを機に下水道事業の推進役になりたいと思う。</p> <p>R u d y : 今回、本当にたくさんのことを学べた。最新技術も学べたが、我々は学んでいる最中であり、実際に利用するのはまだ先になると思う。</p> <p>北九州は 40 年かけて開発しており、このように熟した計画を立てることと継続性が重要であることを学んだ。</p> <p>A r i m b i : 国交省の訪問から始まり、最後の環境ミュージアム見学まで、下水道処理について広く学べた。研修は、講義だけでなく、現場視察があったり、また内容についても予算、計画整備等があったりと下水道事業に関して包括的に学ぶことができた。</p> <p>E k o : 今回、国と地方の役割、法整備の必要性を学んだ。インドネシアの下水道の状況はまだ十分ではないため、さらなる技術的な話ができるようにならないといけない。</p> <p>受益者負担についても、ソーシャリゼーションを通じて、日本の一軒一軒顔を見て伝えていくアプローチを取り入れられたらと思う。</p> <p>D w i : 下水道整備に対し、国と地方と民間が同じ理解で、同じ法令の下で行われていることが日本のいいところであり、インドネシアでは三者がそれぞれ法令を持っている状況である。</p> <p>国が進めようとしても、民間が違うことをすることもあるので、日本のようになってほしいと思う。</p>	

F a j r i : 下水道処理のことについて知識を得ることができた。ジャカルタで下水処理を行っている場所もあるが、日本のようにレベルは高くないため、帰国したら東京や北九州で見た物を取り入れられるよう努力したい。

個人的には、管渠に興味があり学ばないといけないと思っていたので、今後管渠の整備について学ぶ機会があれば、是非学びたい。

H a r r y : 本研修を通じて多くの知見を得ることができた。日本の自治体、民間、利用者のコミットメントの高さはジャカルタでは見られない。

特に興味を持ったのはオンサイト処理、浄化槽である。ジャカルタは20年にわたりオフサイト処理であり汚染が広がっている、そのためもっとオンサイト処理に関心をもつべきだと思う。

Rachmadi : 下水道の整備、処理技術、浸水対策、様々な処理技術を学ぶことができた。日本ではたくさんのミュージアム見学もあり、非常に勉強になった。

インドネシアでも、日本にあるようなミュージアムを作れば、人々の理解促進につながるのではないかと思う。

●日本側のコメント

柏 村 : 日本の高い技術についてコメントがあったが、こと下水に関しては、もちろん日本で開発した高度な技術もあるけど、基本的に他国のそれと変わらない、ただし、それ以上に、きれいに整備されているという点が挙げられる。

整備後、運転・維持管理はマニュアルに基づいて行われており、汚泥処理等、きちんとやれていることが日本のいいところであって、よく見えるところでもある。

施設ができることも必要ではあるが、きちんと運転されて、維持管理されて、ずっと続いて使われていることが重要で合り、日本人はそこを重要視している。

今回の研修も含めて、今後 JICA の協力は続くが、その中で施設を作ることも重要と思っているが、ぜひ作った後の運転、維持管理についても重要視してほしい。

研修の目的の1つとして、日本を好きになってもらうということがあり、この研修を通じて、日本を好きになってもらえたら嬉しい。

河 井 : 水をきれいにする原理は100年前にできた活性汚泥を使っている。先代が、設計して、たくさん失敗して今に至ることを理解してほしい。

また、維持管理にお金のかからない方法を考えて欲しい。

最後に司会者が研修員の協力を感謝を述べて、評価会を終了した。

**資料 8 中期下水道整備計画案
策定支援テキスト**

BAPPEDA DKI JAKARTA

Reference of RPJMD (2018-2022)

Sewerage Development and Wastewater Management

Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta

May 2017

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Chapter-1 Introduction

1.1 Background

The DKI Jakarta formulates a Medium Term Development Plan (RPJMD) every five years in each sector and implements the programmes and projects with the allocation of human and financial resources. RPJMD covers 14 sectors of education, health, public infrastructure, housing, spatial plan, transportation, environment, welfare, labor, support for SME, investment, administration, communication information, and trade. Sewerage development and wastewater management are one section of public infrastructure sector.

Public infrastructure includes roads, bridges, airports, ports, special economic zones, flood control and drainage, drinking water and water resource, wastewater management, groundwater development, settlements and energy.

The sewerage and wastewater management plan in the current RPJMD (2013-2017) has been formulated in line with the Revised M/P in 2012 supported by Japan International Cooperation Agency (JICA). Major projects in RPJMD (2013-2017) were limited to the implementation of sewerage systems of Zone-1 and 6, implementation of individual treatment plants (ITPs) at commercial and public facilities, construction of community wastewater system or SANIMAS, and septic sludge removal and sludge treatment.

Meanwhile, the National Capital Integrated Coastal Development (NCICD) for improvement of water environment in Jakarta was formulated in 2014 and approved by the related ministries and agencies. NCICD plans to close the Jakarta Bay with Giant Wall to prevent ground subsidence and flooding, construct a rainwater adjustment reservoir, and improve transportation network, urban area, and water resources development. Under NCICD, the accelerated sewerage development and appropriate wastewater management is indicated one of most important issues.

DKI Jakarta integrated the updated JICA Master Plan (2012) and the National Capital Integrated Coastal Development (NCICD) and formulated the Acceleration Plan (2014) with PD PAL Jaya. The Acceleration Plan targets the coverage of wastewater treatment at 75% by 2022 the year of closure of the western Jakarta Bay. The wastewater treatment includes the centralized sewerage system, communal system and onsite sanitation. Reflecting the Acceleration Plan, the Governor Regulation No. 42/2016 were enforced in 2016, which targets the coverage of “off-site” (centralized sewerage and communal system) at 65% and that of “on-site” sanitation at 35%.

Based on such a change in the national and regional plan, the midterm sewerage development plan for the next five years (2018-2022) is under formulation by mainly the Urban Infrastructure Facilities and Environment Division, Regional Development Agency (BAPPEDA) and the Raw Water and Wastewater Division, Water Resource Agency (DSDA, former Dinas Tata Air) in DKI Jakarta.

1.2 Purpose of Reference of RPJMD (2018-2022) Sewerage Section

Medium Term Development Plan (RPJMD) of Jakarta DKI Year 2018-2022 is a regional development planning documents for a period of five years, which is a translation of the vision, mission and programmes of the governor, which would serve as guidelines and directives together for all stakeholders in governance and development areas in Jakarta period 2018-2022 synergistic, integrated and in line with national development over the next five years.

This document is prepared as a reference for the wastewater sector of DKI Jakarta including the sewerage development and wastewater management. Also this document provides guidance for formulation of the Midterm Sewerage Development Plan (MSDP) prepared by the wastewater sector of DKI Jakarta.

1.3 Planning process

The preparation of the RPJMD sewerage section or Midterm Sewerage Development Plan (MSDP) involved a number of steps which are summarized below:

Step 1: Review of Current RPJMD (2013-2017) and Master Plans

The current RPJMD (2013-2017) and the related master plans (JICA M/P 2012, NCICD, Acceleration Plan) have been reviewed by BAPPEDA in order to analyze the sector development strategy and priority, current situations and issues related wastewater management, and planning requirements for the next five years.

Step 2: Prioritization of Sewerage Zones

Based on the contents master plans and current status, firstly criteria for the prioritization were considered such as project scale, cost efficiency, land availability, and other technical elements. Then, comparative evaluation on the characteristics of sewerage zones was conducted. After evaluation, and the priority of project implementation was examined.

Step 3: Planning of Implementation Schedule and Cost Estimation

In estimating the project costs, two different scenarios were proposed; "Plan A" based on the Acceleration Plan to achieve the coverage of sewerage system at 65% by 2022 and "Plan B" to implement in steps the WWTPs and the trunk sewers in the Phase-1 sewerage zones, which were defined by the Governor Regulation No.41/2016, by 2030. Based on these scenarios, the implementation schedule for each sewerage zone was developed. Then the engineering services (ES) and construction costs for each zone were estimated to calculate the annual budget requirement for each scenario.

Step 4: Drawing of Performance Indicator Matrix

Using the standard template of RPJMD of DKI Jakarta, the matrix of performance indicators and annual targets of each programme for the sewerage and wastewater management was developed. The matrix is indicated the intervention schedule of planned programmes specifying annual target outputs in the next five years and the final target in the end of the year 2022.

Step 5: Drafting of Midterm Sewerage Development Plan

In the end, the draft midterm sewerage development plan was formulated in the same chapter configuration as the RPJMD DKI Jakarta. The draft shall be shared and discussed at the Working Group meeting and finalized reflecting comments and modifications.

1.4 Institutional framework

For preparing the Midterm Sewerage Development Plan, a Task Force was organized of the officials of BAPPEDA and DSDA under *the Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta* supported by JICA.

BAPPEDA is responsible for formulating the Medium Term Development Plan (RPJMD) spanning 14 areas of DKI projects. The sewerage and wastewater management part of the RPJMD is under responsibility of the Water and Environment Sanitation Sub-Division, Urban Infrastructure Facilities and Environment Division of BAPPEDA.

Meanwhile, the Midterm Sewerage Development Plan will be formulated based on the data of the five year Strategic Programme created by the planning section of Raw Water and Wastewater Division,

DSDA. The Strategic Programme is formulated by the DSDA with a local consultant and includes a breakdown of project costs.

PD PAL Jaya also formulates its own long-term five-year plan. This content is reflected in DSDA's Strategic Programme and BAPPEDA's Midterm Sewerage Development Plan. In addition, PD PAL Jaya has conducted the detailed engineering design (DED) of the Phase-1 sewerage zones except Zone-1 and 6 in order to accelerate the implementation of the sewerage systems. Since it is urgent, the DED was conducted without the Feasibility Study (F/S) for estimating the project costs and seeking the financial partners for each zone. The DED has been reviewed by in-house consultants to adjust the project costs by revision of the construction methods and unit costs of pipe works.

Regarding the arrangement and location of the sewer pipes, pumping stations and wastewater treatment plants (WWTP), it is necessary to ensure consistency with the Detailed Spatial Plan (RDTR) of the Urban Planning Environment Bureau (BiroPKLH).

In order to discuss and solve the issues related to wastewater management, a Working Group (WG) was formed from the relevant institutions, under *the Project for Improving Planning Capacity for the Sewerage System in DKI Jakarta*. The members of the WG are listed below:

- BAPPEDA
- DSDA
- PD PAL Jaya
- Biro PKLH (City Planning and Environmental Bureau)
- BPLHD (Regional Environment Management Board of DKI)
- BPTSP (One-Stop Integrated Service Agency)

Also the officers from the Directorate General of Human Settlements (DGHS), Ministry of Public Works and Housing were invited to the WG meetings not as the member but as the observer.

1.5 Actual plan Formulation

The following chapters comprise the RPJMD:

Ch-1 Introduction
Ch-2 General description of current conditions
Ch-3 Financial and funding frameworks
Ch-4 Analysis of strategic issues
Ch-5 Vision, mission and objectives
Ch-6 Strategy and policy direction
Ch-7 Priority development programme
Ch-8 Indication of implementation plan
Ch-9 Performance indicators
Ch-10 Transition guidelines and implementation rules

Since this document has been prepared as a draft of RPJMD sewerage section, this chapter will describe the medium-term sewerage development plan according to the table of contents of RPJMD.

Majority of the area in DKI where there is not served by the sewerage system or communal system is using septic tanks either Conventional Septic Tank (CST) or Modified Septic Tank (MST). Regular desludging service is carried out by PD PAL Jaya and private enterprises and the collected sludge is treated at the existing Sludge Treatment Plant (STP) in Duri Kosambi of 300 m³/d and Pulo Gebang of 300 m³/d.

