

Republic of Peru

FY 2015 Ex-Post Evaluation of Technical Cooperation Project

“Project for Institutional Reinforcement of Water Supply and Sanitation in the North Area of Peru”

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0. Summary

The “Project for Institutional Reinforcement of Water Supply and Sanitation in the North Area of Peru” (hereinafter referred to as “the Project”) was implemented for the purpose of improving the capacity of the Regional Direction of Housing and Sanitation (*Dirección Regional de Vivienda y Saneamiento*; hereinafter referred to as “DRVS”), selected municipal authorities and Sanitation Service Administration Committees (*Junta Administrativa de Servicios de Saneamiento*; hereinafter referred to as “JASS”) in the Piura and Lambayeque Regions in the north of Peru through pilot projects and training, thereby upholding improvement of the water supply and sanitation conditions in rural villages and small cities in these regions. The Government of Peru consistently emphasized the sanitation sector from the time of the ex-ante evaluation. Moreover, via the Project, DRVSs in the target regions for the first time acquired the capability to conduct appropriate guidance and support on operation and maintenance of water supply and sanitation services for municipal authorities and JASSs, while the regions have needed to conduct ongoing training for those municipal authorities and JASSs that have frequent turnover of personnel. Thus, the Project is highly consistent with policies and development needs in Peru. Moreover, it is consistent with the aid policy of Japan. Accordingly, relevancy of the Project is high. Through implementation of the Project, the capacity was strengthened on the regional level and among the municipal authorities and JASSs targeted by the pilot projects, so the project purpose was largely achieved. Concerning the overall goal, since water supply services were improved, and it was confirmed that contribution was made to reduce waterborne infectious diseases, intended impacts were generally realized as planned. Accordingly, the Project effectiveness and impact is high. Inputs on the Japanese side were appropriate, while the inputs on the Peruvian side were confronted by constraints in terms of human resources and budget. The project period was largely as planned. However, because project costs on the Japanese side exceeded budget, the project efficiency is fair. On the level of municipal authorities and JASSs, since there are frequent personnel changes and there have been partial technical and financial issues such as lack of means of transport (vehicles) and funds, the sustainability of the project effects is fair.

In light of the above, the Project is evaluated to be satisfactory.

1. Project Description



Project Location



Water treatment facility improved by a pilot project (El Espinal, Lambayeque Region)

1.1 Background

The Government of Peru emphasized enhancement of the water and sanitation services as part of its poverty reduction strategy and formulated the National Plan for Sanitation in March, 2006, the primary objective of which was to reduce the population without access to safe water and sanitation facilities by half by 2015. According to the plan, the coverage of the water supply service in rural areas of Peru was as low as 62% compared to 81% in urban areas in 2004. The second Garcia Administration (2006-2011) publicly promised the implementation of this plan under the slogan of “Water for Everyone” and began to expand the water supply and sanitation facilities in small local cities and rural villages. Other action which started at that time included the modernization of the water related policies, clarification of the role of local authorities in water and sanitation sector, improvement of facility operation and maintenance, service quality, and the financial strength of service providers.

In Peru, 25 regions and approximately 1,800 municipalities are responsible for local government, but in legislative terms, the municipal authorities are responsible for providing water supply and sewerage services (see Figure 1). The municipal authorities are responsible for constructing and operating water supply and sanitation facilities in urban and rural areas. However, because many municipal authorities lack the finances to construct and maintain facilities, the wealthier Ministry of Housing, Construction and Sanitation (*Ministerio de Vivienda, Construcción y Saneamiento*, hereinafter referred to as “MVCS”) and regional governments conduct construction and maintenance in place of the municipal authorities.

Water supply service in urban areas is provided by either a water and sewer company which has a relevant contract with a single or multiple municipal authorities or directly by a municipal authority. Meanwhile, in rural areas, residents’ organizations, primarily Sanitation Service Administration Committees composed of representatives of local residents run the water supply and

sanitation facilities as service providers.¹ Municipal authorities have the role of directly supervising as well as assisting JASS while regional governments provide support for training and technical matters for municipal authorities via DRVS.²

