

Ex-Ante Evaluation

1. Name of the Project

Country: The Republic of Peru

Project: Lima Metropolitan Marginal Areas Sanitary Improvement Project (II)

Loan Agreement: March 15, 2010

Loan Amount: 9,301 million yen

Borrower: The Republic of Peru

2. Background and Necessity of the Project

(1) Current Situation and Issues of the Water Supply and Sewerage Sector in the Republic of Peru

The Lima metropolitan area, with roughly a third of the population in Peru (approx. 8.5 million people), belongs to a desert climate where the annual rainfall is approximately 9mm. With an on-going problem of serious water shortage during the dry season and with significantly increasing water demand from growing served population, securing water resources has become an important issue. Under such circumstances, Servicio de Agua Potable y Alcantarillado de Lima (Lima Water and Sewer Company, hereinafter referred to as SEDAPAL), responsible for the water supply and sewerage systems services in the metropolitan area, is working on 1) exploration of new water resources and improvement of water treatment capacity, 2) reduction of non-revenue water by implementing large-scale water supply and sewerage system optimization projects, and 3) promotion of efficient use of water resources through the improvement of the sewerage treatment ratio and promotion of water reuse. Although the Peruvian government is working to explore new water resources in the Andes Mountains in the nation's hinterland, the existing water treatment plants do not have any excess water treatment capacity, such that there would not be adequate capacity even if additional water resources should be secured in the future. Thus, the expansion of water treatment capacity is of urgent necessity. In recent years, there has been an inflow of low-income people from rural areas into the Lima metropolitan area, resulting in rapid urbanization of surrounding areas. This urbanization usually develops from the occupation of public properties by the low-income comers in groups, who then construct their own residents by themselves and form a community. Therefore, basic infrastructures such as water supply and sewerage systems have not been developed, and in many cases, nor will it be developed for being such informal residence. As a result, many of the residents often have to live with poor-quality water service and simple water storage facilities where water quality control is difficult. Moreover, human waste and miscellany drainage are not properly treated. These conditions affect household economy of the low-income people and deteriorate the living conditions in such residential areas, causing serious impact on health and sanitary conditions of the residents.

(2) Development Policies for the Water Supply and Sewerage Sector in the Republic of Peru and the Priority of the Project

The poverty rate and extreme poverty rate in Peru are 36.2% and 12.6% respectively, most of which are concentrated in the rural areas and the metropolitan marginal areas. One of the biggest challenges of the government is to eliminate such poverty, and the government is trying to encourage such poor people to participate in the national economy by developing social infrastructures in sanitation, education and healthcare and improving access to basic services as well as taking direct measures against poverty. Especially for the sanitation infrastructure, which is significantly below the average level in Latin America, water supply and sewerage system construction projects as the basic infrastructure most needed for everyday life are under way with foreign financial aid both in urban and rural areas across the country. The Garcia administration, which took office in July 2006, is carrying out the “Agua Para Todos (Water for All)” program, considering the expansion and improvement of water supply and sewerage services as its key policy. Moreover, Ministerio de Vivienda, Construcción y Saneamiento (Ministry of Housing, Construction and Sanitation), which governs the water supply and sewerage sector, has formulated the “National Sanitation Plan 2006-2015”, declaring improvement of the water supply and sewerage service quality, improvement of service continuity, and expansion of facilities.

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

Reduction of poverty and disparities is one of the major areas of Japan’s assistance to Peru, and within that, Japan focuses on water supply and sanitary improvement as a development task. JICA has established the “Water Program” to support the “Agua Para Todos (Water for All)” program of the Peruvian government.

(4) Other Donors’ Activity

To SEDAPAL, the World Bank has provided technical assistance to improve sanitation-related communication skills through the Water and Sanitation Project (WSP) as well as lending a short-term loan for supplementing operation funds of this Project. The Inter-American Development Bank (IDB) has made a loan for policy and system improvement in the water supply and sewerage sector in addition to support the improvement of water supply and sewerage pervasion in Lima metropolitan marginal areas. Moreover, Kreditanstalt fur Wiederaufbau (KfW), focusing on policy and system improvement in the water supply and sewerage sector and management improvement of the water and sewer companies (EPS) of the urban areas, has provided assistance to private sector activities and established a fund in the water supply and sewerage sector (INVERSAN) through co-financing with IDB.

