

Country Name	<b>Project for Capacity Development of Wastewater Sector through reviewing the Wastewater Management Master Plan in DKI Jakarta</b>
Republic of Indonesia	

**I. Project Outline**

Background	In DKI Jakarta <sup>1</sup> where the capital of Indonesia is located, people had been suffering from environmental problems such as repeated flooding, poor sanitation, water shortage and land subsidence by excessive exploitation of groundwater. In 1991, JICA and the Directorate General of Human Settlements (DGHS), the Ministry of Public Works (MPW) (Currently Ministry of Public Works and Housing; MPWH) jointly formulated a master plan (M/P) featuring drainage, sewerage and sanitation development in DKI Jakarta for the target year of 2010. However, the development of the sewerage systems was not able to be proceeded as planned and their coverage remained low. Meanwhile, the Government of Indonesia planned to improve the coverage of sewerage service in major cities nationwide including DKI Jakarta. Under these circumstances, the Government of Indonesia made a request to the Government of Japan for technical cooperation to assist the revision of the wastewater management master plan.				
Objectives of the Project	Through (1) developing or revising laws and regulations on wastewater management and (2) revising the wastewater management master plan in DKI Jakarta, the project aimed that capacity of MPW (Current MPWH) for development of legal system and capacity of DKI Jakarta Provincial Government for development of the M/P are enhanced (project purpose level) and thereby contributing to proper policy making, establishment of system and plan in wastewater sector and implementation of the revised M/P is implemented (overall goal level). 1. Overall Goal: (1) Proper policy, system and plan in wastewater sector are established. (2) DKI Jakarta has enough capacity to improve wastewater sector conditions. 2. Project Purpose: Capacity of Ministry of Public Works and DKI Jakarta in formulation of wastewater sector policies and wastewater management plan is enhanced.				
Activities of the project	1. Project site: DKI Jakarta 2. Main activities: (1) The project develops or revises laws and regulations on wastewater management. (2) The project revises the wastewater management master plan in DKI Jakarta. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 14 persons 2) Trainees received: 14 persons 3) Equipment: PCs, Auto CAD (Computer-Aided Design), GIS software (ArcGIS) and others Indonesian Side 1) Staff allocated: 33 persons 2) Office space: Project offices 3) Local costs: Meeting expenses and allowance				
Ex-Ante Evaluation	2010	Project Period	July 2010-June 2012	Project Cost <sup>2</sup>	(Ex-ante) 250 million yen (Actual) 250 million yen
Implementing Agency	1) Directorate General of Human Settlement (DGHS), MPW (Currently Ministry of Public Works and Housing; MPWH), 2) DKI Jakarta Provincial Government, 3) Wastewater Management Enterprise, City of Jakarta (PD PAL Jaya)				
Cooperation Agency in Japan	Ministry of Land, Infrastructure and Transport				

**II. Result of the Evaluation<sup>3</sup>**

< Special perspectives considered in the ex-post evaluation >

As the next steps for indicators of the Project Purpose are set in the Overall Goal, continuation status of project effects is evaluated in "Status of achievement of Overall Goal at the time of ex-post evaluation."

**1 Relevance**

<Consistency with the Development Policy of Indonesia at the time of ex-ante evaluation and project completion>

The project was consistent with development policy of Indonesia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, MPWH was preparing "the Strategic Plan for the Ministry of Public Works 2010-2014" under "the National Development Plan 2010-2014". Under this Strategic Plan, MPWH aimed at increasing the sewerage coverage ratio to 20% in 15 large cities including DKI Jakarta. DKI Jakarta Provincial Government also promoted development of sewerage system under "the Medium-Term Development Plan of DKI Jakarta 2008-2012". At the time of project completion, promotion of sewerage system development was accommodated in "the Jakarta Spatial Plan 2030" and was also raised in "the Medium-Term Development Plan of DKI Jakarta 2013-2017".