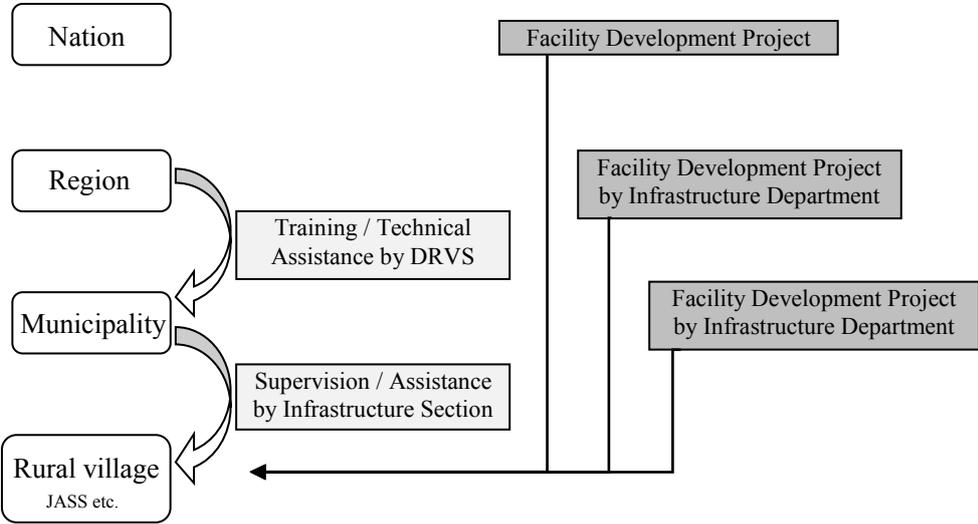


Figure 1. Institutional framework of provision of water and sanitation service in rural area of Peru

However, DRVSs of Piura and Lambayeque Regions were not able to provide appropriate guidance for municipal authorities around 2008, as DRVSs lacked the ability to fully identify the problems faced by the water supply and sanitation services supervised by the municipal authorities. On their part, many municipal authorities lacked the capacity to provide proper guidance or assistance for JASSs. As a result, many rural villages did not develop a proper understanding of the operation and maintenance of water supply and sanitation facilities, resulting in such problems as a lack of adequate services, non-collection of the service charge to ensure the proper operation and maintenance of the facilities and non-repair of broken-down facilities.

Under these circumstances, in June, 2009 in response to a request made by the Government of Peru, JICA commenced the implementation of a technical cooperation project “the Project for Institutional Reinforcement of Water supply and Sanitation in the North Area of Peru” in the Piura and Lambayeque Regions where the water supply coverage was low with a view to enhancing the capacity of various organizations involved in the water supply and sanitation services.

¹ A residents’ organization which handle water and sanitation service can establish corporate status by registering as “a Sanitation Service Administration Committee” with the relevant municipal authority. There are organizations which provide a similar service under the name of “water cooperative” or other names without such registration. In this report, all such organizations are referred to as JASS for simplicity and convenience.

² At the regional governments of Peru, there is a section which has a function decentralized from the Ministry of Housing, Construction and Sanitation. Most of them are named as “Regional Direction of Housing and Sanitation”, while its name differs from region to region; at the time of commencement of the Project, Piura Region had “Regional Direction of Housing, Construction and Sanitation”, while Lambayeque Region had “Regional Department of Housing and Sanitation”, which is called as “Executive Department of Housing and Sanitation” at the time of terminal evaluation. In this report, all such departments are referred to as DRVS for simplicity and convenience.

1.2 Project Outline

The Project was implemented for the purpose of improving the capacity of DRVSSs, selected municipal authorities and JASSs in the Piura and Lambayeque Regions in the north of Peru through pilot projects and training, while upholding improvement of the water supply and sanitation conditions in rural villages and small cities in these regions as the overall goal.³

Overall Goal		The water supply and sanitation conditions are improved in rural villages and small cities in the Piura and Lambayeque Regions
Project Purpose		The capacity to implement water supply and sanitation services in rural villages and small city authorities in the Piura and Lambayeque Regions is improved
Outputs	Output 1	The capacity and issues for rural village and small city authorities to implement water supply and sanitation services are identified in the Piura and Lambayeque Regions.
	Output 2	The capacity of DRVSSs in the Piura and Lambayeque Regions is strengthened to undertake the construction of water supply facilities and to supervise water supply and sanitation services in rural villages and small cities.
	Output 3	The capacity is strengthened for JASSs or municipal offices participated in pilot activities to operate and maintain water supply facilities and to educate people on sanitation.
	Output 4	A system is developed in the Piura and Lambayeque Regions to disseminate the contents of the manuals for operation and maintenance and for sanitation education to municipal offices and JASSs.
Total Cost (Japanese Side)		435 million yen
Period of Cooperation		June, 2009 to March, 2013
Implementing Agencies		Ministry of Housing, Construction and Sanitation (MVCS); Regional Governments of Piura and Lambayeque
Other Relevant Agencies/ Organizations		None
Supporting Agency/ Organization in Japan		Unico International Corporation; Earth System Science Co., Ltd.
Related Projects		None