Regarding the sewerage development, DKI Jakarta territorial area is divided to 14 sewerage service zones. The Zone-1 and Zone-6 of the service zones has been financed by the State Budget (APBN), and started implementations such as feasibility study (F/S), site preparation and survey for Wastewater Treatment Plant (WWTP). Among the other zones, the Detailed Engineering Design (DED) of the priority 6 zones (Zone-2, 3, 5, 7, 8, 4+10) were carried out by PD PAL Jaya with the Regional Budget (APBD) in 2016. The DED was started without the F/S under the pressure of urgent implementation to meet the target of 65% of off-site coverage; therefore the DED is presently (Nov. 2016) reviewed by the consultants of PD PAL Jaya.

2.1.2 Review of Master Plans

(1) Master Plan (M/P) 2012

The basis of the sewerage development of DKI Jakarta is the New Master Plan for Wastewater Management in DKI Jakarta (March 2012) formulated with the support from JICA. The target year of the M/P was 2012-2050. The M/P proposed the development plans for improvement of wastewater management in DKI dividing 15 sewerage zones (including Zone-0) and 3 development terms.

In the master plan, after evaluation of sewerage zones based on the proposed criteria, Zone-1 and 6 were selected as the first priority zones, and Zone-4, 5, 8 and 10 were categorized as the mid-term targets. The development terms were divided that short-term of 2012-2020, mid-term of 2021-2030, and long-term of 2030-2050.

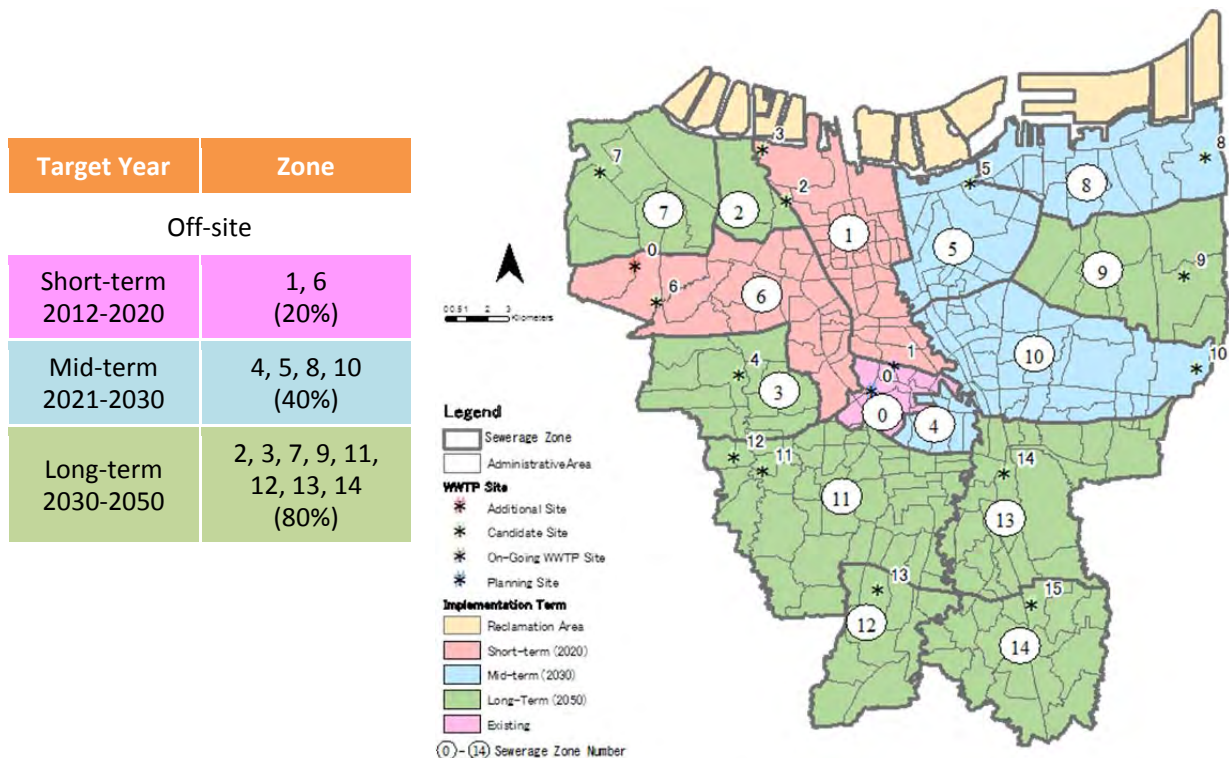


Figure 2.2 Implementation Plan for Sewerage Zones (M/P)

(2) National Capital Integrated Coastal Development (NCICD)

The NCICD M/P has been developed to provide the sustainable and long-term flood protection from the sea and associated river and canal systems in North Jakarta.



Figure 2.3 Closure of Jakarta Bay (NCICD)

The M/P is composed of three phases.

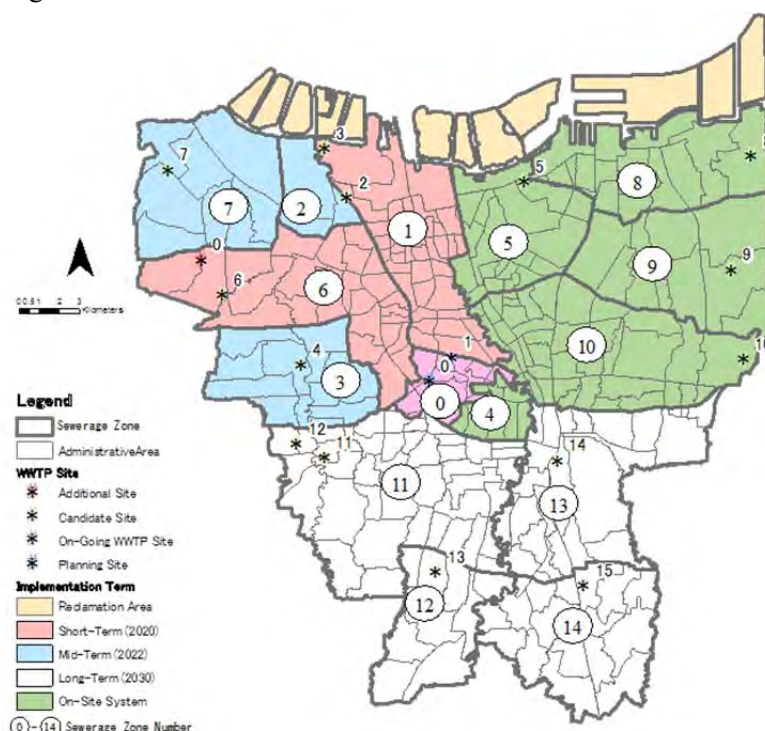
- Phase A: onshore sea dykes construction (2014-2022);
- Phase B: construction of the outer seawall in the western part of Jakarta Bay (2018-2025);
- Phase C: constructing the outer seawall in the eastern part of Jakarta Bay (after 2025).

It targets the onshore dykes will be completed until 2022, and the western part shall be closed between 2022 and 2028.

NCICD emphasizes the wastewater management is one of the most important components and pre-conditions. According to the NCICD Executive Summary (version June 2015), NCICD will facilitate the implementation arrangements and will support acceleration of water quality improvement.

Since the closure of western part of Jakarta Bay was initially planned by 2022, the western sewerage zones of coastal area became higher priority compared to the other zones. At the same time, the improvement of On-site system such as regular desludging and change of conventional septic tanks (CST) to modified septic tanks (MST) in the eastern coastal areas is planned as mid-term intervention to reach the target of 70% facility coverage rate.

Target Year	Zone
Off-site	
Short-term 2014-2020	0, 1, 6 (23%)
Mid-term 2018-2022	2, 3, 7 (12%)
On-site	
Mid-term 2014-2030	4, 5, 8, 9, 10 + (35%)



Source: PD PAL Acceleration Plan

Figure 2.4 Implementation Plan for Sewerage Zones (NCICD)

(3) Acceleration Plan (PD PAL Jaya 2014)

The latest sewerage development plan so called “Acceleration Plan” was formulated by PD PAL Jaya combined of the updated JICA M/P and the NCICD. Based on this Acceleration Plan, the Governor of DKI Jakarta has published a regulation (No.41/ 2016) regarding the development of infrastructure and facilities of domestic wastewater management.

The first priority of sewerage development is Zone-1 and 6 in which the service coverage of wastewater service in DKI Jakarta is 23%. And the second priority Zones 2, 3, 4, 5, 7, 8 and 10 will increase the service coverage by 42%. In total, the target ratio of wastewater management services through the off-site centralized system is 65% by 2022. Also the target ratio of wastewater management services through the on-site system is 35% in 2022.

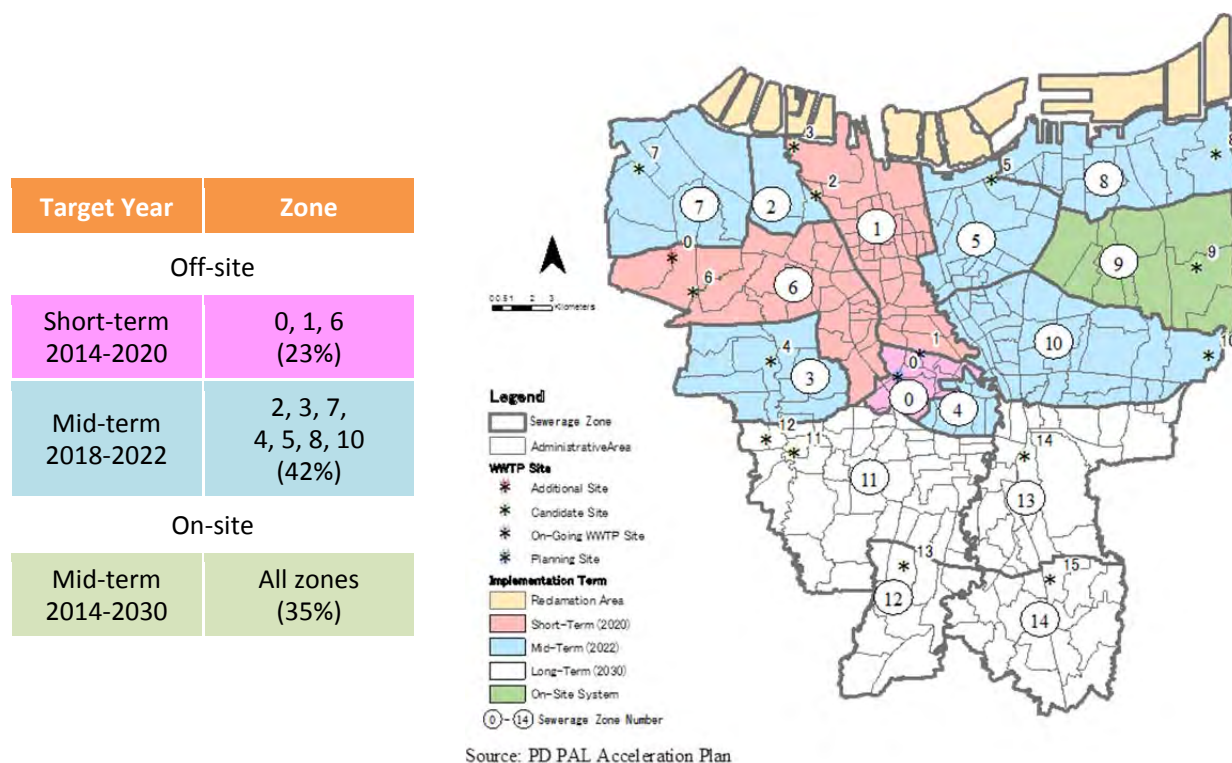


Figure 2.5 Implementation Plan for Sewerage Zones (Acceleration Plan)

2.1.3 Water Quality Issues

The poor sanitation facilities and inadequate wastewater management in Jakarta has caused the environmental contamination. The surface and groundwater in Jakarta are seriously contaminated to be indicated “unacceptable pollution level”.

