Ex-ante Project Evaluation

1. Name of project

Country: Socialist Republic of Vietnam

Name of project: Second Hanoi Drainage Project for Environmental Improvement (II)

L/A signing date: March 31, 2009

Loan amount: 29,289 million yen

Borrower: The Government of the Socialist Republic of Viet Nam

2. Background and need for project

(1) Issues in water environment sector in Vietnam and development achievements (current status) in northern region

As Vietnam industrializes and more of the population becomes concentrated in cities, industrial wastewater and domestic wastewater is increasing in urban regions, but there has been no progress in developing a sewage system. Sewage discharged directly into rivers has led to serious water contamination. This water pollution is the result of multiple factors, including the fact that most industrial wastewater and domestic wastewater is released without having been treated and the dumping of waste in rivers.

Hanoi is the capital of Vietnam, home to a population of about 3.2 million people in an area of 925km^2. Rapid industrialization and urbanization in recent years has led to a rapid increase in the volume of industrial and domestic waste, but water treatment facilities have not been built to cope with this. Much of the city's sewage is released into the river without treatment, resulting in severe contamination in areas with considerable stagnant water, such as canals and lakes. Most of the network of sewage pipes dates back to the French colonial period, and requires repairs and upgrading. In addition, the low-lying region along the Red River located about 100km from the mouth of the Red River delta in Hanoi is particularly susceptible to typhoons. Flooding is common in the typhoon season lasting from May through September. Although the construction of drainage facilities in the Hanoi Drainage Project for Environmental Improvement carried out using Japanese ODA loans reduced the damage from flooding, the capacity of river and rainwater drainage facilities is still insufficient, making the reinforcement of drainage systems an urgent issue.

(2) Role of this project and development policies for water environment sector in Vietnam and northern region

The Ten-Year National Environment Protection Strategy (NSEP) (2003) and the Socio-Economic Development Plan 2006-2010 (2006) propose numerical targets for improving the environment. The targets related to the sewage and drainage sector aim to introduce centralized drainage systems to 40% of urban regions and 70% of industrial regions and export processing zones by 2010 and full introduction of a centralized drainage system by 2020 in urban regions, industrial regions and export processing zones. The Comprehensive

Urban Development Program in Hanoi (JICA, prepared in March 2007) gives a high priority to the current project.

(3) Japan and JICA's aid policy and achievements in the water environment sector and northern region

The aid policies outlined in the Aid Plan for Vietnam devised in April 2004 identifies environmental conservation as a priority sector, and states that "aid for sewage and drainage facilities and their maintenance and management will be treated as a priority" and "aid for systems and measures related to waste management and aid related to greater efficiency and optimization of disposal will be considered." This project conforms with this policy.

In the four priority areas for aid noted in JICA's aid policy for Vietnam, urban environmental management is addressed as part of environmental conservation.

(4) Response by other aid organizations

a) World Bank

The World Bank lists "reinforcing management of natural resources and the environment" as one of its four pillars of its aid priorities for Vietnam. It is working to improve the urban environment with, among other projects, its Three Cities Sanitation Project in Da Nang, Haiphong and Quang Ninh Province (in Ha Long and Cam Pha).

b) Asian Development Bank (ADB)

The response to the negative impact that rapid economic growth has had on the presence of natural resources and the urban environment is one of the ADB's three pillars in its priorities for aid to Vietnam. In its efforts to improve the urban environment, the ADB has emphasized infrastructure development in small and medium-sized cities in central Vietnam and the Mekong economic corridors.

(5) Need for project

This project addresses problems in Hanoi's water environment sector, and is consistent with Vietnam's development policies and JICA's aid policy. The sector master plan for Hanoi City , prepared in 1997, and the aforementioned; The Comprehensive Urban Development Programme in Hanoi Capital City (HAIDEP) give this project the greatest priority and accordingly Japanese ODA loans from JICA are extremely necessary and relevant.

3. Project Summary

(1) Project purpose

This project is aimed to decrease flood damage, improve water quality, by developing drainage and sewerage systems in Hanoi City and thereby contributing to improve urban sanitation and living environment.

(2) Name of project site and targeted regions

To Lich river basin in Hanoi

(3) Project summary

Improve sewage and drainage system in Hanoi

a) Develop drainage system (expand pumping stations, construction work to expand flood control reservoirs, etc.)
b) Develop sewage system (upgrades to sewage and storm drains, etc.)
c) Procurement of equipment for operation and maintenance
d) Consulting services (detailed design, tender assistance, construction supervision, capacity building for organization responsible for operations, maintenance and management, preparation of feasibility study for large-scale sewage treatment plant to be constructed in the future)

(4) Total project cost

42,309 million yen (of which amount from Japanese ODA loan: 29,289 million yen)

(5) Project implementation schedule

Planned for April 2006 – September 2011 (65 months)

(6) Project implementation system

1) Borrower: The Government of the Socialist Republic of Viet Nam

2) Organization implementing project: Hanoi People's Committee (Department of Construction)