(5) Necessity of the Project

As explained above, in the Lima metropolitan area, especially the marginal areas, there is

concern about the poor living conditions caused by lack of sanitary services, and the situation is expected to become even more serious as the population grows and the marginal areas expand in the future. It is an urgent task for the government and SEDAPAL to solve water shortage and improve sewerage treatment mainly in the metropolitan marginal areas through the construction of new water purifying plants and development of water and sewerage networks. The prompt solution is also needed for the improvement of the living standard and living conditions of the low-income population.

Under these circumstances, this Project was launched. However, due to the recent worldwide surge in equipment and material prices, exchange rate fluctuations, increase of the construction volume due to the on-site situations and other factors, the project cost has become much higher than the original estimate and additional funding was required for the project implementation. Although it was confirmed that project costs that were not originally covered by the Japanese ODA Loan would be financed by the borrower, the financing cost to be covered by the executing agency has substantially exceeded the assumption due to the global financial crisis. Therefore, the Peruvian government, increasing its counterpart contribution, also requested an additional loan from the Japanese government.

Additionally, the area where water will be supplied from the Huachipa water treatment plant constructed under this Project, includes the north Lima metropolitan area where JICA works to improve the water supply and sewerage system through the “North Lima Metropolitan Area Water Supply and Sewerage Optimization Project (I)” (PE-P36) currently being implemented, and also the target area of the following water supply and sewerage optimization project that will be carried out in the future. In order to maximize the effects of these projects, completion of this water treatment plant is considered to be of high-priority. For these reasons, the implementation of this Project by JICA is deemed to have the high necessity and relevance.

3. Project Description

(1) Project Objective(s)

The objective of this project is to contribute to the sanitary improvement of the Metropolitan Lima through water supply and sewerage system improvement.

(2) Project Site/Target Area: Lima metropolitan area

(3) Project Component(s)

- 1) Construction of Huachipa water treatment plant (water treatment plant, water intake and north transmission line)
- 2) Construction of water supply and sewerage networks
- 3) Consulting service (elaboration of detailed design (D/D) of secondary networks of water supply and sewerage networks, review of water supply and sewerage networks D/D, construction supervision)

(4) Estimated Project Cost (Loan Amount)

55,296 million yen (Loan Amount: 34,155 million yen (Phase I Loan Amount: 24,854 million yen, Phase II Loan Amount: 9,301 million yen))

(5) Schedule

September 2000 to May 2012 (total 141 months). Project completion is determined to be at the time of the completion of the contract of the civil works and the consulting services.

(6) Project Implementation Structure

- 1) Borrower: The Republic of Peru
- 2) Guarantor: None
- 3) Executing Agency: Servicio de Agua Potable y Alcantarillado de Lima (SEDAPAL)
- 4) Operation and Maintenance System: SEDAPAL

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

1) Environmental and Social Consideration

① Category: B

② Reason for Categorization

The Project is classified as Category B because it does not include any sectors, characteristics or areas that can be easily affected, as listed in the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established April 2002), and therefore is not considered to have any significant undesirable impact on the environment.

③ Environmental Permit

The Environmental Impact Assessment (EIA) of the Project was approved in June 2006 by the National Institute of Natural Resources (INRENA).

④ Anti-Pollution Measures

No particular negative impact of the Project is forecasted.

⑤ Natural Environment

There is no particular negative impact on the natural environment.

⑥ Social Environment

Acquisition of approximately 10.61 hectares of land and relocation of 7 families required for the construction of the water treatment plant is completed.

⑦ Other / Monitoring

SEDAPAL shall monitor air quality, water quality, and others during construction and at the commencement of operation.

