

Ex-ante Evaluation

1. Name of the Project

Country: Republic of Peru

Project title: Cajamarca Water Supply and Sewerage Improvement and Expansion Project

Loan agreement: March 26, 2009

Loan amount approved: 4,995 million yen

Borrower: Republic of Peru

2. Necessity and Relevance of JICA's Assistance

(1) Present condition and issue of the water supply and sewerage sector in Peru

In Peru, the water supply connection ratio is 76%, while that of sewerage is 57% as of 2005. This means that 6.8 million people are not provided with water supply, while 12.21 million are not provided with sewerage. Peru is far behind other countries in Latin America in this sector. The total connection ratio across Latin America is 91% for water supply and 77% for sewerage. Furthermore, the percentage of wastewater treatment remains at a low level, i.e., 22%.¹

The Department of Cajamarca is located in Sierra (mountainous region) in northwest Peru with a population of 1,360,000 (population of 130,000 in Cajamarca City, the capital of the Department of Cajamarca). Except for Cajamarca City, most of the water supply and sewerage facilities that presently exist in the Department of Cajamarca have not been newly invested or renewed on a large scale since improvement and expansion by the central government was conducted in the 1960s and 1970s. At present, these facilities cannot provide sufficient service from a quantitative and qualitative perspective due to aging, insufficient administration of operation and maintenance (OM), lack of ability to deal with increase of population, etc. In addition, since there is no waste water treatment plant in many cities other than Cajamarca City, untreated wastewater flows directly around houses or into rivers and there is fear that such a situation has an impact on the living environments of local residents as well as an impact on agriculture, cattle breeding and dairy farming, which are the main industries of this Department.

(2) Water supply and sewerage sector policy in Peru

In Peru, water supply and sewerage services are the responsibility of provincial and/or district governments. Investment in this sector is basically based on the self-supporting

¹ For only areas covered by water supply and sewerage service corporations (EPSs) (approx. 60% of the entire population)

system. On the other hand, since wastewater treatment facilities do not directly generate fee revenue, and in small and medium-sized cities where investment burden often tends to be great, it is very difficult for provinces and districts (or investment in water supply and sewerage service corporations (EPSs) by them) to invest in these facilities. This is one of the main reasons for the hindrance in the development of the water supply and sewerage sector in Peru.

The current Garcia administration launched in June 2006 focuses on anti-poverty measures, especially those related to water and sanitation. Under a program called “*Agua para Todos* (water for everybody)”, the national government has been subsidizing investment in the field. However, subsidies are only provided for small investments due to the limited budget. The current administration of the Department of Cajamarca that started in 2007 regards the water supply and sewerage problem in this Department as a state-level rather than provincial-level problem. They have proposed a new scheme under which the Department will build water supply and sewerage systems instead of the governments of provinces and districts or EPSs. The construction cost shall be covered by external borrowing secured by Department revenue from royalties for mining.

(3) Consistency with JICA’s assistance policy in the water supply and sewerage sector in Peru

JICA regards the alleviation of poverty and disparity as one of the focal fields of its aid to Peru. One of the focal tasks in this field is water supply and sewerage construction. In this regard, the implementation of this project conforms to this policy.

(4) Measures taken by other aid agencies

For the water supply and sewerage sector in Peru, the World Bank provides aid in construction of facilities mainly for rural areas, Kreditanstalt fur Wiederaufbau (KfW), construction of facilities for EPSs, and Inter-American Development Bank (IDB), for institutional improvement.

(5) Necessity of this project

For the reasons described above, there is significant necessity and relevance in implementing this project.

3. Project Description

(1) Project objectives

The purpose of this project is to improve the water supply and sewerage service in the Department of Cajamarca, by improving and expanding the water supply and sewerage facilities in small and medium-sized cities in this Department, thereby contributing to an

improved living environment of the residents in this Department.

(2) Project site/target area

Department of Cajamarca

(3) Project outline

This project is to provide materials and equipment and implement civil works and consulting service necessary for improvement and expansion of the water supply and sewerage in the main 11 cities in the Department of Cajamarca.

<Improvement and expansion of the water supply system>

- 1) Construction of a water treatment plant
- 2) Construction and rehabilitation of distributing reservoir
- 3) Construction of a water supply network

<Improvement and expansion of the sewerage system>

- 1) Construction of a wastewater treatment plant
- 2) Construction of pumping stations
- 3) Construction and rehabilitation of sewerage networks

<Consulting service>

Detailed design, tendering assistance, supervision of civil works, management support, operation and maintenance administration capacity development, education campaign for residents, etc.

(4) Total project cost/Loan amount

11,133 million yen (Yen Loan amount: 4,995 million yen)

(5) Project implementation schedule

From April 2009 to September 2011 (30 months). Project completion is defined as when the operation commences.

(6) Implementation structure

- 1) Borrower: The Republic of Peru
- 2) Guarantor: none
- 3) Executing agency: *Unidad Ejecutora de Programas Regionales: PROREGION*
- 4) Operation, maintenance, and management responsibilities: belong to the EPS SEDACAJ, EPS MARANON (Cajamarca Water Supply and Sewerage Service Corporation)

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

1) Environmental and social considerations

(i) Category: B

(ii) Reason for categorization: As the project is not located in a sensitive area, nor has it sensitive characteristics under “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established in April 2002), and its potential adverse impacts on the environment are not likely to be significant, this project falls under category B.