<Consistency with the Development Needs of Indonesia at the time of ex-ante evaluation and project completion >

The project was consistent with the needs for wastewater management in Indonesia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, MPWH was preparing "the Domestic Wastewater Law as of December 2009" and therefore MPWH needed advices from Japanese experts for further improvement of the contents and finalization of the process. Also, the

<sup>1</sup> Daerah Khusus Ibukota Jakarta (Special State Capital of Jakarta)

<sup>2</sup> The project cost was calculated based on the rules and standards of ex-post evaluation

<sup>3</sup> "Relevance", "Effectiveness/Impact", "Efficiency" and "Sustainability" of the project will be rated by three grade evaluation ("high", "fair", and "low")

M/P of 1991 needed to be reviewed in accordance with the development of DKI Jakarta. At the time of project completion, the feature of this project, the revision of M/P, was to clarify the problem not only in off-site systems<sup>4</sup> but also that of a septic tank and individual wastewater treatment plant (ITP) for commercial buildings, which were relevant to issues on on-site systems<sup>5</sup> in DKI Jakarta. The M/P also proposed the concrete countermeasures to them.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy. "Country Assistance Program for Indonesia", developed in November 2004, includes assistance for the improvement of public services including water and sanitation under "Assistance to Create a Democratic and Fair Society", as one of the priority areas in the Program.

<Evaluation Result>

In light of the above, the relevance of the project is high.

## 2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was mostly achieved by the time of project completion. Although the project aimed at submitting Domestic Wastewater Law, it was changed to the Sanitation Law during the project period in response to the request from the parliament to MPWH to draft the Sanitation Law which targets both of wastewater and rainwater. (The rainwater is not included in the scope of the project). The "Sanitation Law" was drafted under the project, however, it was not submitted to the parliament (indicator 1-1) by the time of project completion. Drafted regulation and standards related to the Sanitation Law were prepared and submitted to the Ministry of MPWH in November 2011 (indicator 1-2). An action plan of implementation of revised Wastewater Management Master Plan in DKI Jakarta was developed (indicator 2), and adopted in Governor Regulation of DKI Jakarta No. 41 of 2016 about the "Master Plan on the Development of Infrastructure and Facilities on the Domestic Wastewater Treatment".

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goals (Both Overall Goal 1 and Overall Goal 2) have been mostly achieved. The enactment process of "the Sanitation Law" was postponed after discussion in the committee composed by several stakeholders considering. It was because further discussion is required to avoid duplication with existing laws and regulations. Since laws and regulations which regulate wastewater management was urgently needed to develop wastewater treatment system in Indonesia, MPWH finally decided to select clauses related to wastewater management out of clauses in the draft of "Sanitation Law" and regulate them in the ministry decree, considering its urgency. The ministry decree on domestic wastewater management was enacted in March 2017 without waiting for enactment process of "Sanitation Law". The above decree includes regulations and standards drafted during the Project. In the meantime, the ministry decree which covers the minimum standard service of local governments on water supply and sanitation management was established on February 24, 2014.

The revised M/P is being implemented. The project proposed development of off-system in Zone No.1 and No.6 and improvement of on-site system as prioritized projects for short term development plan (by 2020). At the time of ex-post evaluation, off-site system development in Zone 1 has been implemented (Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014) and in Zone 6 is ready to start (Pre-request for Japan's ODA Loan has been submitted and the project has been appraised).

<Other Impacts at the time of Ex-post Evaluation>

No land acquisition and resettlement occurred under this project, and no negative impact on natural environment was observed.

<Evaluation Result>

In light of the above, the Project Purpose was mostly achieved at the time of project completion as the Sanitation Law was drafted but not submitted to the parliament, while regulation and standards were drafted and submitted to MPWH, and an action plan of implementation of M/P was developed. The Overall Goals have been mostly achieved as the ministry decree which regulate domestic wastewater management is enacted including its regulation and standards, and the revised M/P is being implemented. Therefore, the effectiveness/impact of the project is fair.

### Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Capacity of Ministry of Public Works and DKI Jakarta in formulation of wastewater sector policies and wastewater management plan is enhanced.	Indicator 1-1: Draft Domestic Wastewater Law is submitted to the parliament.	<u>Status of the achievement: not achieved</u> (Project Completion) The Sanitation Law was under drafting in MPWH as of February 2012 and the preparation of an "academic text" (a draft based on hearings with universities, research institutes, and local governments) for the Law was likely to be finalized. After the development of the academic text, it was expected that the draft of Sanitation Law had been submitted to the parliament by the end of 2012 and the Law was going to be promulgated in 2013. (Ex-post evaluation) The "academic text" was discussed in the committee composed of several related ministries prior to the submission to the parliament. During the discussion in the committee, there was an opinion that the Sanitation Law should include not only waste water and drainage, but also solid waste. However, considering there was already existing Law No. 18/2008 on Waste Management, it was expected that it would need a long discussion to reach consensus among related ministries, especially with Ministry of Environment and Forestry. Considering that regulation on wastewater management was urgently required, finally the MPWH decided to regulate wastewater management in ministry decree instead of continuing the enactment process of the Sanitation Law at this stage. The ministry decree No. 4/2017 of domestic wastewater management has enacted.
	Indicator 1-2: Draft regulation and standards related to Domestic	<u>Status of the achievement: achieved</u> (Project completion) A draft of regulation and standards was submitted to MPW.