2) Promotion of Poverty Reduction

This Project will contribute to the improvement of the living conditions of the low-income population.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped, etc.): None

(8) Collaboration with Other Donors: None

(9) Other Important Issues: None

4. Targeted Outcomes

(1) Performance Indicators (Operation and Effect Indicator)

Indicator		Baseline (Actual Value in 1999)	Current Value (Actual Value in 2009)	Target (2014) (Expected value 2 years after project completion]
1. Water Treatment Plant				
(1) Amount of Water Supply (m ³ s)		0	0	5
(2) Facility Utilization Rate (%)		0	0	100
2. General and Secondary Networks				
(0) Population (number of people)	EPS CO SJ AT	7,191,022	8,523,138 2,277,602 926,942 1,090,291	9,143,595 2,421,114 992,739 1,167,133
Water Supply				
(1) Water Leakage Ratio (%)	EPS CO SJ AT	43.1 48.8 39.4 38.3	35.9 47.6 33.0 37.5	33.2 43.0 28.8 33.5
(2) Number of Accidents (100km/month)	EPS	-	1.83	1.52
(3) Number of Households Connection (number of households)	EPS CO SJ AT	935,274	1,301,629 339,735 140,273 162,356	1,571,536 397,427 155,806 210,790
(4) Rate of Population Served (%)	EPS CO SJ AT	85.2	93.4 97.2 98.1 92.2	97.7 100.0 98.3 100.0
(5) Water Pressure (wm = water meter)	EPS CO SJ AT	15.9	21.0 15.2 29.0 19.0	21.7 17.0 29.5 19.3
(6) Water Service Hours per Day (hours/day)	EPS CO SJ AT	15.69	21.4 19.0 20.1 21.2	21.9 21.0 21.2 21.3
Sewerage				

(7) Number of Household Connection (number of households)	EPS CO SJ AT	888,510	1,153,148 314,563 134,155 156,731	1,356,245 347,879 143,521 204,944
(8) Rate of Population Connected (%)	EPS CO SJ AT	81.0	92.3 96.5 98.1 92.2	96.2 100.0 98.3 100.0
(9) Waste Water Treatment Rate (%)	EPS	4.00	21.02	100.00
3. Installation of Meters				
(1) Issue of Bills (%)	EPS CO SJ AT	92.5	94.6 92.2 98.1 91.9	96.1 95.2 98.2 95.1
(2) Total Amount of Water Supply (m ³)	EPS CO SJ AT	682,509,000 133,020,000 37,904,000 72,384,000	661,666,887 163,270,603 47,673,193 90,736,589	677,731,690 163,270,603 49,421,787 93,075,247

(Notes) Service Areas: CO (Comas), SJ (San Juan de Lurigancho), AT (Ate Vitarte), EPS (all areas of SEDAPAL services). As the 1999 baseline values of the number of households and rate of population which are connected to the sewerage networks are not available, assumed values (95% of the population who has access to water supply service) are used in 2. (7) and 2. (8).

(2) Internal Rate of Return

Based on the conditions indicated below, the Financial Internal Rate of Return (FIRR) of this project will be 12.8%.

Cost: Project cost, operation and maintenance cost

Benefit: Water revenue, electricity saving

Project Life: 30 years

5. External Factors and Risk Control

Understanding of the inhabitants on the details of the works for the installation of reservoirs through social promotions shall be acquired for the smooth implementation of the Project. Also, proper approval procedure shall be taken for the construction of Reservoir R-5-San Martin, where Instituto Nacional de Cultura (National Institute for Culture, INC) is conducting research on remains.

6. Lessons Learned from Past Projects

A water treatment construction project in the past (Japanese ODA Loan to China, "Guiyang Water Supply Project") demonstrates that financial support from overseas is effective when conducting unprofitable projects such as water treatment plant construction and that it is important to provide such support to much-needed projects at an appropriate

timing. In a situation where the financing cost to be covered by the executing agency has substantially exceeded the assumption due to the impact of the international economic crisis that started in September 2008, the Peruvian government has strongly requested for the provision of a Japanese ODA Loan, taking into consideration that this Project is of high priority and urgency under the current administration and that the concessionary of the Japanese ODA Loan is extremely important so as to let the benefit of the project reach appropriately to the low-income population. Utilization of the Japanese ODA Loan for such project of high needs and urgency will not only ensure the realization of the targeted effect of the project but will also enhance the acknowledgment of the Japanese ODA Loans in Peru.

7. Plan for Future Evaluation

(1) Indicators to be Used

Indicators described in 4. (1) and FIRR (%)

(2) Timing

Two years after the project completion