(iii) Environmental permit: The environmental impact assessment (EIA) report on the 11 sub-projects composing of this project is scheduled to be prepared in concurrence with detailed design and permitted by the Environmental Bureau, Ministry of Housing, Construction and Sanitation (MVCS) before the bidding for the main works start.

(iv) Anti-pollution measures: Wastewater coming from sewerage is planned to be treated according to the national wastewater standard and discharged into agricultural waterways and rivers. No significant impact due to discharged treated water is expected. Treatment of sludge upon operation of a water treatment plant and sewerage plant is planned to be disposed of by landfill in accordance with the laws of Peru. Furthermore, upon conducting rehabilitation of the water supply and sewerage system, no removal and disposal of existing asbestos pipes will be carried out.

(v) Natural environment: The project area is not a vulnerable area such as a national park or near such an area. Negative impact on the natural environment is expected to be minimal.

(vi) Social environment: It is necessary to acquire land of 27.46ha for construction of a sewerage treatment plant and construction of a distributing reservoir, which is planned to be completed by May 2009. No resident will be required to move out.

(vii) Other and monitoring: The water supply and sewerage service corporation mentioned in (6) 4) above is going to monitor water quality and other issues.

2) Promotion of poverty reduction: The poverty rate in the Department of Cajamarca, the subject area of this project, is 74% that exceeds the national average of 51%, which means that this project is a poverty project.

3) Promotion of social development (gender prospective, prevention of infectious diseases including HIV/AIDS, participatory development, care for people with disabilities, etc.): It is planned that a contractor will carry out measures for HIV/AIDS and safety for workers during implementation of the project.

(8) Collaboration with other donors: None

(9) Other important issues: None

4. Outcome Targets

(1) Operational and effect indicators

(a) Water supply

Indicator	Baseline (actual value in 2007)	Target (2013) [2 years after project completion]
Water Supplied Population (persons)	113,912	150,353
Water Supply Time (average of 11 cities)	13.7hr	24hr
Percentage of Water Service Connected Population (average of 11 cities)	67.5%	90.1%
Number of Water Service Individual Connections	32,754	42,098

(b) Sewerage

Indicator	Baseline (actual value in 2007)	Target (2013) [2 years after project completion]
Sewerage Connected Population (persons)	106,940	150,353
Amount of Wastewater Treated (m ³ /day)	7,599	17,807
Percentage of Sewerage Connected Population (average of 11 cities)	63.3%	90.1%
Number of Sewerage Individual Connections	29,918	42,098
Concentration of BOD at the Outlet of the Wastewater Treatment Plant (mg/l)	-	15-80

(2) Internal rate of return

Based on the following assumptions, the Economic Internal Rate of Return (EIRR) of the water supply component of this project is 14.74%, 11.9% for the sewerage component, and the Financial Internal Rate of Return (FIRR) of the water supply component and sewerage component together is 6.47%.

[EIRR: Water supply]

Cost: Project cost and operation and maintenance cost (except taxes)

Benefits: Economy due to reduction of water drawing, improvement of quality of life (reduction of medical cost due to decreased waterborne infectious diseases)

Project life: Twenty years

[EIRR: Sewerage]

Cost: Project cost and operation and maintenance cost (except taxes)

Benefits: Improvement of sanitary situation (reduction of medical cost due to decreased waterborne infectious diseases)

Project life: Twenty years

[FIRR: Water supply and sewerage]

Cost: Project cost and operation and maintenance cost (except taxes)

Benefits: Income from fees

Project life: Twenty years

5. External Risk Factors

With regard to four cities, i.e., Contumaza, San Pablo, San Miguel and San Marcos, sewerage treatment plants are planned to be constructed using funds of MVCS and the Departmental government prior to this project.

6. Lessons Learned from Finding of Similar Projects Undertaken in the Past

In the past ex-post evaluation, with regard to a project implemented by a local government, there was a project regarding which it was pointed out that consideration of certainty of securing budget for the project cost in the national currency was important. This project is a project implemented by the Department government. However, according to the Department of Cajamarca, specific financial resources such as Department revenue from royalties for mining would be applied and the central government bears a part of the funds. Therefore, there would be no problem.

In addition, in the past ex-post evaluation, with regard to a decentralized project, there was a project regarding which it was pointed out that, though it was necessary to utilize a design which was standardized to some degree in order to increase efficiency of the plan and performance, it was also important to have a discriminative perspective to deal with different needs and conditions depending on areas. Under this project, it is planned to ask consultants to pay attention to understand various local needs sufficiently and properly reflect them in detailed design, etc.

7. Plans for Future Evaluation

(1) Indications for future evaluation

<Water supply>

- 1) Water Supplied Population (persons)
- 2) Water Supply Time (average of 11 cities)
- 3) Percentage of Water Service Connected Population (% , average of 11 cities)
- 4) Number of Water Service Individual Connections

<Sewerage>

- 1) Sewerage Connected Population (persons)

- 2) Amount of Wastewater Treated (m³/day)
- 3) Percentage of Sewerage Connected Population (% , average of 11 cities)
- 4) Number of Sewerage Individual Connections
- 5) Concentration of BOD at the Outlet of the Wastewater Treatment Plant (mg/l)

<Common indicators>

- 1) EIRR (%)
- 2) FIRR (%)

(2) Timing of next evaluation

Two years after completion of this project

End of document