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Time of the Terminal Evaluation

While such guiding activities as training, monitoring and awareness-raising targeting municipal authorities had been continuing, an improved water supply service had not been achieved at some of the ten JASS sites targeted by the pilot projects. Because of this, it was considered that the project purpose had not been fully achieved.

³ The rural villages and small cities targeted by the Project are administrative bodies where the water supply service is provided by a residents' organization, such as a JASS. Rural villages and small cities are characterized by a population size of up to 30,000 and are mostly located in rural areas. In this report, they are collectively referred to as "rural villages".

1.3.2 Achievement Status of Overall Goal at the Time of the Terminal Evaluation

Although positive impacts of the pilot projects had been confirmed in relation to improvement of the water supply and sanitation conditions, there was no firm prospect of continuing budget as well as manpower allocation which was necessary to achieve the overall goal. As such, the impacts, including prospect for an achievement of the overall goal, were judged to be fair.

1.3.3 Recommendations at the Time of the Terminal Evaluation

< Short-term recommendations up to the time of project completion >

- Strengthening the collaboration and coordination among stakeholders in the water sector among the Ministry of Housing, Construction and Sanitation (national level), DRVVs (regional level), municipal authorities and JASSs (village level).
- Formulation of a medium-term activity plan for DRVVs of Piura and Lambayeque to ensure the continuity of various activities initiated by the Project
- Setting specific target figures for the two regions related to the overall goal.

< Long-term recommendations for the post-project period >

- Implementation of the medium-term activity plan by governments of the target regions by securing of sufficient manpower and budget.
- Application of a usage-based tariff in the target regions as well as other regions by means of awareness-raising activities and the installation of water meters.
- Assistance by DRVVs for municipalities on the establishment of a division in charge of water supply and sanitation services
- Active use of the manuals developed under the Project by MVCS and DRVVs
- Improvement of the inter-donor coordination mechanism by MVCS and DRVVs
- Sharing of the good practices and lessons learned under the pilot projects among DRVVs, municipal authorities and JASSs for the purpose of capacity strengthening.

2. Outline of the Evaluation Study

2.1 External Evaluator

Hajime Sonoda (Global Group 21 Japan)

2.2 Duration of Evaluation Study

The ex-post evaluation study for the Project was conducted over the following period.

Duration of the Study: July, 2015-August, 2016

Duration of the Field Survey: November 1-27, 2015

March 28-30, 2016

3. Results of the Evaluation (Overall Rating: B⁴)

3.1 Relevance (Rating: ③⁵)

3.1.1 Relevance to the Development Plan of Peru

As already mentioned in 1.1 Background, the Government of Peru, at the time of the ex-ante evaluation in 2008, formulated the National Plan for Sanitation with the objective of reducing the population without access to safe water supply and sanitation facilities by half by 2015, and was actively trying to expand the water supply and sanitation services in small cities and rural villages. This plan called for improvement of the operation and maintenance of the facilities and qualitative improvement of the services, both of which matched the objectives of the Project.

The National Plan for Sanitation is still in force at the time of the ex-post evaluation, and the Humala Administration established in 2012 has upheld the expansion of the water supply and sanitation services for poor people and in poor areas as an important policy objective. Since 2009, MVCS has been introducing a number of ministerial ordinance in an attempt to strengthen the capacity of DRVSSs, municipalities, and JASSs, etc. by clarifying the roles of each organization for water supply and sanitation services. These activities also match the objectives of the Project.

As such, the Project was highly relevant to the development plans of Peru at the time of the ex-ante evaluation and also at the time of its completion in 2013.

3.1.2 Relevance to the Development Needs of Peru

As already mentioned in 1.1 Background, at the time of ex-ante evaluation, none of the regional governments of Piura and Lambayeque and municipal authorities had the ability to provide adequate guidance or assistance for JASSs. This situation created problems such as a lack of adequate services, non-collection of the service charge to ensure the proper operation and maintenance of the facilities and the non-repair of broken-down facilities. While the coverage of the water supply service in the Piura and Lambayeque Regions in 2006 was 64.4% and 74.1% respectively⁶ and many households in rural areas did not have access to safe water.

