

## Ex-ante Evaluation

### 1. Name of the Project

Country: The Socialist Republic of Vietnam

Project: Second Ho Chi Minh City Water Environment Improvement Project (I) (II) (III)

L/A signed on: March 31, 2006 (I), March 31, 2008(II), May 28, 2016 (III)

L/A Amount: 1,557 million Yen (I), 13,169 million Yen (II), 20,967 million Yen (III)

Borrower: The Government of the Socialist Republic of Vietnam

### 2. Background and Necessity of the Project

#### (1) Current state and Issues of the Water Environment Sector in Vietnam

Accompanying the industrialization and concentration of population into the cities, the urban areas of Vietnam have witnessed a surge in industrial wastewater and domestic sewage. However, the development of sewerage system is not progressing, and polluted water is being discharged directly into rivers, thereby causing serious pollution to the water environment. The water contamination is being triggered by a combination of factors including the fact that (i) waste products are being dumped in rivers, lakes, etc., (ii) leachate from waste landfill sites is left untreated, and (iii) nearly all industrial and domestic wastewater is discharged without first being treated.

Flooded arterial roads in rainy seasons and water pollution of rivers, lakes and canals have become serious problems in Ho Chi Minh city, the largest city in Viet Nam. Water pollution of rivers affects not only the water quality of small- and mid-sized rivers in urban areas but also of large-sized rivers located in the downstream of those rivers, such as the Saigon River and the Dong Nai River which are the water source of the city. Thus, likewise those around Hanoi, Hai Phong, Hue and other major cities, the river water quality around Ho Chi Minh city does not meet the national criteria of surface water quality for domestic use.

#### (2) Development Policy for the Water Environment Sector in Vietnam and the Priority of the Project

The plan formulated through “Ho Chi Minh City Urban Drainage and Sewerage Project” in 1999 has been recognized as an overall plan for the sewage sector of Ho Chi Minh city, of which the target area of this Project is recognized as one of the priority areas. The project report proposes that over 30% of the priority area be carried out by “Ho Chi Minh City Water Environment Improvement Project” while the rest of the area be implemented by this Project. The Prime Minister’s Decision “Approving Orientations For Development of Water Drainage in Vietnamese Urban Centers and Industrial Parks Up To 2025 and a Vision Towards 2050”, approved in November 2009, aims at the development of 70% to 80% of urban sewerage by 2025 as one of the activities of the country’s development policy.

### (3) Japan's and JICA's Policy and Operations in the Water Environment Sector

The Country Assistance Program for Vietnam (December 2012) and JICA Country Analysis Paper states that Japan will cooperate in the field of “environmental issues emerging as a result of rapid urbanization and industrialization” under one of the three priority areas “Response to vulnerability.” Therefore, the Project is consistent with these plan and analysis. JICA has been supporting the development sewage systems, building of operation and maintenance systems and strengthening the capacity in Hanoi, Ho Chi Minh, Hai Phong, Hue and Binh Duong Province by conducting the Yen Loan Projects, such as “Hanoi Drainage Project for Environment Improvement” (1995), “Ho Chi Minh City Water Environment Improvement Project” (2001), and etc.

### (4) Other Donors' Activity

“Sustainability” is one of the 3 pillars of World Bank's “Country partnership strategy for 2012 to 2016 in Vietnam” and it is stated that they will strengthen environmental protection and management, including improvement of urban water environment infrastructures. In fact, they have been implementing several water environment improvement projects in several cities and provinces in Vietnam. On the other hand, as stated in “Country partnership strategy for 2012 to 2016 in Vietnam” , Asian Development Bank (ADB) considers improving water supply and wastewater treatment plants and related infrastructures and its services are the one of their 6 top priority fields, and they have been implementing several water environment improvement projects in Vietnam as well.

