

## Ex-ante Evaluation

<b>1. Name of the Project</b>
Country: The Socialist Republic of Vietnam Project: Southern Binh Duong Province Water Environment Improvement Project (Loan Agreement: March 30, 2007; Loan Amount: 7,770 million yen; Borrower: The Government of the Socialist Republic of Vietnam)
<b>2. Necessity and Relevance of JBIC's Assistance</b>
<p>Water pollution has become serious in Vietnam accompanying the industrialization and concentration of population in urban areas because, despite the fact that domestic and industrial wastewater is increasing in those areas, the capacity of sewage treatment plants is limited and so wastewater is being released directly into rivers and canals. Pollution of river water is not limited to small and medium rivers in urban areas, but it is also creating problems in large rivers that are water sources for major cities downstream, such as the Red River in the north and the Saigon River and Dong Nai River in the south. In fact, the quality of the river water that flows into major cities such as Ho Chi Minh, Hanoi, Hai Phong, and Hue does not meet the national standards for surface water quality that apply to sources of water for household use. The pollution of river water is caused by multiple factors including dumping of waste material into rivers, etc., lack of treatment for seepage from waste landfills, and untreated discharge of the majority of industrial and domestic wastewater.</p> <p>The Vietnam government adopted the "Orientation on Urban Drainage and Sewerage System Development up to 2020" in 1999. It states that development of sewage and wastewater systems will be advanced in industrial areas and major cities such as Hanoi and Ho Chi Minh City by 2005, and moreover, development of urban flood control and sewage treatment facilities will be advanced in each city by 2020.</p> <p>In JBIC's Medium-Term Strategy for Overseas Economic Cooperation Operations, a priority area is "assistance for global issues and peace-building," and assistance is to be provided for "water pollution measures." Moreover, assistance for environmental measures is a priority area in the Country Operational Strategy.</p> <p>Thus given the above, JBIC's assistance for this project is highly necessary and relevant.</p>
<b>3. Project Objectives</b>
The project aims to develop a sewerage system in southern Binh Duong province, and thereby contribute to the improvement of living conditions in the said area as well as the lower reaches of the Saigon river in Ho Chi Minh City.
<b>4. Project Description</b>
(1) Target Area Thu Dao Mot Town of Binh Duong Province
(2) Project Outline (a) Sewerage system development: Construction of sewerage treatment plant (17,650 m <sup>3</sup> /day), laying of sewerage pipes, etc. (b) Consulting services (bidding assistance, construction supervision, etc.)

(3) Total Project Cost/Loan Amount

9,141 million yen (Yen Loan Amount: 7,770 million yen)

(4) Schedule

April 2007 – December 2014 (93 months)

(5) Implementation Structure

(a) Borrower: The Government of the Socialist Republic of Vietnam

(b) Executing Agency: Binh Duong Provincial People's Committee (BDPC)

(c) Operation and Maintenance System: Binh Duong Water Supply, Sewerage, and Environment One Member Limited Company (BIWASE)

(6) Environmental and Social Consideration

(a) Environmental Impacts/Land Acquisition and Resettlement

(i) Category: B

(ii) Reason for Categorization: This project is not likely to have significant adverse impact on the environment due to the fact that the project sector and project characteristics are not likely to exert impact and the project is not located in a sensitive area under the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Consideration" (established in April 2002). Thus this project is classified as Category B.

(iii) Environmental Permit: The Environmental Impact Assessment (EIA) report was approved by the Department of Natural Resources and Environment of Binh Duong Province in November 2006. Authorization for the landfill site for sewer sludge has also been received.

(iv) Anti-Pollution Measures : Water discharged from the sewerage treatment plant will be treated to meet the wastewater standards of Vietnam, and sewer sludge will be treated in accordance with the domestic procedures of Vietnam. Regarding air pollution, etc., due to dust from construction, appropriate materials will be utilized and measures such as sprinkling water will be taken.

(v) Natural Environment: The project site is not located in or around sensitive areas such as a national park, and so adverse impact on the natural environment is assumed to be minimal.

(vi) Social Environment: This project requires the acquisition of approximately 11 ha of land, and resettlement of 15 households is anticipated. Land acquisition and resettlement is proceeding in accordance with the domestic procedures of Vietnam. It has been confirmed through discussion with residents that there is no particular opposition to the implementation of this project.

(vii) Other/ Monitoring: The executing agency will monitor the water quality, air quality, noise, and resident relocation in this project.

(b) Promotion of Poverty Reduction

The setting of wastewater tariff will be studied by BDPC, with consideration for household income in the project site area.

(c) Promotion of Social Development (e.g. Gender Perspective)

Because this project involves large-scale construction in a country where there is a risk of spreading HIV infection, it is planned to include an obligation for the contractor to implement

AIDS prevention measures for the construction workers.

(7) Other Important Issues

None

## 5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2006)	Target (2014, 2 years after completion)
Amount of wastewater treated (m <sup>3</sup> /day)	0	5,300
Percentage of population served (%)	0	20
BOD/SS concentration (output) (mg/l)	-	BOD: < 25 SS: < 40 <sup>1</sup>
Improvement of water quality (mg/l) <sup>2</sup>	4.5 (average from March 2000 to September 2003)	4.0 <sup>3</sup>

(2) Internal Rate of Return

Economic Internal Rate of Return: 8.7%

(a) Cost: Project cost (excluding tax), operation and maintenance cost

(b) Benefit: Wastewater tariff income, rise in land value, reduction in water purification cost, reduction of medial cost improvement of fishing industry profits

(c) Project Life: 40 years

## 6. External Risk Factors

None

## 7. Lessons Learned from Findings of Similar Projects Undertaken in the Past

It has been learned from ex-post evaluations of similar projects in the past in the water supply, sewerage and hygiene sectors that, to assure the sustainability of effects after project completion, the effectiveness of cooperation with the local Japanese government level should be recognized. Based on this, it is planned that Consulting Service includes collaboration with Japanese bodies engaged in the operation and maintenance of the sewerage facilities, and with local Japanese governments.

<sup>1</sup> Based on standards for wastewater discharge into rivers that are sources of water for household use (TCVN 6980:2001)

<sup>2</sup> Measured downstream of water intake facilities in Thu Dao Mot town, Binh Duong Province, and in Ho Chi Minh City.

<sup>3</sup> Based on standards for surface water quality for sources of water for household use (TCVN 5942:1995 Level A).

## **8. Plans for Future Evaluation**

### (1) Indicators for Future Evaluation

- (a) Amount of wastewater treated ( $\text{m}^3/\text{day}$ )
- (b) Percentage of population served (%)
- (c) BOD/SS concentration (output) ( $\text{mg/l}$ )
- (d) Improvement of water quality ( $\text{mg/l}$ )
- (e) Economic internal rate of return (EIRR) (%)

### (2) Timing of Next Evaluation

After project completion