With the implementation of the Project, the ability of the targeted regional governments and some JASSs in those municipal authorities where the pilot project was implemented is believed to have been somewhat strengthened (refer to 3.2.1 Effectiveness). However, there are many municipalities and rural villages in these two regions which could not be featured in the Project. In these areas, it was necessary to enhance the capacity of the municipal authorities to assist JASSs and the capacity of JASSs to collect the service charge and to maintain the facilities. The coverage of the water supply service did improve to 82.5% in the Piura Region and 88.8% in the Lambayeque Region by 2013 even though the coverage in rural areas remained as low as around 60%.⁷

⁴ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁵ ①: Low; ②: Fair; ③: High

⁶ Based on data published by the National Bureau of Statistics and Information. This coverage represents the percentage of households receiving water supply through an individual water tap or communal tap.

⁷ According to data published by MVCS, the coverage of the water supply service in rural areas in 2013 was 66.3% in the Piura Region and 55.5% in the Lambayeque Region.

Based on the above, it is clear that the necessity for the Project was high at the time of both the ex-ante evaluation and project completion.

3.1.3 Relevance to Japan's ODA Policy

Japan's Country Assistance Program for Peru (August, 2000) identified four priority fields, i.e. "poverty reduction", "support for the social sector", "the development of economic infrastructure" and "environmental conservation". The "improvement of the water supply and sanitation services" falls under "poverty reduction" which is considered to be a matter of the highest priority. As such, the Project is considered to be one of the most important issues of the program. JICA's Project Implementation Policies for Peru which were revised in March, 2007 were based on the above-mentioned Country Assistance Program for Peru, and water supply and sanitation projects are relevant to the categories of "poverty reduction" and "support for the social sector". Moreover, the Project was upheld as a core project of "the Water Supply and Sanitation Sub-Program for the North Area" of "the Water Program for Peru".⁸ As such, the Project is consistent with Japan's ODA policies.

Based on the above, the Project is highly relevant to Peru's development plans and the development needs of Peru, as well as Japan's ODA policies. Therefore, its relevance is high.



Rural water supply facility constructed by pilot projects (from left): well (Lynas, Piura Region) water reservoir (San Pablo, Piura Region) water meter box (San Pablo, Piura Region)

⁸ The Water Program consists of three components, i.e. ① construction of water supply and sanitation facilities, ② strengthening of the operation and maintenance system and ③ capacity development of communities. The Project was the central piece of the second component to strengthen the operation and maintenance system.

3.2 Effectiveness and Impact⁹ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Project Outputs and Process

(1) Identification of issues concerning water supply and sanitation in rural villages (Output 1)

Various issues concerning water supply and sanitation in rural villages were identified through a survey featuring the conditions of the water supply and sanitation services for local residents and the state of the operation and maintenance of the water supply facilities in 48 rural villages that had been considered to have some problems related to water supply and sanitation in the two targeted regions (20 rural villages in Lambayeque Region and other 28 in Piura Region). Diagnosis of the organizational capacity and the results of various activities of DRVSs and municipal authorities confirmed a real need for capacity development. The above activities led to the introduction of effective approaches to achieve the purpose of the Project, including small and continuous financial incentives for board members of JASSs who basically receive no salary, the introduction of a usage-based tariff, and emphasis on a coordination and collaboration among stakeholders at the national, regional, municipal and village levels.

(2) Capacity building of regional, municipal and village-level stakeholders through pilot projects (Outputs 2 and 3)

Pilot projects were implemented in ten rural villages (five in each region) which were selected from the technical and socioeconomic viewpoints while avoiding duplicated selection with other similar projects.

In four of these ten rural villages, DRVSs played a central role in the construction of water supply facilities. Other activities implemented in all of these ten rural villages were the installation of water meters and the training of board members of newly established JASSs on technical and organizational management issues. In addition, sanitation education (education for water users) targeting all residents was conducted in collaboration with the health and education departments of each regional government. The themes of this sanitation education included essential matters for the proper utilization of rural water supply, such as the appropriate practices of hygiene, water saving and proper payment of the water charge. Training was also provided for municipal officers in charge of these pilot rural villages and a communication network was developed for smooth collaboration between the municipal authorities and JASSs. Prior to these activities, three manuals for the establishment and management of a JASS, operation and maintenance of water supply facilities and sanitation education were prepared and were actively used for the training and sanitation education. Apart from this, MVCS prepared a manual for the preparation and implementation of rural water supply facility construction projects as part of the Project by commissioning the work to a local consultant.