### (5) Necessity of the Project

The Project is consistent with Japan and JICA's priority area and the policy of the Government of Vietnam, and contributes to an improvement of the hygienic environment of Ho Chi Minh City. Thus given the above, JICA's assistance for this project is highly necessary and relevant.

## **3. Project Description**

### (1) Project Objectives

The Objective of the Project is to lessen the damage caused by flooding and raise the capacity for treating polluted water, through the improvement of sewerage and drainage system in Ho Chi Minh City, thus contributing to an improvement to its urban and living hygiene environment.

### (2) Project Site / Target Area

Ho Chi Minh City, Socialist Republic of Vietnam

(3) Project Components

- 1) Expansion of sewage treatment plants (treatment capacity: 328,000 m<sup>3</sup>/day [expanded portion]), (ICB)
- 2) Expansion of wastewater relay pump stations, laying and improvement of sewage and drainage pipes (ICB)
- 3) Sewer Development (ICB)
- 4) Canal Improvement (ICB)
- 5) Consulting service (detailed design, assistance in P/Q and bidding and construction supervision) (shortlist method)

(4) Estimated Project Cost (Loan Amount)

60,681 million Yen (Accumulated Loan Amount: 35,693 million Yen)  
Original Plan: 53,994 million Yen

(5) Schedule

March 2006 – October 2021 (188 months in total): The project will be completed when the facilities start operation (October 2019).

Original Plan: March 2006 – May 2015 (111 months in total) (The project is planned to be completed in May 2013.)

(6) Project Implementation Structure

- 1) Borrower: The Government of the Socialist Republic of Vietnam
- 2) Executing Agency: Ho Chi Minh City People's Committee (hereinafter referred to as "HCMCPC")
- 3) Operation and Maintenance System will be selected by bidding for on-going project "Ho Chi Minh City Water Environment Project", and that selected company will be in charge of O&M for the Project as well.

(7) Environmental and Social Consideration / Poverty Reduction / Social Development

1) Environmental and Social Consideration

① Category: A

② Reasons for Categorization:

This project is likely to have significant adverse impact on the environment under the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established in April 2002). Thus this project is classified as Category A.

③ Environmental Permit:

The Environmental Impact Assessment (EIA) report on this project was approved by Ho Chi Minh City Department of Natural Resources and Environment (DONRE) in October 2005, as well as in December 2005 and

the revised EIA will be approved by DONRE by first quarter of 2016.

④ Anti-Pollution Measures

Sewage that flows into sewage treatment plants will be discharged into rivers after it is treated in a manner that meets the water emission standards of Vietnam. Thus the discharge is not expected to have any adverse impact on the environment. Additionally, polluted sludge originating out of sewage treatment plants will be treated appropriated at existing Da Phuoc landfill site.

⑤ Natural Environment

The Project site and its surrounding area are not situated in sensitive areas such as national park, and it is assumed that an adverse effect on natural environment will be kept to minimum.

⑥ Social Environment

The Project will involve land acquisition of approximately 2ha and the resettlement of 192 households, which were carried out in accordance with the relocation plan and the domestic procedures of Vietnam. In a conference held in September 2007 where the local residents were briefed about the project, it was concluded that there was no particular opposition to the implementation of the project. The resettlement of 192 households has been implemented by July 2015.

⑦ Other / Monitoring

In this project, Urban-Civil Works Construction Investment Management Authority of Ho Chi Minh City (UCCI) will monitor, among other things, air quality, water quality and noise, as well as resident relocation during construction, while Steering Center of the Urban Flood Control Program (SCFC) will monitor the same when the improved facilities are in use.