<sup>4</sup> Off-site systems remove wastewater from the sources for treatment elsewhere (such as treatment by sewerage system).

<sup>5</sup> On-site systems treat wastewater on or near the sources (such as treatment by septic tank).

	Wastewater Law are submitted to MPW.	(Ex-post evaluation) Regulations and standards related to Domestic Wastewater Law are regulated in attachments of the ministry decree No. 4/2017 of domestic wastewater management.																			
	Indicator 2: An action plan of implementation of revised Wastewater Management Master Plan in DKI Jakarta is developed (with information on timeframe, target organization/section in charge, source of the budget for each work item).	<u>Status of the achievement: achieved</u> (Project Completion) The action plans were developed and described in the Final Report (FR) (Ex-post evaluation) An action plan of the implementation of the revised Wastewater Management Master Plan in DKI Jakarta has been implemented. The Master Plan on the Development of Infrastructure and Facilities on the Domestic Wastewater Treatment was enacted as Governor Regulation of DKI Jakarta No. 41 of 2016.																			
(Overall goal) (1) Proper policy, system and plan in wastewater sector are established. (2) DKI Jakarta has enough capacity to improve wastewater sector conditions.	Indicator 1-1: Domestic Wastewater Law is enacted.	<u>Status of the achievement: partially achieved</u> (Ex-post Evaluation) The ministry decree No. 4/2017 of domestic wastewater management was enacted in March 2017.																			
	Indicator 1-2: Regulations and standards related Domestic Wastewater Law are enacted.	<u>Status of the achievement: achieved</u> Regulations and standards are regulated in the ministry decree No. 4/2017 of domestic wastewater management. In addition, the ministry decree which regulates the minimum standard service of local governments on water supply and sanitation management was established on February 24, 2014 (The Minister of Public Works & Housing Regulation No.1/PRT/M/2014 on “the Minimum Service Standard on Public Works and Spatial Planning”).																			
	Indicator 2-1 Finance is prepared.	<u>Status of the achievement: mostly achieved</u> (Ex-post evaluation) Finance is being prepared. (Refer to the Indicator 2-2 below.)																			
	Indicator 2-2: Revised wastewater management master plan is implemented.	<u>Status of the achievement: mostly achieved</u> (Ex-post evaluation) The revised wastewater master plan is implemented to some extent.																			
		<table border="1"> <thead> <tr> <th>Priority Projects</th> <th>Status of F/S</th> <th>Status of Finance (with sources)</th> <th>Status of implementation</th> <th>Implementing agency</th> </tr> </thead> <tbody> <tr> <td>Off-site system in Zone No.1</td> <td>Done</td> <td>Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)</td> <td>- The land for the Wastewater Treatment Plant (WWTP) of Zone 1 has been allocated by DKI Jakarta Provincial Government - Engineering Services (E/S) for Zone 1 is on-going.</td> <td>MPWH DKI Jakarta Provincial Government</td> </tr> <tr> <td>Off-site system in Zone No.6</td> <td>Done</td> <td>Pre-request for Japan’s ODA Loan has been submitted and the project has been appraised. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)</td> <td>- The land for WWTP of Zone 6, phase 1 has been allocated by DKI Jakarta Provincial Government</td> <td>MPWH DKI Jakarta Provincial Government</td> </tr> <tr> <td>On-site system</td> <td>n.a</td> <td>n.a.</td> <td>n.a.</td> <td>n.a</td> </tr> </tbody> </table>	Priority Projects	Status of F/S	Status of Finance (with sources)	Status of implementation	Implementing agency	Off-site system in Zone No.1	Done	Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for the Wastewater Treatment Plant (WWTP) of Zone 1 has been allocated by DKI Jakarta Provincial Government - Engineering Services (E/S) for Zone 1 is on-going.	MPWH DKI Jakarta Provincial Government	Off-site system in Zone No.6	Done	Pre-request for Japan’s ODA Loan has been submitted and the project has been appraised. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for WWTP of Zone 6, phase 1 has been allocated by DKI Jakarta Provincial Government	MPWH DKI Jakarta Provincial Government	On-site system	n.a	n.a.	n.a.
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Off-site system in Zone No.1	Done	Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for the Wastewater Treatment Plant (WWTP) of Zone 1 has been allocated by DKI Jakarta Provincial Government - Engineering Services (E/S) for Zone 1 is on-going.	MPWH DKI Jakarta Provincial Government																	
Off-site system in Zone No.6	Done	Pre-request for Japan’s ODA Loan has been submitted and the project has been appraised. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for WWTP of Zone 6, phase 1 has been allocated by DKI Jakarta Provincial Government	MPWH DKI Jakarta Provincial Government																	
On-site system	n.a	n.a.	n.a.	n.a																	
		<ul style="list-style-type: none"> <li>- As to the improvement of on-site system, the DKI Jakarta Provincial Government has started the construction of communal/decentralized WWTPs by its own budget and some by foreign loan (Islamic Development Bank: IDB). According to the ministry decree No. 4/2017 of domestic wastewater management, decentralized WWTPs with more than 10 households are defined as off-site system.</li> <li>- Regular desludging has been implemented in some pilot areas under a pilot project of USAID cooperation program.</li> <li>- Construction of new sludge treatment plant which was proposed by the project was suspended, as the land acquisition was not progressed. Instead, it is being planned to integrate sludge treatment plants to WWTPs. In the meantime, construction of a sludge treatment plant is being integrated to off-site system in Zone 6.</li> <li>- The Detailed Engineering Design of Zone 2, 3, 4, 5, 7, 8, 10 were completed by PD PAL Jaya.</li> <li>- The locations of WWTP of 14 zones have been officially determined in Governor Regulation of DKI Jakarta No 41 of 2016.</li> </ul>																			