According to the BPLHD report in 2013, the ground contamination by E-coli bacteria was found in 90% of Jakarta. Regarding the surface water, among ASEAN capital cities, the level of BOD of major rivers were worst. Not only BOD but nitrogen (N) and phosphorous (P) are determined high level in Jakarta water environment. The installation of WWTPs and septic tanks with proper treatment technologies for removal of those items are vital and urgent issue.

Chapter-3 Financial and Funding Framework

The third chapter of RPJMD comprises of the following three sections.

CHAPTER-III FINANCIAL AND FUNDING FRAMEWORK

3.1 Regional Financial Performance

3.2 Financial Management Policy

3.3 Funding Framework

The RPJMD will have an elaborated resource mobilization and financing strategy. In this regards DKI Jakarta therefore need to define and specify the strategies through which development resources to finance all the RPJMD activities identified will be mobilized and managed.

In RPJMD, this chapter does not focus on the sewer sector as it describes the finances covering all sectors of DKI Jakarta. Here in this document D therefore it will be summarized the key issues of finance and funding scheme to implement the sewerage development projects, with the different sections from the table of contents of RPJM.

3.1 Regional Finance

The budget at the regional or local government level is called APBD while the national budget is called APBN. The APBDs are prepared by the local governments and approved by elected local consultative assemblies known as DPRD in each region. APBDs also require approval of the central government, specifically Ministry of Home Affairs, before implementation.

For determining the future funding frameworks, it is necessary to analyze the implementation of APBD for five years, which consists of Regional Revenue, Regional Expenditure, and Regional Financing. The analysis of Regional Revenue and Regional Expenditure for the year 2013-2017 is currently carried out by the financial department of BAPPEDA. The results of the analysis will be summarized in the RPJMD (2018-2022).

As a reference, the outline of APBD of DKI Jakarta for the year 2013-2017 projected in the previous RPJMD (2013-2017) is summarized below. For details, refer to RPJMD 2013 - 2017.

(1) Revenue

Revenue is composed of Local Own Revenue, Funding Balance and Other Regional Income. It was predicted that the total revenue would increase about 2.5 times from 2013 to 2017. This is due to the increase in incomes from adjustment of local taxes and tariff of certain regional taxes, increase in the number of taxpayers due to online taxation of automobile taxes, the result of cigarette tax revenue localization, and increase in the private income tax collection.

(2) Expenditure

Expenditure is allocated based on the priority needs, which are divided into the Binding (Indirect) Expenditures and Priority Procurement. Priority procurement is classified of priority I, priority II and priority III, where priority I gets first priority, in consideration of urgency. Priority III get budget allocation after priority I and II fulfilled its funding requirement. The main policy on the regional expenditure was to meet the implementation of the priority programmes which were determined higher priority of regional development for 5 years, and the implementation of other priority regional programmes in accordance with government affairs that must be implemented.

(3) Finance

Regional Financing means all revenues that need to be repaid and/or expenditures to be reimbursed both in the relevant fiscal year and in subsequent fiscal years. In terms of Receipts, it was estimated the receipt of More Budget Calculation (SiLPA) of previous Year and receipt of Regional Loan, i.e.

for Mass Rapid Transit (MRT) and Jakarta Emergency Dredging Initiative (JEDI) financing. The More Budget Calculation (SiLPA) includes the exceeding of locally-generated revenue (PAD), exceeding of admission of funds and other legitimate local revenue. For the spending, it focused on Government Capital Investment (PMP) and principal debt repayment.

(4) Funding framework APBD 2013-2017

Summarizing the above items, the five-year funding framework was presented in the following table. The expenditure of priority II and III were calculated from the total revenue and other expenditures such as priority I by determination of the percentage considering the requirement and priority of fulfillment of the funding needs.

Table 3.1 Projection of APBD of DKI Jakarta 2013-2017

(in Billion IDR)

No.	Description	2013	2014	2015	2016	2017
1. REVENUE		41,525	53,197	63,955	83,707	103,982
a	Local Own Revenue	26,670	34,258	40,100	47,902	57,376
	Local tax	21,918	28,457	33,883	41,228	50,200
	Local levis	1,500	2,207	2,369	2,547	2,743
	Results of local finance separated	415	615	719	841	948
	Other revenue	2,837	2,979	3,128	3,284	3,448
b	Funding Balance	9,248	15,130	21,783	33,590	44,244
	Tax-sharing fund	8,692	14,492	21,094	32,793	43,336
	Non-tax revenue share	255	281	295	324	340
	General allocation funds	301	357	393	472	566
c	Other Regional Income	5,605	3,807	2,071	2,215	2,360
2. EXPENDITURE		45,576	57,829	72,490	94,431	119,462
a	Indirect Expenditure	14,582	17,137	20,143	23,679	27,840
	Tied procurement	10,853	12,848	15,210	18,006	21,317
	Priority III	3,729	4,289	4,932	5,672	6,523
b	Direct Procurement	30,993	40,691	52,347	70,752	91,622
	Priority I	24,662	36,209	35,211	22,851	25,580
	Priority II	6,371	4,482	17,135	36,897	66,042
SURPLUS (DEFICIT)		(4,050)	(4,632)	(8,534)	(10,723)	(15,480)
3. FINANCE		4,050	4,632	8,534	10,723	15,480
a	Receipt	8,454	9,738	12,435	14,025	16,403
	Use of SiLPA	8,344	6,836	8,674	10,873	15,642
	JEDI loan forwarding	110	159	160	150	138
	MRT loan forwarding	-	2,472	3,6003	3,001	622
b	Spending	4,403	5,105	3,900	3,301	922
	Government capital investment	4,345	5,105	3,900	3,301	922
	Main debt payment	58	-	-	-	-
TOTAL APBD (1+3a)		49,979	62,935	76,391	97,730	120,385

(Source: RPJMD 2013-2017)

The table illustrates the total annual budget of DKI Jakarta in 2013 was calculated around 50 Trillion IDR and expected to increase up to 120 Trillion IDR in 2017.

Actual performance and results of regional finance during the 2013-2017 will be reported in the next RPJMD (2018-2022).

3.2 Financial Requirement for Jakarta Sewerage Development

After the enactment of the Governor Regulation No.41/2016 based on the Acceleration Plan of Jakarta Sewerage Development prepared by the PD PAL Jaya, the targets of the sewerage implementation for the next midterm period by 2022 become very challenging. According to the *Outline Business Case (OBC) Supplementary Study for Jakarta Sewerage System in Zone 1(2015)* conducted by JICA, the total capital costs for the priority zones (Zone-1 to 11) are around 85-95 Trillion IDR, based on the cost estimation of the JICA M/P. Figure3.1 shows the requirement of the total capital expenditure for the priority sewerage zones.

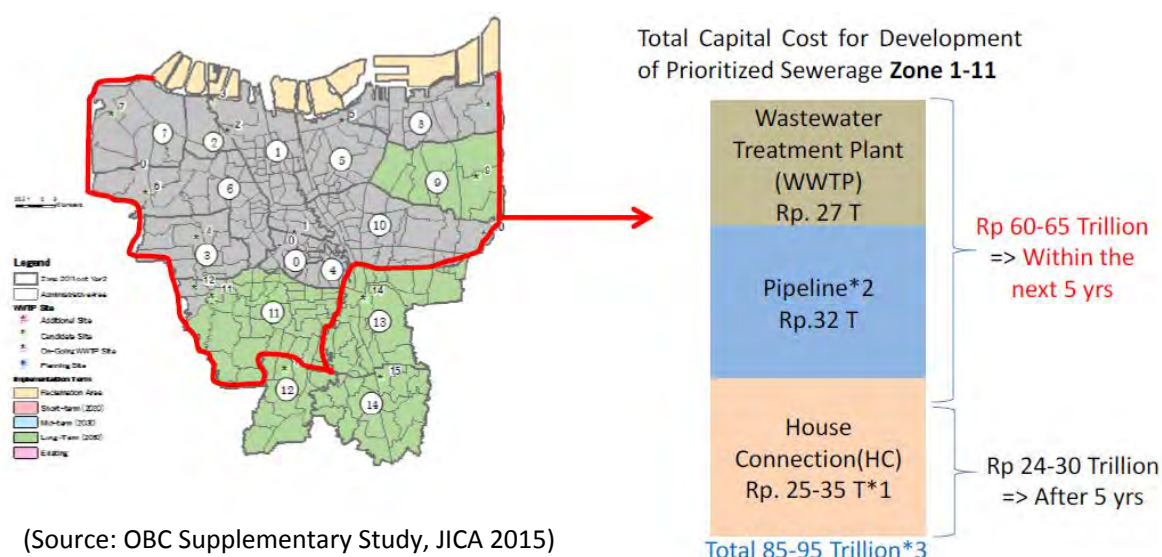


Figure3.1 Total Capital Expenditure for Sewerage Development of Priority Zones

Approximately 27 Trillion IDR for the construction of WWTPs, 32 Trillion IDR for sewer pipelines, and more or less 35 Trillion IDR for house connections are required to implement the sewerage development in Jakarta priority zones.

The cost for the house connection includes the on-site treatment in Zone-9 and 11. Also the cost for the pipeline includes the trunk sewer, secondary & tertiary sewer, interceptor chambers and pumping stations. However the cost estimations of the sewer pipe and WWTPs require review and adjustment due to the price escalation and change of technology from the M/P 2012. The cost estimation of house connection, since it was very rough calculation, needs the adjustment as well.

In order to achieve the certain level of coverage and services of both off-site and on-site wastewater management by 2022, increased mobilization of financial resources is inevitable. Currently the main financial resources for sewerage development and wastewater management are the national and local budget (APBN/APBD) and foreign assistance such as ODA grants and loans. Other opportunities for raising fund are Public Private Partnership (PPP) and Business to Business (BtoB) investment.

The net section examines the available financial resources to fund the financial needs for initializing the sewerage development and wastewater management. Also, the three basic sources of revenue for the sustainable operation of sewage works, tariffs, taxes and transfer (3Ts) will be briefly explained.

Rather than planning the financial strategies, a technical approach to minimize the requirement of initial cost by the step-wised development planning, which starts from implementation of trunk sewer (interceptor pipe) and smaller capacity of WWTP with minimum expenditure. Concept of the step-wised development and its suggested scenario will be explained the Chapter-7.

3.3 Funding Framework

Feasible and sustainable financial arrangement is required for sewerage implementation in DKI Jakarta to achieve the development targets. For example of Zone-1 and 6, the construction of WWTP and sewers are financed by the ODA loans from the Government of Japan, meanwhile the construction of house connection will be funded by DKI Jakarta with APPD and payment by the beneficiaries.

Among various financing options which are explained in this section, combination of (1) Grant finance (APBN/APBD), (2) Loan, and (3) Public-Private Partnership (PPP) is most applicable for accelerating the implementation of sewerage development.

(1) Grant finance (APBN/APBD)

In many countries, most existing wastewater infrastructure has been financed through allocations from national or local government budgets (APBN/APBD). The sewerage projects can be most promptly implemented by grant finance as long as there are no budgetary constraints.

This finance also helps overcome lack of household or community willingness to pay for reduction of water pollution. The sewerage systems can cover operation costs at lower tariff rates, though the lower tariffs reduce incentive for households or industries to reduce water pollution. Since local governments only support facility construction, it reduces pressure to identify most efficient solution.