3) System for operations, administration, maintenance and management: Hanoi Sewerage and Drainage Company, Hanoi Transportation Works Company No.3

(7) Environmental and social considerations, poverty reduction, social development

1) Environmental and social considerations

a) Category classification: B

b) Rationale for category classification

This project is classified in category B, as defined in the JBIC Guidelines for Confirmation of Environmental and Social Considerations (established in April 2002), as it is not likely to have significant adverse impact on the environment under Environmental Guidelines in terms of its characteristics.

c) Environmental permits

The Environmental Impact Assessment (EIA) for this project was approved by the Hanoi Department of Natural Resources and Environment on November 29, 2005. Permit approval has been granted for the landfill site for dredged soil and sewage soil.

d) Measures for pollution control

After the sewage discharged into the sewage treatment plant is treated to meet wastewater standards in Vietnam, it will be released into Bay Mau Lake[1]. No adverse effect is expected from this release. Dredged soil and sewage sludge are disposed of in landfills, but no particular adverse effect on the surrounding environment is expected because a controlled landfill facility will be established on part of the site planned for the treatment plant to handle waste containing toxic substances in amounts exceeding

[1] Since Bay Mau Lake is connected to Ba Mau Lake and Thien Quang Lake, the water released from the sewage treatment plant is essentially released into all three of these lakes.

Vietnam's standards.

e) Natural environment

The regions targeted in the project are not regions such as national parks that would be likely to suffer adverse impact, nor are they near such regions, and thus any undesirable impact on the natural environment would be minimized.

f) Social environment

The project is expected to result in the resettlement of 46 households with about 258ha of land acquisition. Compensation shall be provided and resettlement carried out in accordance with a compensation plan and basic plan for resident resettlement based on Vietnam's legal system. The compensation plan and resident resettlement plan have been prepared in consultation with the affected residents, and it has already been confirmed that there are no particular disagreements over the implementation of this project.

g) Other, monitoring

PMB will monitor the project as regards air quality, noise, resettlement and land acquisition during construction and after service begins.

2) Promotion of poverty reduction: None in particular

3) Promotion of social development (gender perspective, measures addressing infectious diseases such as AIDS, participatory development, consideration of handicapped people, etc.): This project is a large-scale project in which construction workers will be in one place for a long and concentrated period in a country in which AIDS infection is a concern. Accordingly, with assistance from the Hanoi Department of Health, the implementing organization will set conditions for AIDS measures in the contractors' bidding documents, so that the contractor carries out the HIV/AIDS education programs for workers during construction under their contract.

(8) Coordination with other donors: None

(9) Other notes: Workshops have been held in affiliation with an NGO (Bridge Asia Japan) and local government (Chiba prefecture), and activities to improve living conditions through efforts to improve environmental education and awareness have already been carried out, particularly targeting poor people in the project region (2006).

4. Project Outcome

(1) Indicators for Operations and Outcome

Name of indicator	Standard value (2008 actual value)	Target value (2013 [two years after project is completed])
Population Treated (person)	25,300	166,500
Amount of Wastewater treated (m^3/day)	6,000	57,300
BOD_5 concentration in the wastewater treatment plant (inflow, release, extraction ratio)	-	Inflow: 200mg/l Release: 20mg/l Extraction ratio: 90%

Maximum flow for 1/10 year rainfall （m^3/s）	99m^3/s Yen So drainage canal C	86m^3/s Yen So drainage canal C
Highest water level for 1/10 year rainfall （m）	5.61m Thanh Liet flood gate	4.64m Thanh Liet flood gate
	5.74m Yen So drainage canal C	4.56m Yen So drainage canal C
Inundated area by overflow for 1/10 year rainfall (km^2)	13.2	0 (estimated value for planned floods)
The number of households by overflow for 1/10 year rainfall （HH）	～1,000	0

(2) Internal rate of return

Based on the assumptions below, the economic internal rate of return (EIRR) for this project would be 8.2%.

Cost: Project costs (excluding taxes), maintenance and management costs, etc.

Benefit: Reduction of financial loss from inundation

Project life: 40 years

5. External conditions and risk control

None

6. Evaluation results for similar projects in the past and lessons for this project

Given that ex-ante evaluations of similar projects in the water and sewage system and health sector have reported that cooperation at the level of local government in Japan is effective in ensuring the sustainability of effects after project completion, this project has collaborated with Chiba prefecture using a proposal-type survey to improve the environmental education and awareness of local residents (2006).

7. Future evaluation plans

(1) Indicators to be used in future evaluations

1) Population Treated (person)
2) Amount of Wastewater treated (m^3/day)
3) BOD_5 concentration in the wastewater treatment plant (inflow [mg/l], release [mg/l], extraction ratio [%])
4) Maximum flow for 1/10 year rainfall （m^3/second）
5) Highest water level for 1/10 year rainfall （m）

6) Inundated area by overflow for 1/10 year rainfall (km^2)

7) The number of households by overflow for 1/10 year rainfall （HH）

8) EIRR (%)

(2) Timing of future evaluation

Two years after project completion