### 3 Efficiency

Both the project period and project cost were as planned (ratio against the plan: 100%, 100%). Therefore, efficiency of the project is high.

### 4 Sustainability

#### <Policy Aspect>

All the related policy and regulations from national level to local level support the sewerage system development. In RPJMN (National Mid-Term Development Plan) 2015-2019, MPWH aimed at achieving 100-0-100 by 2019. 100% access to water supply; 0% of slum areas; 100% access to proper sanitation. RPJPD (the Regional Long-Term Development Plan) of DKI Jakarta 2005 – 2025, to support the mission of DKI Jakarta for the construction and development of infrastructure and facilities for the region, focused on among others, sewage management, clean water, housing and settlement. RPJMD (the Regional Mid-Term Development Plan) of DKI Jakarta 2013-2017 includes off-site sewerage system development and set the performance target including Zone 1 and Zone 6. And the Governor of DKI Jakarta has already established some policies to support the project, among others is Peraturan Gubernur No.41 Tahun 2016 (Governor Regulation No.41 Year 2016) about the “Master Plan for The Development of Infrastructure and Means of Domestic Waste Water Management”.

#### <Institutional Aspect>

The roles and responsibilities of DGHS, MPWH have been clear and unchanged. DGHS is composed of approximately 2,494 employees including about 150 staff members in the Directorate of Sanitation Environmental Development. In the Directorate of Sanitation Environmental Development, the Sub-directorate of Technical Planning and Controlling is responsible for sanitation/sewerage related legislation and the Sub-directorate of Sanitation is responsible for operation of sanitation/sewerage. As an agency which oversees wastewater management, the number of staff is sufficient, however, the number of staff who has experiences and skills on advanced wastewater treatment facilities is limited, as there has been few modern and large-scale wastewater treatment facilities. In addition, the limited number of middle class officials is a common problem for all ministries.

Water Resource Department of DKI Jakarta, that was reformed from Water Management Department of DKI Jakarta in January 2017, has functions of planning, development, management, maintenance, controlling, monitoring, evaluation, research, security of water resources, such as rain water, surface water/raw water, sea water and management of waste water/sewage. In January 2017, 15 staff members were allocated to the Division of Wastewater, Raw Water and Water Supply of Water Resource Department. The number of staff is still sufficient at this moment, however, the number of experienced staff and has knowledge and skills on wastewater management is limited.

The DKI Jakarta Provincial Government is basically responsible for undertaking the sewage works while DGHS is overseeing the Provincial Government. Due to the insufficient funding resources on the part of the Provincial Government, DGHS is financially supporting the part of the construction. “Project for Improving Planning Capacity for Sewerage System in DKI Jakarta” (Technical cooperation project) has extended support for clarifying the roles and responsibilities of the stakeholders.