⁹ The effectiveness is rated in consideration of not only the effects but also the impacts.

According to DRVSS of the targeted regions, the counterpart personnel of the Project (officers of DRVSS) obtained comprehensive knowledge and experience regarding wide-ranging matters, including the preparation and implementation of water supply projects in rural areas, operation and maintenance of various facilities and sanitation education, for the first time through the pilot projects. It is said that the intensive involvement in a series of activities in the field was especially useful to improve their work performance in subsequent years. As all the principal counterpart personnel unanimously expressed such views, it is fair to assume that the capacity of DRVSS in the targeted regions was greatly enhanced.



(Left) Interview with a JASS in front of well / water reservoir (Mochumi, Lambayeque Region)
(Right) Tools (part) given for a JASS (Eten, Lambayeque Region)

At the municipal level, those nominated front-line officers underwent the transfer of knowledge and skills through training as well as practical work by the Project. Although municipal authorities should play a central role in guidance for and monitoring of JASSs, the number of guidance sessions for JASSs by municipal officers had been insufficient due to the multiple assignment of these officers and also due to the significant constraints in terms of budget and means of transportation. This means that participation of the municipal authorities to the Project was not sufficient and capacity development at the district level still have some issues to address.

At the rural villages, results of capacity strengthening had been confirmed as each JASS in nine among ten communities was submitting monthly reports to the respective municipal authority by the time of project completion. Based on the interviews with DRVSS of the Piura and Lambayeque Regions and those board members of JASSs, it can be judged that the operation and maintenance skills, which was improved through technical training on operation and simple repairs of facility and provision of tools, and clarification of the operational rules based on the usage-based water charge to ensure the transparency of accounting have led to the appropriate management of facilities by JASSs with the gained trust of residents. Therefore, it is judged that capacity development has been succeeded in most of the pilot rural villages by the time of project completion. An improved water charge collection rate and an increase of the proportion of residents maintaining sanitary practices in daily life by the time of project completion were also reported for most of these

rural villages¹⁰. Based on the above, it is judged that sufficient capacity had been built at most of the target villages by the completion of the Project. In one rural community, however, the residents were very unhappy about the absence of an adequate water supply service for a long time due to the break-down of the well pump and the collection of the usage-based water charge lasted for only two months.¹¹

(3) Development of a system to support JASSs by regional governments via municipal authorities (Output 4)

The authorities of each of the ten municipalities that cover the ten villages targeted by the pilot projects provided technical training for other rural villages which were in their jurisdiction but not the target of the pilot projects. An average of 70% of rural villages in these ten municipalities participated in this training. Meanwhile, DRVSs of the targeted regions conducted training related to the operation and maintenance of facilities and sanitation education for all the municipalities in their regions, 70% of the municipal authorities in the Piura Region and 90% in the Lambayeque Region participated in this training. Through this training, DRVSs of these regions established new useful communication channel with individual municipal authorities. These municipal authorities which participated in the training prepared a training plan for JASSs in their charge. Through these activities, sharing of the knowledge and experience obtained under the pilot projects and of the newly prepared manuals advanced in the two regions, consolidating the technical and informational basis for continual support for JASSs by the regional governments and municipal authorities. Furthermore, DRVSs in the two regions organized a seminar in the San Martin Region to introduce the positive outcomes of the Project.¹²

3.2.1.2 Achievement of Project Purpose

The purpose of the Project was that “the capacity to provide water supply and sanitation services in rural villages and small cities in the Piura and Lambayeque Regions is improved”. To be more precise, through the pilot projects, training and the preparation and dissemination of manuals on construction, operation and maintenance of various water and sanitation facilities, relevant training, technical assistance and sanitation education, it was expected that organizational capacity is enhanced at regional, municipal and rural village levels to attain sustainable operation and maintenance of water supply and sanitation facilities in rural villages and small cities.

¹⁰ Monitoring surveys were conducted in line with the pilot projects, at seven rural villages (five in Lambayeque Region and two in Piura Region) among the ten targeted villages, on such aspects as; punctual payment of water tariff, sanitary practices in daily life (handling of water in house, hand washing with soap, cleaning of toilet, etc.), occurrence of diarrheas, etc. As a result, improvement was confirmed at five to six villages during a period of six months on each item.