(2) Loan finance

Government or Multilateral Institutions, and International Financial Institutions (IFI) loans can be another option to mitigate the budgetary constraints for the projects. The most initial costs of sewer and WWTP construction would be covered by bilateral/multilateral loans. IFI loans provide low-cost project financing. The loan scheme typically contains a subsidy component such as below-market interest rates, credit risk guarantees etc.

Loan conditions include the planned maximize incentives for efficient service (tariff structures, financial performance measures). Grace and repayment periods are longer compared to commercial loans, and the loan period matches expected lifecycle of facilities.

(3) Public-Private Partnership (PPP) finance

The PPP is the third financial option to fund the sewerage projects to mitigate the budgetary and debt ceiling constraints. Implementation of PPP is however complex and requires strong will and capacity of the government.

Facility related risks shall be managed by private which may bring better quality of services. Tender procedure of PPP may take longer time compared to grant and loan finance, because additional supports from government are required for project approval, interacting RFP and lender Due Diligence. Expert resources for preparation including the capacity development on PPP procedures are also required, and the relevant regulations such as availability payment for PPP need to be formulated.

As there is no long-term Rupiah fund (more than 10 years) in financial market in Indonesia, the private is willing to access to international financial market in which the investors are exposed to the foreign exchange risk.

Chapter-4 Analysis of Strategic Issues

In Chapter-IV of RPJMD, strategic issues are described in three sections.

CHAPTER-IV ANALYSIS OF STRATEGIC ISSUES

- 4.1. Regional Development Issues
- 4.2. Strategic issues
- 4.3. Other issues that should be considered

The problems of environmental pollution are the most crucial issues in DKI Jakarta with negative impact on the sustainable development of the city that needs to be resolved in a comprehensive manner. There are three groups of problems of environmental pollution in DKI Jakarta, namely waste management, wastewater management and handling of air pollution. Among them, the issues on the wastewater management are summarized below.

4.1 Regional Development Issues: Wastewater Management

Improvement of river and groundwater quality is a major prerequisite in achieving sustainable urban development. River water is polluted by disposal of domestic wastewater to canal/river without proper treatment, and groundwater is contaminated mainly by the penetration of black water to the ground. The pollution loads to the water environment in Jakarta is getting serious due to the increase of population and activities. The fundamental issues in improvement of water qualities include: 1) limited service coverage of sewerage systems and urban sanitation, 2) limited use of standardized septic tanks and regular desludging services, 3) lack of national and regional regulation on wastewater management, and 4) lack of social awareness and willingness to improve the water quality.

(1) Limited coverage of sewerage systems and urban sanitation

Coverage of centralized sewerage systems is very limited only 4% at Zone-0 in 2015. Decentralized treatment system such as local system with ITP and communal system has not been widely installed. Access to the improved sanitation in urban was totally 73% according to the WHO/UNICEF *Joint Monitoring Programme (JMP) for Water Supply and Sanitation* (2010), that means in Jakarta around 20% population (700,000 people) defecates in fields, rivers and beaches. Therefore not only the development of sewerage systems but also improvement of urban sanitation to stop the open defecation is significant and urgent issues handled by the DKI Jakarta.

(2) Limited use of standardized septic tanks and regular desludging services

The most commonly installed wastewater treatment system in Jakarta today is domestic septic tanks. Inappropriately designed or constructed conventional septic tanks however allow the black water penetrate into groundwater which causes the serious pollution. Also regulate desludging system of septic tank is not strategically established. Without regular desludging, the treatment efficiency of septic tank is considerably decreased from 75% BOD removal to nearly zero. Therefore replacement or change of the conventional septic tank (CST) to the modified septic tank (MST), as well as implementation of regular desludging are crucial to improve the environmental water quality.

(3) Lack of regulations on wastewater management

The concerns and awareness of the residents on the necessity of proper wastewater management is generally low, therefore laws and regulations are indispensable to improve the access to the services such as connection to sewers, regular desludging, and payment of tariff. At present, there are only Sanitation Law at the national level and PD PAL Jaya's regulations at the regional level. Promulgation of the regional legislative framework is urgent and important task.

(4) Lack of awareness and willingness to improve water quality

As Indonesian culture, people throw waste into the water to wash out the stain of their past misfortune. For this custom, people have a consciousness that discharge of wastewater directly to the river is quite natural, which is one of the factors impeding the development of proper wastewater treatment. Therefore social awareness and willingness to treat wastewater for water quality improvement need to be raised through socialization and public relations activities.

4.2 Strategic Issues

As described above, improvement of water quality is the one of urgent and important issues in Jakarta. Apart from the financial constraints, technical conditions for the immediate construction of sewerage systems in DKI Jakarta are very difficult.

(1) Construction of sewer pipes

The M/P 2012 calculated the total length of the main sewers in the phase-1 zones (from Zone-1 to 10 except Zone-9) around 1,100 km. If the projects are implemented under the acceleration plan, 200km or more length of sewer pipes need to be installed. The installation of sewer pipes along roads may deteriorate the serious traffic congestion in the central Jakarta. Sewer construction is not easy due to high groundwater level especially in north Jakarta. For installing the sewer pipes and inspection chambers, soil improvement is necessary, which adds time and costs to the projects.

(2) Construction of WWTPs

Prerequisites for construction of WWTPs are land acquisition, environmental permission, and public consultation to the neighboring residents, which may require one year or more. The construction period for one WWTP is toughly estimated 3 years, one year of foundation works, one year of civil works and one year of mechanical/electrical installations. Adding 1.5 to 2 years of the engineering services such as detailed design and tendering procedures, the total schedule for the WWTP construction requires minimum 5 years. Intensive rush works to accelerate completion of construction may cause the rise in construction costs and deterioration of quality.

(3) Construction of House Connections

Construction of house connections takes long time. It is impossible to be done immediately after completion of construction of sewer and WWTP construction and starting the service operations. As the implementation of house connection requires the payment by the beneficiary, the local government shall guide and enforce the implementation. Under the present situation, the necessity of connection to sewers and payment of sewerage tariff is not understood by the residents in Jakarta. Effective and continuous public relations activities by DKI Jakarta are required.

(4) Treatment Efficiency (BOD and P removal)

NCICD master plan requires improvement of water quality by 2030 before closure of Jakarta Bay with the Giant Seawall by means of acceleration of implementation of sewerage systems and wastewater management. The requirements of water quality improvement were reduction of 75% of current BOD load to avoid oxygen depletion and mass fish starvation, and reduction of 90% of the present phosphorous (P) load to avoid the toxic blue-green algae proliferation and excessive water hyacinth growth. Since the BOD removal by existing septic tanks without regular desludging is considerably low, establishment of regular desludging system to improve the BOD removal rate is vital important. Also treatment processes of septic tank and conventional WWTP such as Activated Sludge (AS) are very low P removal rate, thus advanced water treatment process is to be considered.

Chapter-5 Vision, Mission and Objectives

Chapter-V describes the broad and sector-specific development vision, mission and objectives which are guided by the major development issues identified in the previous chapters.

CHAPTER-V VISION, MISSION AND OBJECTIVES

5.1 Vision

5.2 Mission

5.3 Goal and Target

The Vision and Mission of the next RPJMD will be developed by the higher level of DKI Jakarta. This chapter hence describes only Goal and Target of sector-specific which may be linked to the one of mission statements. Those objectives will be closely guided by the major development issues and strategic directions which were discussed in the previous chapters.

5.1 Vision

The Vision and mission of RPJMD should be harmonized to that of the long-term vision described in the Regional Long Term Development Plan (RPJPD) of Jakarta 2005-2025.

The vision of RPJPD of Jakarta 2005-2025 is: “*Jakarta: Safe, Comfortable, Prosperous, Productive, Sustainable and Global Competitive capital of NKRI*”.

Mission of RPJPD is:

1. Increasing capacity and quality of regional infrastructure;
2. Increasing strong economy and quality;
3. Building the resilience of social and cultural rights;
4. Increasing carrying capacity and efficient utilization of environment and natural resources;
5. Increasing capacity and quality of government; and
6. Strengthening regional innovation and creativity.

Relevant vision and mission of the next medium term development in 2018-2022 will be formulated in consideration of the long-term development stages, potential, problem, challenges and strategic issues.

Medium Term Development Vision Jakarta of Year 2018-2022 is:

“ _____ ”.

It can be explained that the Jakarta city is:

-
-
-
-
-

5.2 Mission

To realize the Vision of Medium Term Development of DKI Jakarta 2013-2017, the following five missions are formulated:

- 1.
- 2.
- 3.
- 4.
- 5.

5.3 Goal and Target per Mission

Goals and targets will be set for implementation of sector development activities to realise the vision of regional development for five years. To achieve a better quality of living environment, the appropriate goal and target of specifically wastewater management will be described as follows:

Mission:

Making Jakarta as a city that is free from the chronic environmental problems such as water pollution, floods, slums, garbage and others

Goal:

- ☐ Enact wastewater management in DKI Jakarta

Target:

- ☐ Increase of wastewater treatment in DKI Jakarta
- ☐ Reduce environmental water pollution in DKI Jakarta

The relationship between goal, target, programme indicators and initial and final conditions for each implementation is described in Table 5.1.

Table 5.1 Linkage of Vision, Mission, Goals and Objectives

Goal	Target	Indicator (Impact)	Initial Conditions	Final Conditions
To enact wastewater management in DKI Jakarta	Increase of wastewater treatment in DKI Jakarta	Percentage of coverage area services by wastewater treatment system	8%	65%
	Reduce environmental water pollution in DKI Jakarta	Number of SANIMAS implemented	19	1,000
		Number of Truck for Regular desludging	31	500

Chapter-6 Strategy and Policy Direction

Chapter-VI describes the broad and sector-specific development vision, mission and objectives which are guided by the major development issues identified in the previous chapters.

CHAPTER-VI STRATEGY AND POLICY DIRECTION

6.1 Strategy

6.2 Direction

The strategy is a step to solve problems that are important and urgent to be implemented within a period of five years having a great impact to achieve the vision, mission, goals, and targets.

The policy direction is a guideline for the selected strategy to be more focused in achieving the goals and targets during the period of RPJMD 2018-2022. The policy direction will guide the strategy to be consistent with the direction and not contrary to applicable legislation.

6.1 Strategy

Strategy in the sewerage sector for the achievement of the relevant **Mission** is summarized as follows:

Development of the infrastructure of wastewater management

This strategy is to improve the treatment efficiency of domestic wastewater by implementing the infrastructure of wastewater management in efforts to achieve clean water environment in Jakarta. Operational strategies include: i) Development of centralized sewerage systems, ii) development of decentralized wastewater management with communal sanitation systems, iii) Improvement of treatment performance of septic tanks, and iv) implementation of socialization and public relations activities for awareness raising and sanitation behavior change.

Integration of centralized and decentralized wastewater management

This strategy aims to accelerate the implementation of wastewater management infrastructure and to maintain the consistency and compatibility of centralized and decentralized system which will be connected in future. The implementation of centralized sewerage system and improvement of decentralized wastewater management will be in parallel starting from the priority areas and extending the capacity gradually.

6.2 Direction

The relationship between target, strategy and policy directions is described in the following table:

Table 6.1 Target, Strategies and Policy Directions of Jakarta DKI

No	Target	Strategies	Policy directions
	The availability of Improved wastewater management	Development of centralized sewerage system	Increasing the scope of centralized sewerage system services through the construction of pipelines and WWTP centralized systems
		Development of optimum decentralized wastewater treatment system	Encouraging domestic wastewater treatment of settlements, among others through the Development of Communal WWTP/SANIMAS, Socialization of the use of septic tanks and environmental protection, and Local IPAL System Development / Improvement

Chapter-7 Development Programme and Priority Projects

Chapter-VII in RPJMD deals more broad intervention for the regional development as follows.