- 2) Promotion of Poverty Reduction: As part of the consulting services offered in the project, an action plan will be worked out to reduce poverty and improve the hygiene environment in the target area.
- 3) Promotion of Social Development: (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV / AIDS, Participatory Development, Considerations for Persons with Disabilities, etc.): PMU will implement HIV/AIDS measures for construction workers in cooperation with the HIV/AIDS Countermeasures Section of Ho Chi Minh City Department of Health. In addition, an agreement has already been reached with PMU that (i) a HIV/AIDS clause will be included in the bidding document and the contractor will be asked to cooperate in the implementation of the HIV/AIDS measures, and (ii) the execution of the program will be monitored by the HIV/AIDS Countermeasure Section of Ho Chi Minh City Department of Health. Moreover, in this project, education in hygiene and the environment will be administered

to raise local residents' awareness of the importance of preserving the water environment.

(8) Collaboration with Other Donors:

None

(9) Other Important Issues:

None

#### 4. Target Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline (2006 Actual)	Target (2021) 【2 years after the project completion】
Population treated (persons)	0	1,422,000
Amount of wastewater treated (m <sup>3</sup> /day)	0	469,000
BOD concentration in sewage treatment plants (inflow, water release, disposal rate)	-	Inflow: 200mg/l Water release: 50mg/l Disposal rate: 75%
Discharge capacity (m <sup>3</sup> /s)	52	73
The number of households by overflow for 1/2 year rainfall (HH)	40,000	0
Annual maximum inundated depth caused by 10-year rainfall (m)	1.68	1.44

2) Internal Rate of Return

Based on the conditions indicated below, Economic Internal Rate of Return (EIRR) of the Project is 2.4%. The financial internal rate of return (FIRR) was not calculated.

**【EIRR】**

Cost: Project cost (excluding tax) and operation and maintenance expenses

Benefit: Reduction in the amount of flood damage

Project life: 40 years

**【FIRR】**

Cost: Project cost and operation and maintenance expenses

Benefit: Toll revenues

Project life: 30 years

(2) Qualitative Effects

Improvement of living environment and climate change adaptation.

<b>5. External Factors and Risk Control</b>
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None in particular

<b>6. Lessons Learned from Past Projects</b>
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From the ex-post evaluation of similar projects in water supply and sewerage and health sector in the past, it has been learned that, regarding the assurance of a project's sustained effectiveness after completion, the effectiveness of cooperation at the local government level of Japan should be recognized. Another lesson learned is that to realize the effectiveness of a project, it is useful to secure the participation of local residents by conducting awareness raising activities concerning the environment and hygiene from early stages of the project. Additionally, from the perspective of securing sustainability after project completion, the lesson learned is that strengthening of operation and maintenance on fiscal, technical, and personnel fronts, and therefore implementing consulting services for staff education and training and consigning private companies should be considered as and when necessary. A further lesson learned is that, on the fiscal front, it is important to support efforts to make improvements on the institutional front including establishing an appropriate fee structure and putting in place a lending mechanism for those too poor to pay the cost of connecting their homes to sewerage systems. On the basis of these lessons, an action plan is being drawn for reducing poverty and improving the hygiene environment as part of its consulting services of this Project. At present, under a survey being conducted with JICA's assistance, support is being provided for selecting organizations to take charge of operation and maintenance, preparing an operation and maintenance agreement, and setting the sewerage charge in Ho Chi Minh City. Furthermore, with regard to the operation and maintenance of the sewage treatment plants and relay pumping stations under construction in the phase I project, capacity building through on-the-job training by constructors are scheduled for staff members of the organization in charge of operation and maintenance in the sewage sector of

Ho Chi Minh City.

## **7. Plans for Future Evaluation**

(1) Indicators to be Used

- 1) Population treated (persons)
- 2) Amount of wastewater treated ( $\text{m}^3/\text{day}$ )
- 3) BOD concentration in sewage treatment plants (inflow, water release, disposal rate)
- 4) Discharge capacity ( $\text{m}^3/\text{s}$ )
- 5) The number of households by overflow for 1/2 year rainfall (HH)
- 6) Annual maximum inundated depth caused by 10-year rainfall (m)
- 7) Economic internal rate of return (EIRR) (%)

(2) Timing: Two years after the completion of the Project