¹¹ The rural village in question was Malacasi in the Piura Region. This village had a water supply system which used a well as the water source but this system was not included in the scope of the water supply facility improvement through a pilot project.

¹² The participants of this seminar included some 40 people involved in rural water supply in the San Martin Region, representatives of DRVS of the Loreto and Amazonas Regions, representatives of the Inter-American Development Bank and officers of aid organizations of Switzerland and Germany.

Table 1 Degree of Achievement of the Project Purpose

Project Purpose	The capacity to provide water supply and sanitation services in rural villages and small cities in the Piura and Lambayeque Regions is improved. < Achieved in major part>
Indicators	Results
① DRVSs continue to provide guidance based on the manuals prepared under the Project to 25% of the municipal authorities in each region.	DRVSs established a communication channel to each municipal authority through the training in which more than 70% of the municipal authorities in each region participated, completing the preparations for continual technical guidance for the municipalities. (At the time of the ex-post evaluation, technical guidance was continuing for some 30% of the municipal authorities in the two regions.) <Achieved>
② An improved water supply service with an appropriate tariff is provided by JASS in at least ten of the targeted areas by the pilot projects.	A usage-based tariff was employed in nine of the ten pilot rural villages, resulting in an improved water supply service. In one rural community, the service deteriorated due to the break-down of the water supply facility and the usage-based tariff was withdrawn after two months in respect of the opinions of residents. < Mostly achieved >

(1) State of achievement of the indicators

As shown in Table 1, the degree of achievement is high for the two indicators for the project purpose. In connection with Indicator ①, DRVSs of the targeted regions were expected to become capable to continually provide technical guidance for the municipal authorities even after project completion by means of obtaining comprehensive knowledge and experience of water supply and sanitation services through the Project and establishing a communication channel with individual municipal authorities. In fact, the technical guidance provided by the regional DRVSs is found to be continuing at the time of the ex-post evaluation, achieving this indicator.

In the case of Indicator ②, even though the usage-based tariff ended after a short period of time in one of the ten pilot rural villages¹³, it continued at least until the time of project completion in the other nine rural villages. Moreover, several cases as described below were found through the field visit where water charge collection using a usage-based tariff with the installation of water meters led to an improved water supply service.

- Reduction of inadequate water consumption such as watering the garden and water use for irrigation made it possible for supplied water to reach those households located in areas at the far end of the water supply network and the volume of supplied water per household to increase.
- At those water supply facilities which used a well as the water source, the volume of pumped water was reduced, resulting in a decline of the electricity charge.

¹³ See footnote 11.

- The water charge collection rate increased as it became easier to suspend water supply to those households in payment arrears in an effective manner. (Water supply can be suspended simply by opening the water meter box with a key. When there is no water meter, the service pipe in the ground must be physically disconnected. However, as people can get water from their neighbors, etc. without any additional charge even though water supply was suspended, the effect of such disconnection to prompt payment is not strong.)
- Based on the above, the financial performance of JASSs improved to the extent that they could afford proper maintenance and quick repair.

(2) State of achievement of the project purpose

At the time of the commencement of the Project, DRVSs of Lambayeque and Piura were little involved in the water supply and sanitation services for rural villages, and there were few officers with knowledge or experience concerning these services. Through the implementation of the Project, however, the counterparts at DRVSs obtained comprehensive knowledge and experience to the extent that they could act as main trainers for the training of staff members of municipal authorities and JASSs, and also for sanitary education for residents. As such, the overall capacity of DRVSs of both regional governments is judged to have significantly improved. In the case of the municipal authorities, skills were transferred mainly featuring those subject municipalities of the pilot projects, while some issues were left unsolved in relation to manpower, budget and means of transportation. At the rural village level, sufficient capacity development was observed in most of the pilot rural villages. In consideration of the above as well as the fact that the level of achievement of the relevant indicators is high, it is appropriate to conclude that the Project largely achieved its purpose.

(3) Factors affecting the achievement of the project purpose

The promoting factors and obstacles relating to the achievement of the project purpose are listed below.

< Promoting factors >

- Accurate analysis of the identified problems made it possible to employ an effective approach to improve the operation and maintenance capability of JASSs, such as introduction of a usage-based tariff, introduction of incentives for board members of JASSs and strengthening of collaboration among the regional DRVSs, municipal authorities and JASSs, etc.
- The careful as well as practical technical transfer through the pilot projects made it possible for DRVSs to obtain broad knowledge and experience relating to water supply and sanitation services.