CHAPTER-VII GENERAL POLICY AND REGIONAL DEVELOPMENT PROGRAMME

7.1 General Policy Development

7.2 Priority Programme of Regional Development

7.3 Leading Programme

If following the contents of RPJMD as above, the description will be too broad rather than sector-specific. Therefore this chapter, not following the TOC of RPJMD, describes the selection of priority zones for the next midterm development, and other planned interventions which can be implemented for the next five years.

7.1 Selection of Priority Sewerage Zones

7.1.1 Criteria for Prioritization

(A) Review of M/P 2012

Before developing the selection criteria, the criteria and evaluation process in the M/P 2012 were examined. As listed in the table below, the M/P developed 8 criteria which were based for the evaluation of 14 sewerage zones in Jakarta excluding Zone-0.

Table 7.1 Criteria for Selection of Priority Zones in JICA M/P 2012

	Factor	Remark
1	Population density is high.	Pollutant load is high.
2	WWTP site shall be secured inside the sewerage zone.	Construction and O&M cost are low.
3	Sewer trunk lines are shorter and river crossings should be avoided as much as possible.	Construction and O&M cost are low.
4	There are many commercial establishments who can afford to pay wastewater charge after the proposed project is implemented.	Easier to collect wastewater charge in the future.
5	There are the existing sewerage systems.	Easier to collect wastewater charge in the future.
6	Socio-economic conditions are not good.	Water borne disease ratio and pollutant load are high
7	River water quality is not good (BOD is high).	Pollutant load is high.
8	Groundwater quality is not good (E-coli is high).	Possibility of contamination by domestic wastewater is high.

Table 7.2 Evaluation Summary of Prioritization in JICA M/P 2012

Zone No.	Indicator								Total	Rank
	1	2	3	4	5	6	7	8		
1	13	14	13	14	1	3	11	10	79	1
2	2	3	13	1	1	1	11	11	43	14
3	8	14	13	4	1	2	11	2	55	11
4	14	14	13	11	1	4	2	6	66	6
5	10	14	13	13	1	5	6	13	75	4
6	12	14	13	12	1	8	11	7	78	2
7	4	14	13	12	1	12	4	12	62	8
8	9	14	13	5	1	9	3	14	68	5
9	1	14	13	3	1	3	14	9	66	6
10	11	14	13	8	1	14	14	8	76	3
11	7	3	13	10	1	14	11	4	62	8
12	6	14	13	6	1	10	2	1	53	13
13	5	3	13	9	1	6	14	3	54	12
14	3	14	13	7	1	14	5	5	62	8

Evaluation is done by ranking the relevancy of each factor above, and the score has been given based on the rank of relevancy to the factor. As the result, the zones of the highest priority, Zone-1 and 6, have been selected as the short-term project areas.

(B) Criteria for Midterm Sewerage Plan

Referring the criteria of M/P 2012 and considering the latest situations in DKI Jakarta, the following criteria have been suggested by the JICA consultant team:

Table 7.3 Suggested Criteria for the Midterm Sewerage Development Plan 2018-2022

	Indicators	Remark
1	Consistency with NCICD (location of zone)	Located in coastal and western side.
2	Capital and operational costs (pipe & WWTP)	Capital & operational costs are low.
3	Service revenue (ratio of Revenue-Gross Floor Area)	Revenue-GFA ratio is high (= higher revenue expected)
4	Investment efficiency (sewer construction cost per wastewater volume)	Sewer cost/WW volume is low (= higher efficiency)
5	Land availability	Land for WWTP has been secured.
6	Environmental impacts (water quality)	Pollution load is high (= effectiveness is high)
7	Difficulty of underground penetration (land subsidence & groundwater level)	Land subsidence is large, groundwater level is high (= low penetration i.e. likely more polluted by septage)

7.1.2 Evaluation of Each Sewerage Zone

In order to prioritize the 6 sewerage zones (Zone-2, 3, 4+10, 5, 7, 8) which indicated in the Governor Regulation No.41/2016, the evaluation is conducted using the criteria in the following way:

- (a) Quantitative or qualitative evaluation is conducted in 6 sewerage zones for each criterion.
- (b) For each criterion, the priority rank is given.
- (c) For the rank of each zone, score is put according to the rank and the weight as follows:
 - Basic score
 - 1st Rank: 10 points
 - 2nd Rank: 8 points
 - 3rd Rank: 6 points
 - 4th Rank: 4 points
 - 5th Rank: 2 points
 - 6th Rank: 0 points.
 - Weight
 - W=1: weight is 1, i.e. the score is basic score multiplied by 1.
 - W=2: weight is 2, i.e. the score is basic score multiplied by 2.

For example of the criterion no.1 consistency with NCICD, zones in north-west of Jakarta is highest priority so ranked as 1, basic score is 10. The total score is multiplied by the weight 2, therefore the zones in north-west is scored 20 points.

Table 7.4 (1) Consistency with NCICD (location of zone)

Zone No.	Location of the zone	Rank	Score-1 (w=2)
2	North-west	1	20
3	West	3	12
4+10	East	6	0
5	North-east	4	8
7	North-west	1	20
8	North-east	4	8

Table 7.5 (2) Capital and Operational Costs (pipe &WWTP)

Zone No.	Construction cost (million IDR)	Rank	Score-2 (W=1)
2	1,158,206	1	10
3	3,725,914	2	8
4+10	9,598,989	6	0
5	4,157,230	4	4
7	3,991,345	3	6
8	5,651,647	5	2

Source: JICA M/P (2012)

Table 7.6 (3) Service Revenue (Ratio of Revenue-Gross Floor Area)

Zone No.	Gross Floor Area (m2)	Potential Revenue (Billion IDR/yr)	Ratio of Revenue-GFA (1.000 IDR/yr/m2)	Rank	Score-3 (w=2)
2	15,643,000	80	5.2	3	12
3	39,731,000	165	4.2	6	0
4+10	104,702,000	64 + 472	5.0 + 5.2	4	8
5	57,653,000	347	6.0	2	16
7	48,634,000	228	4.7	5	4
8	53,516,000	332	6.2	1	20

Source: Jakarta Sewerage- Implementation Plan, INDII (2017)

Table 7.7 (4) Investment Efficiency (Sewer Construction Cost per Wastewater Volume)

Zone No.	Construction Cost (million IDR)	WW volume (m3)	Unit Cost (IDR/m3)	Rank	Score-4 (W=1)
2	663,456	23,847	27,821	6	0
3	1,799,383	115,440	15,587	4	4
4+10	3,812,725	294,407	12,951	2	8
5	1,655,209	127,217	13,011	3	6
7	2,071,008	110,824	18,687	5	2
8	2,215,982	176,022	12,589	1	10

Source: JICA M/P (2012)

Table 7.8 (5) Land Availability

Zone No.	Site	Area (ha)	Availability	Rank	Score-5 (w=1)
2	Muara Angke	0.8	Under discussion	2	5
3	Hutan Kota Srengseng	4	Under discussion	2	5
4+10	Pulo Gebang	8.7	Available	1	10
5	Hutan Kota Waduk Sunter Utara	4.6	Available	1	10
7	Kamal-Pegadungan	3.9	Available	1	10
8	Rencana Waduk Marunda	6.0	Available	1	10

Table 7.9 (6) Environmental Impacts (Water Quality)

Zone No.	River water BOD (mg/l)	Rank	Groundwater E-coli (x10 ⁶)	Rank	Score-6 (w=1)
2	60	2	1175.4	4	12
3	60	2	217.2	6	8
4+10	86	1	673.7	5	12
5	50	3	1433.0	2	14
7	32	4	1177.9	3	10
8	30	5	1670.4	1	12

Source: JICA M/P (2012)

Table 7.10 (7) Difficulty of Underground Penetration (Land Subsidence, Groundwater Level)

Zone No.	Inundation level (m)	Rank	Groundwater depletion (m)	Rank	Score-6 (w=1)
2	0 ~ 1.50	2	-0.2 ~ 0.4	1	18
3	0	6	1.2 ~ 1.4	6	0
4+10	0 ~ 1.50	4	0.2 ~ 1.0	5	6
5	0 ~ 0.70	5	0 ~ 0.4	4	6
7	0.10 ~ 1.50	1	-0.2 ~ 1.2	3	16
8	0.10 ~ 0.70	3	-0.2 ~ 0.4	2	14

Source: Inundation Area Map (BPBD 2015), Jakarta flood (UNOCHA 2014), Map of groundwater level decline (DPE 2015)

Summary of Evaluation

The summary of each score for the criteria is shown in table below. Zones with the higher total score are considered as higher priority.

Table 7.11 Summary of Evaluation for Priority Zones

Zone No.	S-1	S-2	S-3	S-4	S-5	S-6	S-7	Total	Priority
2	20	10	12	0	5	12	18	77	1
3	12	8	0	4	5	8	0	37	6
4+10	0	0	8	8	10	12	6	42	5
5	8	4	16	6	10	14	6	66	4
7	20	6	4	2	10	10	16	68	3
8	8	2	20	10	10	12	14	76	2

7.1.3 Result of Prioritization (Suggested Priority)

As the result of the evaluation, Zone-2 and 8 is the 1st priority, Zone-7 and 5 is 2nd, then Zone-4+10 is 3rd, and Zone-3 is 4th priority as shown below.

Priority	Zone
Short-term	0, 1, 6
Mid-term Priority 1	2, 8
Mid-term Priority 2	7, 5
Mid-term Priority 3	4+10
Mid-term Priority 4	3
Long-term	9, 11, 12, 13, 14

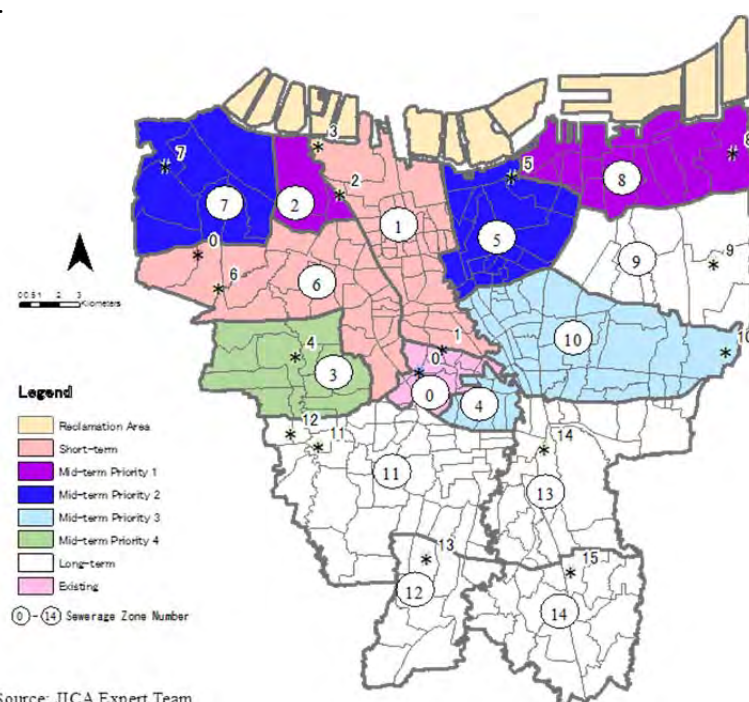


Figure 7.1 Priorities for Midterm Sewerage Development Plan

N.B. This evaluation and priority are based on consultation between the JICA consultant team and the Task

Force. The final priority will be determined by BAPPEDA and other DKI institutions.

7.2 Selection of Priority Areas of Decentralized WW Management

The priority of the sewage zone above is not related to the object of the decentralized wastewater management. Priority areas for decentralized wastewater management are suggested but not limited: i) areas where the population density is high but urban sanitation facilities are not adequately developed, ii) areas where contamination of the river or groundwater is remarkable due to the open defecation, and iii) areas where existing facilities are remarkably deteriorated.

