

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: Kingdom of Cambodia

Project: Niroth Water Supply Project

Loan Agreement: March 25, 2009

Loan Amount: 3,513 million yen

Borrower: The Royal Government of Cambodia

2. Background and Necessity of the Project

(1) Current State and Issues of the Water Supply Sector in Cambodia

Cambodia's water supply facilities has been repaired and upgraded since the mid 1990s primarily in the capitol of Phnom Penh. However, both urban areas and rural areas still suffer from a shortage of water supply facilities. As a result, although about 80% of the population of Phnom Penh has access to safe water, the rate is only 68% in the urban area around Phnom Penh making up the metropolitan area. Nationwide, the access rate is 53% for urban areas and 25% for rural areas, making for a nationwide average of a low 29.4%.

After the civil war, Japan and other donors supported Cambodia to build and repair three water treatment plants, lay 300 km of water supply pipes, and provide assistance for operational and maintenance technology, based on "The Study on Phnom Penh Water Supply System in the Kingdom of Cambodia" established by JICA in 1993. These efforts expanded water supply capacity and improved the skills of personnel who is working for this sector. As a result, the water access rate in Phnom Penh increased about four times over between 1993 and 2006, a 24-hour water supply came off, and the non-revenue water rate fell sharply (from 72% in 1993 to 8% in 2006). In addition, employees of the Phnom Penh Water Supply Authority, who had received assistance in operational and maintenance technology, carried out technology transfer for other municipal water supply authorities.

However, in the Greater Phnom Penh area, which includes Phnom Penh City and the surrounding neighboring provinces, the existing water supply capacity would be unable to meet the growing demand for water resulting from the increase in the population and commercial facilities. It is expected that water demand (maximum water supply per day) would exceed water supply capacity in 2011, making it essential that water supply capacity is bolstered quickly.

(2) Development Policies for the Water Supply Sector in Cambodia and the Priority of the Project

In the National Strategic Development Plan established in May 2006, Access to Safe Water is one of its main development goals (MDGs). This MDG targets an 85% access rate in urban areas and a 45% access rate in rural areas by 2015.

As part of "The study on the master plan of Greater Phnom Penh Water Supply in the Kingdom of Cambodia (Phase 2)" (completed in February 2006) implemented by JICA, a master plan with a planned target year of 2020 was prepared with the basic policies of providing a stable water supply, ensuring safety and expanding the water supply region. The master plan also points to the need to expand water supply facilities to meet future demand, with this project recommended as the most appropriate for this purposed based on a comparison with alternatives in terms of sites and water sources.

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

Japan's aid plan for Cambodia identifies waterworks development as one of the important issues for the basic infrastructure required for socio-economic development. Accordingly, JICA has designated redressing the discrepancy in the infrastructure development rate between the capital and outlying areas and addressing financial cooperation and technical cooperation from a medium to long-term and national perspective as key areas for its aid. This project is consistent with this policy. Support for the water supply sector is positioned within the Urban Basic Infrastructure Improvement Program, and this project will be implemented as part of this program.

<Projects supported by Japan>

Development Study "Study on Phnom Penh Water Supply System in the Kingdom of Cambodia" (1992~1993)

Grant Aid "Project for Improvement of the Water Supply Facilities in Phnom Penh (Phase 1)" (1992-1993)

Grant Aid "Project for Improvement of the Water Supply Facilities in Phnom Penh (Phase 2)" (1997-1999)

Technical Assistance "The Project on Capacity Building for Water Supply System" (2003-2006)

Development Study "The study on the master plan of Greater Phnom Penh Water Supply in the Kingdom of Cambodia (Phase 2)" (2004-2006)

Technical Assistance "Capacity Building for Water Supply System in Cambodia (Phase 2)" (2007-2011)

(4) Other Donors' Activities

In Cambodia's water supply sector, and particularly in Phnom Penh, the Chamkar Mon Water Treatment Plant was constructed (1993-1994) and then expanded and repaired (1996-1997) by Grant Aid from the French government. ADB carried out a water supply and sewage development project (1997-2003), the World Bank financed the new construction of the Churoy Changva Water Treatment Plant (2000-2001), which is currently being expanded by AFD (2007-2009).

(5) Necessity of the Project

This project would help Cambodia meet growing demands for safe water with the construction of new water supply facilities, and is consistent with JICA's priority aid areas. For these reasons, JICA's support for this project is highly necessary and relevant.