< Obstacles >

- In some municipalities, people capable of supporting JASSs were not properly deployed. It can be pointed out in general that mayors give priority to politically eye-catching projects such as improvement of city hall, public square, etc., and give less priority to water supply and sanitation-related projects in rural villages.
- In some rural villages, the support for operation and maintenance under the pilot projects was not coupled with the sufficient development of facilities which is what the residents wanted to see.

3.2.2 Impact

The overall goal of the Project was improvement of the water supply and sanitation conditions in rural villages and small cities in the Piura and Lambayeque Regions. It was envisaged that that the Project would contribute to this overall goal mainly by means of improving the operation and maintenance of rural water supply facilities. For this reason, the municipal authorities which would be responsible for providing direct support for JASSs were expected to receive continual training and technical guidance from DRVSSs. On the other hand, the Project intended to strengthen the capacity of DRVSSs in preparing and implementing rural water supply projects through pilot projects so that such investment projects by regional governments would contribute to the achievement of the overall goal.

In the following sections, the maintenance of the attained outputs and the project purpose after the termination of the Project is clarified. Then, the state of achievement of the overall goal and the contribution of the Project to the overall goal are properly analyzed, followed by analysis of the impacts of the Project on matters other than the overall goal.

3.2.2.1 Sustainment of Project Outputs and Achieved Project Purpose

(1) Rural Villages with Pilot Projects

Of the ten rural villages in which the pilot projects were implemented, seven were visited by the evaluator for the ex-post evaluation and their situation (as of November, 2015) in relation to the Project is described here¹⁴. Even though there have been some difficulties due to a change of the board members of JASSs and the inadequate handing-over, etc., the positive effects of the improved water supply service have been maintained in five to six among seven rural villages.

- In five rural villages, board members of a JASS have been replaced and all of the personnel which underwent training in the Project have left. In two among these five rural villages, new board members have undergone training by the regional or municipal authorities or

¹⁴ The visited villages were carefully selected to avoid bias towards only successful cases or failed cases while referring to the ratings of DRVSSs in each region and giving consideration to achieving a balanced geographical distribution.

have received the transfer of detailed information and guidance by the ex-board members concerning the Project and its outcomes.

- In three rural villages, the manuals developed under the Project are still in use. While the maintenance tools given by the pilot projects continue to be used in all of the rural villages visited, the PC and printer is used by JASS in only two rural villages.
- In two rural villages, the usage-based water charge is no longer continued following a decision at a residents' assembly of JASS¹⁵. In contrast, other three rural villages have experienced an expansion of the service area after the project completion, acquiring new water users who pay a fixed charge because of the non-installation of a water meter.
- In five rural villages, it is reported that the pilot projects have resulted in improvement of the water supply service in terms of the expansion of the area where water reaches, improvement of water supply hours, water pressure and water quality. In three villages, it is considered that introduction of the usage-based water charge has led to an expansion of the area where water reaches and improvements in water supply hours and water pressure. According to the findings of the beneficiary survey conducted as a part of ex-post evaluation¹⁶, an average of 67% of the residents of these rural villages replied that the water supply service has improved even though the situation differs from one rural community to another. 72% replied that they are satisfied with the current water supply service (Table 2).
- In six rural villages, the water charge collection rate has improved. In five rural villages, suspension of the water supply to households in arrears is considered to have led to an improved collection rate. On the other hand, the residents of those rural villages where a usage-based tariff is not in place may obtain water from neighbors, and the effects of suspension may be limited.
- JASS in five rural villages have saved money which may be used for small-scale repair work.

¹⁵ There were some villages where residents are unhappy that appropriate water supply services cannot be provided due to extended breakdown of well pumps (see 3.2.1.1(2)) and where application of usage-based water tariff was abandoned in the face of strong opposition from some residents who had increased water tariff.

¹⁶ As the beneficiary survey, interviews using questionnaires were implemented targeting 203 households (32-35 households in each village) randomly selected in six villages targeted by the pilot projects (two villages were targeted for facilities construction, and four received sanitation education and installation of meters only).