In the zones for urban development projects financed by the private developers, installation of proper decentralized wastewater treatment facilities shall be obligatory included to the design and installation which in future will be connected to the centralized sewerage system of DKI Jakarta.

The zones for improvement of treatment efficiency of septic tanks by updating the septic tank and/or establishing the regular desludging system will be determined by PD PAL Jaya in consultation with DKI Jakarta.

7.3 Midterm Programmes for Wastewater Management

Programmes grouped by mission-based strategic issues for the next midterm period are as follows:

Centralized Wastewater Management (Off-site)

- Construction of sewerage systems
- Engineering service and tender process
- Preparation and procedures before the implementation (AMDAL, land acquisition and survey, socialization etc.)
- O&M of WWTPs and sewers in service

Decentralized Wastewater Management (On-site)

- Implementation of Communal WWTP/SANIMAS systems
- Regular desludging of septic tanks
- Construction of sludge treatment plants
- Socialization and public relations activities

Chapter-8 Indication of Implementation Plan

In Chapter-VIII, it is delivered the detailed programmes to be implemented over the five years from 2018 to 2022.

CHAPTER-VIII INDICATION OF IMPLEMENTATION PLAN

8.1 Issues Public Works

In addition to the above, the section 8.2 will discuss the implementation schedule and the rough estimation of annual budget required for the sewerage development which were proposed by the JICA consultant team.

8.1 Public Works: Wastewater Management

Programmes to be implemented related to wastewater management are as follows:

(1) Centralized Sewerage Implementation Programme

Indicators that will be achieved, among others, the percentage of centralized sewer systems implemented; the increased number of sewerage zones where AMDAL/EIA process are carried out; the number of zones where E/S and tender process are ongoing; and the number of zones where the construction of sewer and/or WWTP has been started.

(2) Decentralized Wastewater Management Programme

Indicators to be achieved include increased number of communal wastewater treatment plant with the capacity of 200 households implemented; increased number of village where the communal-led sanitation system (SANIMAS) installed; and increased number of trucks for regular desludging of septic tanks.

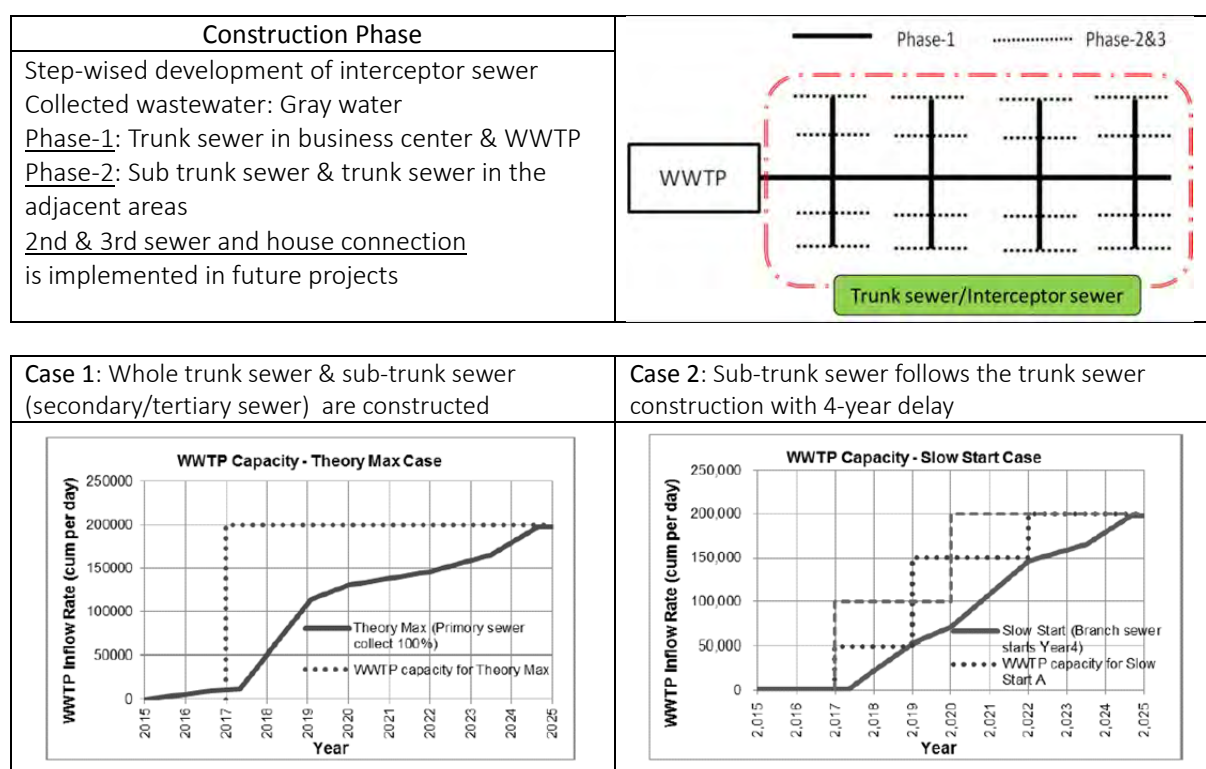
8.2 Step-Wised Implementation Plan

In order to implement the sewerage projects within a limited budget, it is more practical to reduce the financial demand, by constructing the trunk sewer and WWTP in priority, and then in subsequent years constructing the secondary/tertiary sewers and house connections which are financed by the local government and payment of the beneficiaries.

In addition, the project is not targeting the entire sewerage zone, but started the implementation of trunk sewer from high priority areas. The capacity of WWTP also responds to the increase in the volume of wastewater collection due to the installation of the sewer pipelines. A strategic facility design and implementation plan that increases the capacity in stages is essential.

In the step-wised plan, for example, the construction of trunk sewer in the business area and WWTP is scheduled in Phase 1, and the construction of the sub-trunk and trunk sewer in the adjacent areas is planned in Phase-2. And then the secondary/tertiary sewer and house connection is planned to be constructed in the following phases or future projects.

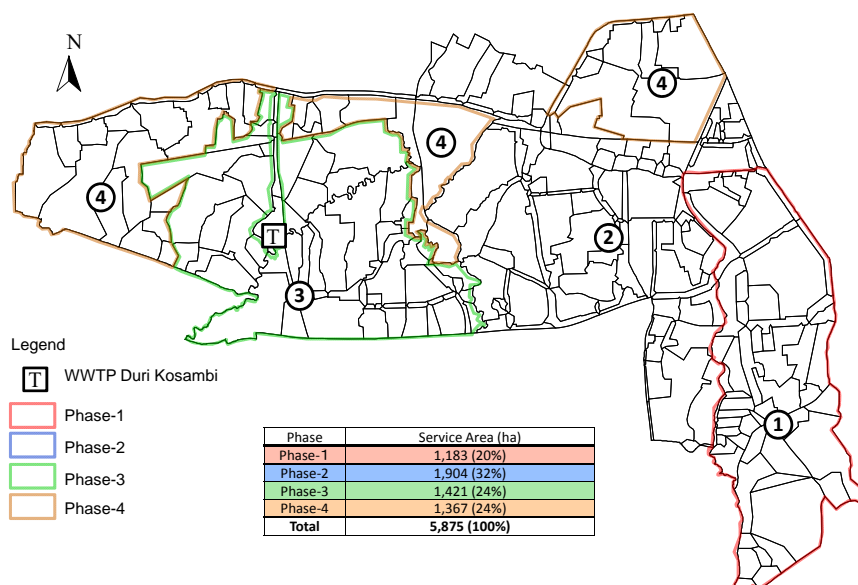
Regarding the WWTP, considering the gradual increase in collected wastewater volume due to the installation of sewer pipes, the planned water volume and water quality shall be set so that the facility at the initial stage of construction will not be excessive capacity. The sewerage facilities shall be gradually extended corresponding to updating and improving the operation method.



(Preparatory Survey on Central Sewerage Treatment System in Jakarta, JICA 2013)

Figure 8.1 Concept of Step-wised Sewerage Development

The following figure and table show an example of step-wised implementation plan of Zone-6, which were developed under the F/S in 2013 when the NCICD and Governor Regulation 41/2016 had not been formulated. The sewerage zone was divided into four sub-zones, and planned to implement in four phases in totally about 30 years.



Source: JICA F/S Team

Figure 8.2 Sub-zones and phasing of Zone-6 Sewerage Development

Table 8.1 Step-Wised Implementation Schedule of Zone-6 in F/S (2013)

Items	year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
0. PROJECT PREPARATION		★	■	■	■																										
I. WWTP																															
Phase 1	4																														
Phase 2	3																														
Phase 3	3																														
Phase 4 (Ultimate phase)	3																														
II. Sewer																															
(1) Trunk sewer																															
Phase 1	4																														
(2) Main, Secondary and Tertiary sewer																															
Phase 1	7																														
Phase 2	7																														
Phase 3	7																														
Phase 4 (Ultimate phase)	7																														
III. House connection																															
(1) Connection pipe for household																															
Phase 1	8																														
Phase 2	8																														
Phase 3	8																														
Phase 4 (Ultimate phase)	8																														
(2) Connection pipe for non-household																															
Phase 1	5																														
Phase 2	5																														
Phase 3	5																														
Phase 4 (Ultimate phase)	5																														
[Service coverage ratio]		0%	0%	0%	0%	0%	0%	0%	14%	22%	30%	38%	43%	50%	58%	66%	69%	75%	82%	88%	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%
[Wastewater flow rate]		0%	0%	0%	0%	0%	0%	0%	3%	6%	8%	10%	19%	26%	32%	38%	48%	54%	61%	67%	76%	81%	86%	92%	95%	97%	98%	100%	100%	100%	100%

Source: JICA F/S Team

8.3 Implementation Schedule and Annual Budgets

8.3.1 Implementation Scenarios

In order to develop the implementation schedule and to estimate the annual budget for the sewerage development projects, two alternative scenarios are proposed by the JICA consultant team for the next Mid-Term Sewerage Development Plan.

Two alternative scenarios in developing the implementation schedule and estimating the engineering services (E/S) and construction costs that account for a large proportion of the project budget.

One scenario (Plan-A) plans to achieve the target of 65% served with sewerage systems by 2022, in accordance with the Governor Regulation No. 41/2016; while the other scenario (Plan-B), based on the concept of the step-wised development plan, illustrates the gradual implementation of sewerage systems rather than constructing 100% of facilities at once.

PLAN-A (Acceleration)

In line with the Acceleration Plan and the Governor Regulation 41/2016, completion of the construction of WWTP, main sewer (interceptor) and pumping stations of Zone-1 & 6 and the sewerage zones of phase-1 (Zone-2, 3, 5, 7, 8, 4+10) shall be before 2022. It is expected the WWTP in all the zones will start operation before 2022. Secondary and tertiary sewers and house connections are all installed in the next 5 years.

PLAN-B (Step-wised)

Target year of the completion and commencement of service of phase-1 sewerage zones is 2030 when the outer seawall of NCICD will close the Jakarta Bay. Also the step-wised development is applied for the implementation of the sewer and WWTP. An assumption has been made for rough estimation of annual cost that the Main sewer is constructed in 5 to 6 years or more starting from priority sub-zones, the secondary and tertiary sewer will be implemented after the main sewer in 10 years. The construction of WWTP is also step-wised, the first phase construction will require 70% of total construction cost and after 5 years from completion the second phase will start to increase the capacity of WWTP.

8.3.2 Implementation Schedule

For the two alternative scenarios, the implementation schedule and cost estimation for the Zone-1, 6, and the 6 priority zones (Zone-2, 3, 5, 7, 8, 4+10) as shown in the tables below. The schedule has been developed regardless of the availability of financial resources for all sewerage projects.