3. Project Description

(1) Project Objective(s)

This project aims to provide safe and stable water supply services with the construction of water supply infrastructure in the Greater Phnom Penh area (Phnom Penh City, Kandal Province), and thus improve the living environment for residents of Phnom Penh City and the surrounding region, including the poor, and improve the investment environment.

(2) Project Site/Target Area

Greater Phnom Penh area (Phnom Penh City, Kandal Province)

(3) Project Component(s)

【JICA loan targets】

- 1) Construction of Water Treatment Plant (water capacity of 130,000 m³/day),

2) Construction of Treated Water Mains,

3) Construction of Sewer

【ADF loan targets】

1) Construction of Water Intake Tower

2) Construction of Raw Water Mains

3) Consulting services (aid for bidding screening, supervision of works)

(4) Estimated Project Cost (Loan Amount)

6,532 million Yen (Loan Amount : 3,513 million Yen)

(5) Schedule

January 2009 – April 2013 (total of 52 months)

The project will be completed when the construction work financed by JICA and AFD have undergone a field test and the guarantee period has ended.

(6) Project Implementation Structure

1) Borrower: The Royal Government of Cambodia

2) Guarantor: None

3) Executing Agency: Phnom Penh Water Supply Authority (PPWSA)

4) Operation and Maintenance System: Same as 3)

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

1) Environmental and Social Consideration

① Category: B

② Reason for Categorization: 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 does not correspond to a sector or have attributes that would tend to affect the environment, nor does it correspond to a region susceptible to adverse impacts, and it is not deemed likely to have a serious adverse effect on the environment.

③ Environmental Permit: The Environmental Impact Assessment (EIA) for this project has been submitted by the implementing institution to the Ministry of the Environment and authorization procedures are underway.

④ Anti-Pollution Measures: Ground sinkage is not expected as water will be taken from a nearby river, and air quality and noise and vibration measures taken during construction will be in line with Cambodia's environmental standards.

⑤ 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.

⑥ Social Environment: Cambodia's procedures were followed in acquiring about 10 ha of land for the project. There will be no relocations.

⑦ Other / Monitoring: Water quality, noise and vibrations, among others, will be monitored by the implementing agency during construction and operation.

2) Promotion of Poverty Reduction: The implementing agency plans to evaluate the

economic condition of the poor households in the service area and reduce water connection fees for poor households based on certain criteria.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped etc.): The implementing agency requires in its contract that construction companies take AIDS measures with its workers.

(8) Collaboration with Other Donors: Co-financing with AFD

(9) Other Important Issues: None

4. Targeted Outcomes

(1) Performance Indicators

1) Operation and Effect Indicator

Indicator	Baseline (Actual Value in 2008)	Target (2015) 【Expected value 2 years after project completion】
[Indicator for Water Treatment Plant]		
Water supply capacity (m ³ /d)	--	130,000
Water quality (turbidity [NTU])	--	2
Water quality (Chromaticity)	--	0.7
[Indicator for Service area]		
Water supplied population (people)	1,239,000	1,708,784
Number of households connected to water supply	177,000	244,122

(2) Internal Rate of Return

Based on the conditions indicated below, this project's Economic Internal Rate of Return (EIRR) is 16.3% and its Financial Internal Rate of Return (FIRR) is 5.6%.

【EIRR】

Cost : Business costs (construction costs, operational and maintenance costs; excluding taxes)

Benefit : Income from fees, reductions in the cost of buying water (from a distributor), reduction in medical expenses

Project Life : 30 years

【FIRR】

Cost : Business costs (construction costs, operational and maintenance costs)

Benefit : Income from fees

Project Life : 30 years

5. External Factors and Risk Control

Construction work funded by AFD is being carried out as planned. The water supply network is also being built as planned.

6. Lessons Learned from Past Projects

Ex-post evaluations of previous similar projects demonstrate that water distribution must be adequately considered when considering the project scope. Given the above, in this project, the implementing agency has verified the water supply network plan.

Moreover, previous similar projects teach that aspects other than the loan targets must be monitored to achieve the project effect. This project is financed jointly with AFD, so JICA plans to discuss and share information with AFD at the procurement and business implementation and management stage.

7. Plan for Future Evaluation

(1) Indicators to be Used

- ① Water supply capacity (m³/d)
- ② Water quality (turbidity [NTU])
- ③ Water quality (Chromaticity)
- ④ Water supplied population (people)
- ⑤ Number of households connected to water supply (households)
- ⑥ EIRR (%), FIRR (%)

(2) Timing

Two years after project completion