PD PAL Jaya, a local government owned company, is also in charge of services to manage/treat wastewater. Main responsibilities are management of septic tanks, operation of wastewater facilities in Zone 0 and construction of secondary, tertiary and house connecting pipes and O&M. PD PAL Jaya has promoted a good governance system, e.g. applying billing system such as e-billing to its customers to ensure business transparency.

#### <Technical Aspect>

DGHS has enough techniques to undertake its duties and responsibilities for sanitation/sewerage system. The Directorate of Sanitation Environmental Development of DGHS has technical staff as there are 10 to 15 engineers who have a master degree. Skills and techniques transferred under the project have been passed to staff assigned to the department. The Water Resource Department of DKI Jakarta does not have enough experiences and techniques to undertake its duties and responsibilities for sanitation/sewerage system. PD PAL Jaya has enough experiences and techniques in operation and management of existing sanitation/sewerage system as 56% of its staff has bachelor or master degree, yet it is necessary to strengthen their techniques and skills on advanced wastewater treatment system. Therefore, JICA has continuously supported the DKI Jakarta Provincial Government for their capacity development under the above mentioned technical cooperation project “Project for Improving Planning Capacity for Sewerage System in DKI Jakarta”.

#### <Financial Aspect>

DGHS are mobilizing loans from APBN (Indonesian National Income and Expenditure Budget), JICA (for construction of sewage system for Zone 1 and 6).

Table 1: Financial statement of DGHS

(Unit: bil IDR)

Year		2012	2013	2014	2015	2016
DGHS	Allocation Fund	13,843	21,911	14,548	19,798	17,718
	Expenditure	12,894	20,934	13,942	18,563	14,203
Environmental Sanitation Dev.	Allocation Fund	2,609	2,634	2,341	3,374	3,350
	Expenditure	2,045	2,370	2,148	3,146	2,796
Wastewater Sector	Allocation Fund	567	774	708	1,382	1,200
	Expenditure	563	670	545	702	970

According to the DKI Jakarta Provincial Government, DKI Jakarta has a budget required to undertake its roles and responsibilities for sanitation and sewage system at this moment. Besides, DKI Jakarta has support from DGHS, as mentioned above.

Table 2: Sanitation/Sewerage related budget of DKI Jakarta Provincial Government

	(Unit: Trillion Rupiah)		
	2013	2014	2015
Applied budget	n.a.	n.a.	n.a.
Approved budget	3.1	6.1	5.1

\*The figure is not only related to sanitation or sewerage but also with other physical programs.

Table 4: Financial status of PD PAL Jaya

	(Unit: Million Rupiah)		
	2013	2014	2015
Revenue	47,194	54,149	57,618
Expenditure	26,609	29,533	36,959

#### <Evaluation Result>

In light of the above, problems have been observed in terms of institutional and technical aspects, although the institutional aspect has been fostered by the technical cooperation project mentioned above. Therefore, the sustainability of the effectiveness through the project is fair.

#### 5 Summary of the Evaluation

The project purpose was mostly achieved at the time of project completion as the Sanitation Law was drafted but not submitted to the parliament, while regulation and standards were drafted and submitted to MPWH, and an action plan of implementation of M/P was developed. The Overall Goals have been mostly achieved as the ministry decree which regulates domestic wastewater management is enacted including its regulation and standards, and the revised M/P is being implemented. As for sustainability, on one hand, there are some challenges in institutional and technical aspects such as limited number of experienced and skilled staff and technical capacity. On the other hand no challenges have been observed in policy and financial aspects. Considering all of the above points, this project is evaluated to be satisfactory.

### III. Recommendations & Lessons Learned

#### Recommendations to Implementing Agency

In further implementing the M/P, the Provincial Government is recommended to strengthen its capacity in terms of institutional and technical aspect by stages in accordance to a physical infrastructure construction progress and to continue its commitment in terms of responsibility and finance in implementing the sewerage management.

#### Lessons Learned to JICA

Although the project envisaged that the draft domestic wastewater law to be submitted to the parliament (indicator 1-1 of the project purpose), it was difficult to achieve this target during the two-year project period. Before setting the indicator, it was necessary to thoroughly review the standard procedures for the enactment and judge whether the procedures can be completed within the planned project period and with the planned input in order to set attainable indicators and targets. In addition, risks of policy change and procedures during a process of enactment of laws and regulations by the Government of Indonesia/Implementing Agencies should be considered as an important assumption at the time of project formulation.



Conceptual Drawing of Zone-1 WWTP at Waduk Pluit