N.B. The order of implementation of the 6 priority zones after Zone-1 and 6 is planned according to the result of the prioritization explained in Chapter-7. However the priority is suggestion from the JICA consultant team and hence will change in line with the finally decided priority after the consultation within DKI and related institutions.

Table 8.3 Mid-term Sewerage Implementation Plan in DKI Jakarta (Acceleration Plan)

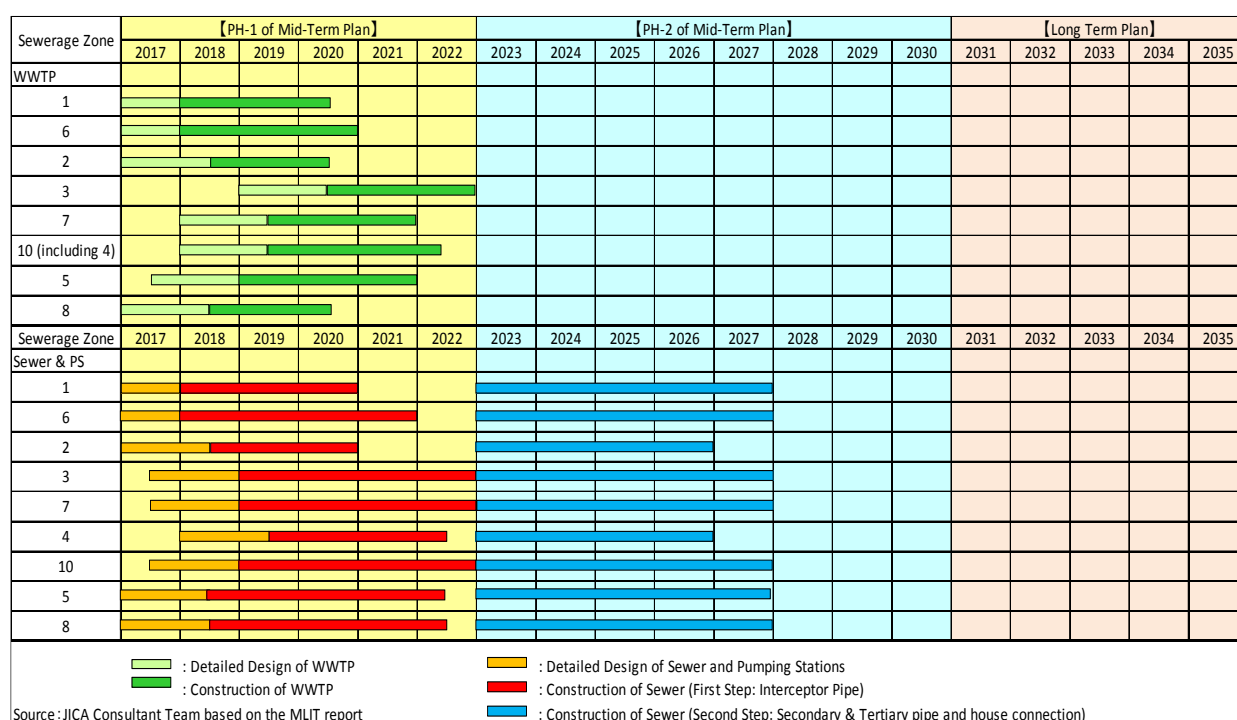
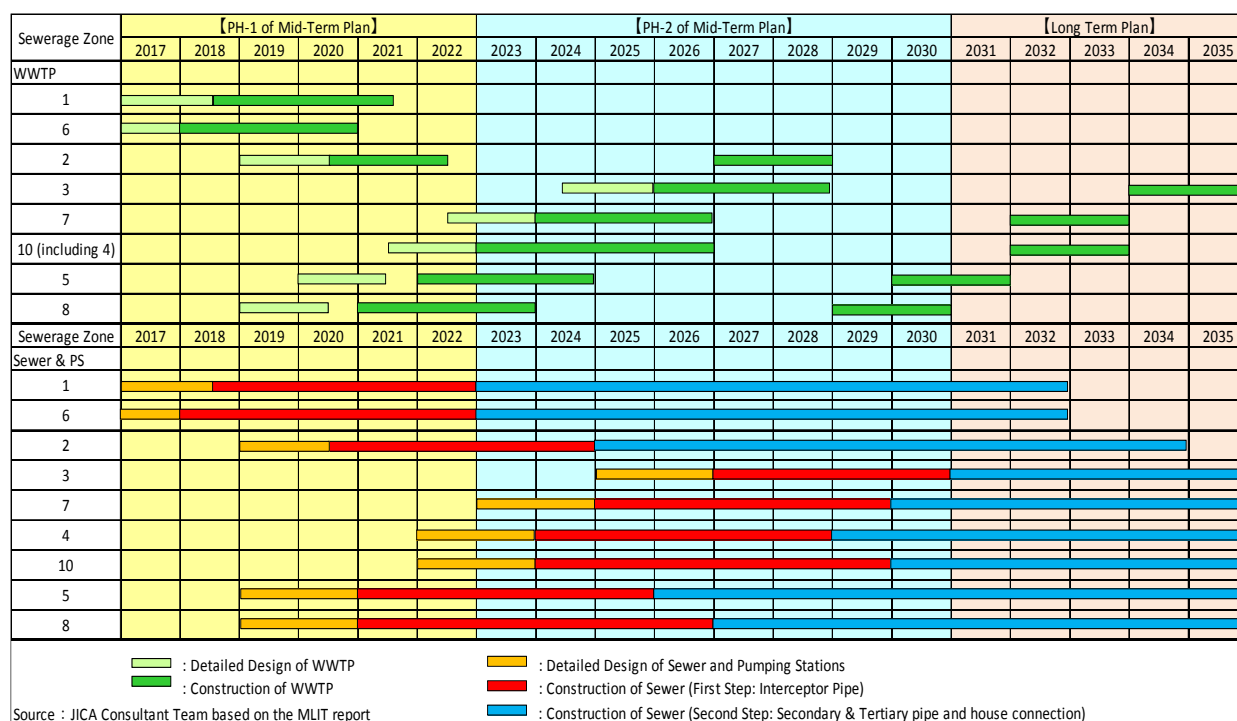


Table 8.4 Mid-term Sewerage Implementation Plan in DKI Jakarta (Step-Wised Plan)



8.3.3 Annual Budget

Estimated annual budgets for both scenarios of sewerage development which responds to the above implementation schedules are illustrated below.

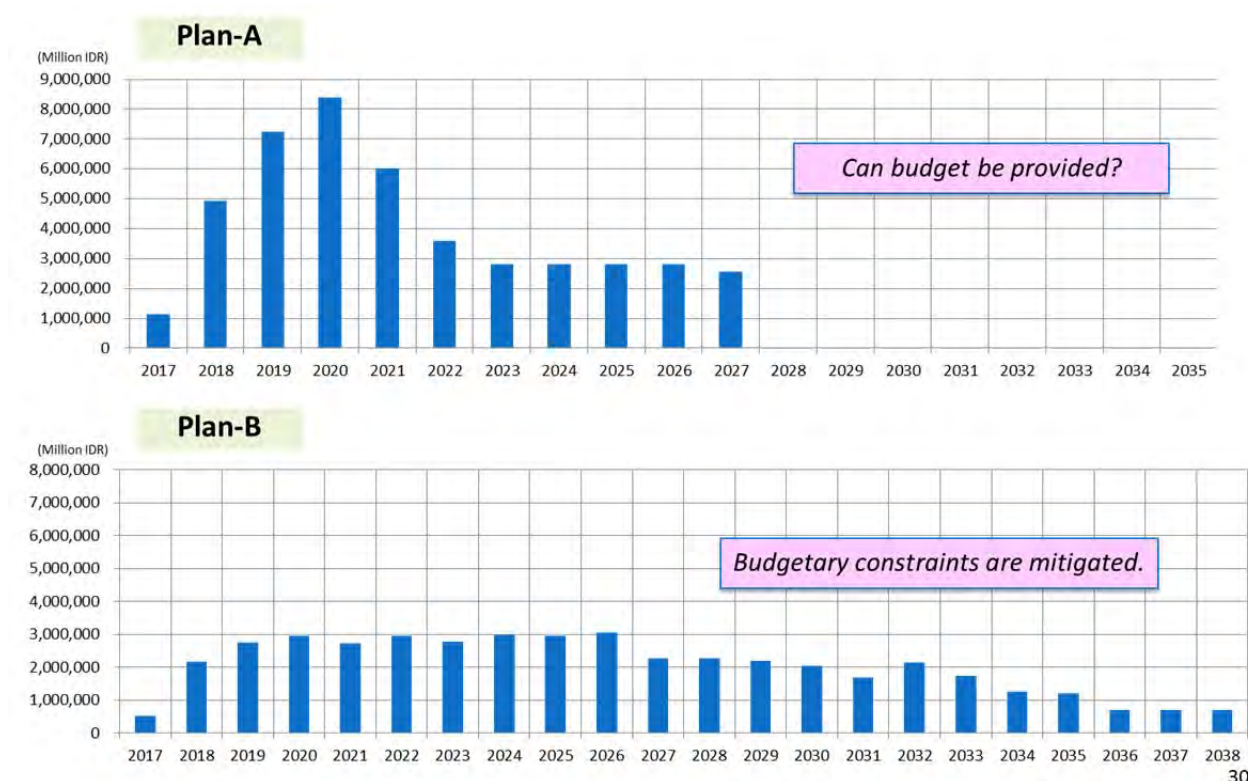


Figure 8.3 Estimated Annual Budget for Priority Sewerage Zones

In the acceleration plan, the annual budget for implementation of all priority zones requires very high financial investment, maximum 8.4 Trillion IDR in the year 2020. On the other hand, in the step-wised plan, the financial demands are averaged more or less 3 Trillion IDR annual.

Those costs are only included the E/S and construction of WWTP, sewer pipes and house connections based on the M/P 2012. All the construction costs require the revision considering the price escalation, improvement of construction technologies and the adoption of the advanced wastewater treatment.

Apart from the costs for E/S and construction of sewerage systems, the budget for the preparatory activities carried out by the DKI officers related to the sewerage projects shall be included in the annual budget, such as the environmental impact assessment (EIA), land acquisition of WWTPs and pumping stations, socialization and public awareness raising activities.

Chapter-9 Performance Indicators

This chapter provides the list of indicators to make the RPJMD more objective and accountable. The indicators shall be measurable and quantitative so that the level of results can be clearly measured. The main contents of Chapter-IX are the table of performance indicators and annual targets.

CHAPTER-IX PERFORMANCE INDICATORS

The framework of the performance indicators and targets is a template of RPJMD which will be developed with the concept of the result based management. Each programme needs to be identified clear inputs and outputs. The indicators are vital important for effective monitoring and evaluation (M&E).

Indicators of performance of sewerage development and wastewater management in Year 2018-2022 was formulated based on the results of the analysis of expected input and outcomes (programme performance). In order to provide a measurable overview of achievement of the programme activities, the performance indicators and annual targets were developed for each programme. The matrix of the performance indicators against the gains of the implementation of wastewater management activities in Year 2018-2022 outlined in the following table:

Table 9.1 Determination of Performance Indicators and annual targets

Programme PI (outcome)	Initial condition 2017	Performance Target Programme					Performance Conditions end of Year 2022
		2018 Target	2019 Target	2020 Target	2021 Target	2022 Target	
Percentage of centralized sewerage systems	8% (Zone-0, part of Zone-1,6)	33 (Zone-0,1,6, 2,8)	40 (Zone-0,1,6, 2,8,5)	54 (Zone-0,1,6, 2,8,5,4+10)	60 (Zone-0,1,6, 2,8,5, 4+10, 7)	65 (Zone-0,1,6, 2,8,5,4+10, 7,3)	65%
Number of Zones EIA procedures	2 (Zone-1,6)	2 (Zone-2,8)	1 (Zone-5)	1 (Zone-4+10)	1 (Zone-7)	1 (Zone-3)	8
Number of Zones E/S & tender process	2 (Zone-1,6)	2 (Zone-2,8)	3 (Zone-2,8,5)	2 (Zone-5,4+10)	2 (Zone-4+10, 7)	2 (Zone-3,7)	8
Number of Zones construction	1 (Zone-0)	2 (Zone-1,6)	2 (Zone-1,6)	5 (Zone-1,6, 2,8,5)	5 (Zone-1,6, 2,8,5)	6 (Zone-1,6, 2,8,5,4+10)	6
Number of Communal WWTP @200HH		4	4	4	4	4	20
Number of SANIMAS	19	81	200	200	250	250	1000
Number of Truck for Regular desludging	31	69	100	100	100	100	500

N.B. Regarding the percentage of the centralized sewerage systems, it was not calculated based on the completion of the construction but was calculated in accordance with the status of intervention and implementation of the sewerage projects.

Chapter-10 Transition Guidelines and Implementation Rules

RPJMD 2018-2022 is a key element of comprehensive regional development planning framework, therefore adequate provisions need to be considered within the RPJMD formulation process to ensure appropriate transition and implementation by regional government. The Chapter-X outlines the guidelines for transition while the former provincial governor of Jakarta is replaced to the successor and the roles of implementation to maintain the continuation of the plan.

CHAPTER-X TRANSITION GUIDELINES AND IMPLEMENTATION RULES

10.1 Guidelines for Transition

10.2 Rules of Implementation

10.1 Guidelines for Transition

The expiration of the RPJMD (2013-2017) will be the same time of the end of official term for the provincial governor of Jakarta, October 2017. For the smooth transition of the previous and next RPJMD, The essential objective of the policy directions of the Long Term Development Plan (RPJPD Jakarta 2005-2025) and the National Medium Term Development Plan (RPJMN 2015-2019) shall be referred to maintain the continuity of regional development and governance.

10.2 Rules of Implementation

Guided by the vision, mission and programmes of RPJMD, each head of SKPD will prepare a strategic plan SKPD for preparing the fiscal budget. Not limited to the sewerage sector, the implementation rules of medium term development plan are as follows (as of the RPJMD 2013-2017):

1. The Executive and Legislative Institutions Jakarta, supported by vertical institutions in the region of Jakarta, as well as the society, including the business community, is obliged to implement programmes in RPJMD Jakarta Year 2018-2022 as well as possible;
2. The Governor of DKI Jakarta in carrying out the regional administration is obliged to direct the implementation of Jakarta RPJMD Year 2018-2022 by moving optimally all the potential and strength of the region;
3. DKI Jakarta Provincial Secretary is obliged to coordinate the implementation of the Jakarta Provincial RPJMD Year 2018-2022;
4. RPJMD is a guideline in drafting SKPD. Therefore all SKPD within the Jakarta Provincial Government is obliged to draw up strategic plan that includes the vision, mission, goals, strategies, policies, programmes, main activities, and seed development in accordance with their duties and functions and become a guideline for the working plan on education each year, based on the RPJMD to guarantee the consistency and continuity of the programme, activity and funding and are set by the head of SKPD and approved by the Governor.
5. In order to improve the effectiveness of the implementation of the Jakarta Provincial RPJMD Year 2018-2022, Regional Development Planning Board (Bappeda) of Jakarta is obliged to guide the process of development planning, monitoring, facilitating and mediating in the drafting of DKI Jakarta Provincial SKPD;
6. Translation of more RPJMD Jakarta Year 2018-2022 for each year is done through the preparation RKPD Jakarta;

7. According to PP No. 3 of 2007, the Governor shall submit a report description Fiscal Year End accountability and report information End of tenure liability which is based on the evaluation results to ensure consistency between policy and implementation and the results of local development plans, Jakarta Provincial Government to control and evaluate the implementation of RPJMD. In this case, control and evaluate the implementation of the Jakarta Provincial RPJMD Year 2018-2022 by each SKPD and coordinated by BAPPEDA DKI Jakarta.
8. That the realization of the Vision, Mission, Policies and Programmes in RPJMD necessary instrument among other regional organizations and human resources (HR). RPJMD this guidance in drafting regional regulations on the Organizational Structure of the regional.
9. In terms of controlling and evaluating the results RPJMD Jakarta Year 2018-2022 showed things that need to be adjusted Taking into account the variety of things that are beyond the control of the Government of Jakarta and is expected to hamper the implementation of the Jakarta Provincial RPJMD Year 2018-2022, the strategies, policies and programmes that have been formulated can be reviewed. Then, the results are consulted to DKI Jakarta Provincial Parliament for further consideration in the implementation process.
10. In terms of implementation changes RPJMD annual target achievement but does not change the target of achieving the ultimate target of medium-term development, the establishment of RPJMD changes contained in respect RKPD year.

Annex-1 Midterm Plan for Decentralized Wastewater Management

1. DKI Government Policy

DKI Governor Regulation No.41/2016 set forth the Development Plan for Decentralized Wastewater Management System as follows;

Article 8

- (1) The plan for decentralized wastewater management of domestic waste water consists of:
- a. The modification of conventional septic tank that can treat both black water and gray water with the design that makes it easier for desludging;
 - b. The development of communal IPAL;
 - c. The implementation of regular desludging in all zones;
 - d. Integration of Duri Kosambi sludge treatment facility and Pulo Gebang sludge treatment facility with the newly built wastewater treatment plants (WWTPs); and
 - e. Integration of the on-site sludge treatment functions with WWTPs throughout all the zones.
- (2) Target ratio of domestic wastewater management services through decentralized wastewater management system until the year 2022 is 35% (thirty five percent).

2. Actions to be taken by DKI Government during Mid-term Plan

In order to materialize the DKI Government Policy as stated in the above 1, the following actions will be taken by the DKI Government.

- 1) Preparation of Data Base of septic tanks in DKI Jakarta
- 2) Implementation of communal WWTP/SANIMAS
- 3) Regulation for establishing regular desludging system in DKI Jakarta
- 4) Regulation for improvement of operations and maintenance of ITPs
- 5) Strengthening the inspection of ITP performance
- 6) Incorporation of the design of the pre-treatment facility for the on-site sludge into the design of the newly built WWTPs

(The Detailed explanation on the actions recommended by JICA Team is provided in the attached 'Box-1'.)

3. Required capacity for the on-site sludge treatment

The required capacity for the treatment of the on-site sludge which to be reflected in the design of the pre-treatment facilities to be attached to WWTPs and the designing of the newly built WWTPs themselves is estimated to be 3,600m³/day.

(The factors to be considered in estimating the required capacity is provided in the attached 'Box-2'.)

(Box-1) Detailed explanation on the actions recommended by JICA Team

(1) Preparation of Data Base of septic tanks in DKI Jakarta

DKI Government will prepare the data base of household septic tanks in entire DKI Jakarta.

(2) Implementation of communal WWTP/SANIMAS

DKI Government will implement the communal WWTPs with 200 HHs and SANIMAS with 50 HHs to improve the water quality and stop the open defecation around the rivers/canals. The selection of locations will be based on the population density, river and groundwater quality, status of existing facilities etc. The layout and design of facilities, pipes and treatment plant, shall be considered future connection to the centralized sewerage system.

(3) Regulation for establishing regular desludging system in DKI Jakarta

DKI Government will establish regulations enforcing the regular desludging of household septic tanks and individual treatment plants (ITPs) of commercial buildings and office buildings. Regulations will include the responsibility for regular desludging, qualification and training of desludging operators, and financing including tariff structure.

(4) Regulation for improvement of operations and maintenance of ITPs

DKI Government will establish regulations enforcing the improvement of operation and maintenance of ITPs of commercial buildings and office buildings by the building owners. Regulations will include the building owners' responsibility, qualification and training of technical supervisors to be employed by the building owners and the operation and maintenance vendors.

(5) Strengthening the inspection of ITP performance

DKI Government will improve the inspection system of the performance of ITPs of commercial buildings and office buildings, including the creation of designated inspection agencies which will support BPLHD's inspection.

(6) Incorporation of the design of the pre-treatment facility for the on-site sludge into the design of the newly built WWTPs

DKI Government will incorporate the design of the pre-treatment facility for the sludge collected from the household septic tanks and ITPs of commercial buildings and office buildings (hereinafter referred to as 'on-site sludge') into the design of the newly built WWTPs to be built in Duri Kosambi, Pulo Gebang and other zones. For the zones in which there is no space to build such pre-treatment facilities in the newly built WWTPs, and, for the zone in which the completion of the new WWTP in the near future is unlikely, erection of sludge relay station or direct injection of the sludge into the sewers after the appropriate pre-treatment will be options.

(Box-2) The required capacity of sludge treatment

The treatment capacity of the on-site sludge which shall be reflected in the design of the pre-treatment facilities to be attached to WWTPs and the designing of the newly built WWTPs themselves shall be estimated based on the following factors;

(1) Progress of house connection to the sewerage system.

Households and buildings connected to the sewerage system no longer require desludging. Therefore, they are to be deducted from the required capacity for sludge treatment. If the interceptor sewer method is applied at the initial stage of the sewer system development, the households' connection to the sewer system will be realized later but the commercial buildings and office buildings will be connected earlier.

(2) Progress of the adoption of the regular desludging system

The progress of enforcement of regular desludging depends on the strength of the DKI government policy and its acceptance by Jakarta citizens.

(3) Estimation of the sludge volume from the regular desludging system

If we assume that all the household septic tanks in DKI Jakarta remain existing in near future since none of households are connected to the sewer due to the interceptor method, and that all the households in DKI Jakarta are successfully persuaded to join the regular desludging program, the maximum volume of the on-site sludge collected (to be treated) is estimated as follows;

Assumption	Calculation	Daily volume of sludge collection (Required treatment capacity)
All the septic tanks are deslugged.	$2\text{m}^3 \times 666,000 \div 365\text{days}$	3,649m ³

(Assumption)

- Assuming that there are 2,000,000 septic tanks in DKI Jakarta.
- The average size of household septic tanks : 2m³
- Regular desludging is conducted once in three years interval so that the sludge is extracted when the volume of the accumulated sludge reaches on-third of the whole tank volume.
- All the contents (water + sludge) of the septic tank are emptied and transported to the sludge treatment plant and treated.

The above figure (3,649m³/day) does not include the volume of the sludge to be collected from ITPs of commercial buildings and office buildings which may be substantial. In the M/P 2012, the maximum volume of sludge collected from ITPs were estimated to be 1,847m³/day (year 2030) based on the separate sewer system concept. However, on the one hand, under the interceptor concept, it is very difficult to predict how quickly buildings are connected to the sewer. On the other hand, the assumption that the regular desludging is unanimously applied to all the household septic tanks, may not be realistic.

Therefore, in order to avoid the overinvestment, it would be safe to predict that the ITP sludge would offset the shortfall of the septic tank sludge and the maximum volume of on-site sludge to be treated is about 3,600m³/day, which is to be included in the Mid-term Plan.

(4) On-site sludge treatment capacity

Currently, there are two existing on-site sludge treatment facilities (Duri Kosambi and Pulo Gebang) in DKI Jakarta. Their capacities are;

- Duri Kosambi 600m³/day
- Pulo Gebang 600m³/day

Therefore, the additional 2,400m³/day capacity for the on-site sludge treatment, including pretreatment facilities, needs to be accommodated in the newly built WWTPs including the ones to be built in Duri Kosambi and Pulo Gebang.

**資料 9 下水道事業の運営や実施に関する
条例策定支援テキスト**