Table 2 Level of Satisfaction with the Water Supply Service and Improvement of the Water Supply Service in the Six Villages Covered by the Beneficiary Survey

	Average	Piura Region			Lambayeque Region		
		San Pablo	Lynas	Malacasi	El Espinal	Humedades	Santos Vera
Ratio of Residents Replying “Very Satisfied” or “Satisfied” (%)							
Overall	72	49	91	10	100	85	91
Water pressure	72	54	97	7	85	85	97
Water supply hours	59	38	59	0	94	65	91
Water quality	76	87	56	67	71	91	82
Tariff	70	49	91	33	91	56	94
Maintenance	72	46	94	27	85	88	91
Customer handling	70	51	94	20	88	74	91
Ratio of Residents Replying “Much improved” or “Improved” (%)							
Overall	67	54	97	3	17	82	88
Water pressure	47	27	79	10	38	68	56
Water supply hours	37	24	41	7	44	53	50
Water quality	32	19	68	3	12	38	50
Tariff	49	35	65	10	44	59	79
Maintenance	37	22	50	10	35	32	74
Customer handling	49	19	79	13	41	41	38

Source: Beneficiary Survey

(2) MVCS

All of the staff personnel involved in the Project have left. The facility improvement manual prepared under the Project is no longer used. No follow-up activities with regional governments and sites of the pilot projects have been conducted since the project completion.

(3) DRVSs

Of the counterparts working for DRVSs at the time of project completion, six officers (out of eight) at the Piura DRVS still work at the same office and two are in charge of water and sanitation. In the case of the Lambayeque DRVS, seven out of eight officers still work at the same office and three among them are in charge of water and sanitation.

Training and technical assistances for municipal authorities

In the Piura Region, DRVS has made an agreement to provide training with individual municipal authorities and also provides technical assistance as required. In addition to the five municipal authorities with the pilot projects, DRVS concluded an agreement with nine municipal authorities in 2014 and 2015, and provided training for 21 and 30 municipalities in 2014 and 2015 respectively. While more than 60 municipal authorities in the Piura Region are in need of such assistances, DRVS cannot support all of them because of constraints in terms of the manpower, funding and means of transportation. For those municipal authorities with which an agreement has been made, DRVS provides seven to ten half-day training sessions featuring the establishment and management of a JASS, operation and maintenance of water supply facilities and sanitation

education. The counterparts for the Project act as lecturers for these training sessions. An engineer dispatched by another donor project (SABA Project) may act as a lecturer for technical matters¹⁷. Nearly half of the municipal authorities which have undergone such training have become capable of providing similar training for JASSs. In 2013 and 2015, a training and exchange meeting was held for all the municipal authorities and some JASSs where the participants shared good practices in the region.

Meanwhile, the Lambayeque DRVS conducted a three-day training session in 2014 and 2015 targeting all 30 municipal authorities in the region, and 25 and 27 municipalities participated in 2014 and 2015 respectively. This training session covered all relevant matters, ranging from facility construction and improvement, and the operation and maintenance of facilities to sanitation education. Lectures were given by the counterparts for the Project as well as by the officers in the health sector and engineers working for the SABA Project. Field training was also included. The teaching materials, etc. were prepared by individual lecturers and were distributed in the form of a CD to each trainee on completion of the training. The manuals developed and printed under the Project were also distributed as long as they were in stock. Many of the municipal authorities which participated in the training are now providing similar training for JASSs. At the time of ex-post evaluation, DRVS maintains regular contact with the relevant officers of some 20 municipal authorities and provides them with assistance.

Construction of water supply facilities

Water supply facilities were constructed under the pilot projects by DRVS as a part of the Project in Piura and Lambayeque Regions. However, DRVS is not implementing any projects for construction of water supply facilities after the Project, as the Department General of Infrastructure, instead of DRVS, is still conducting such projects as before. Therefore, DRVSs of the both regions have not implemented any construction work in the post-project period.¹⁸ While, the Lambayeque DRVS is actually conducting the planning and design of some projects for water supply facilities and the Department General of Infrastructure is responsible for the implementation of construction works. Since the completion of the Project, seven projects have been implemented based on this division of work and some of the counterparts for the Project were involved in the planning and design stages of these projects.

¹⁷ Swiss Agency for Development and Cooperation implemented the Integrated Basic Sanitation Model Project (SABA Project) over almost 20 years from the latter part of the 1990s. In this project, engineers, etc. were dispatched to target regions to implement training for mainly municipal authorities with the objective of improving basic sanitary services in rural areas. In recent years, this agency has been working on dissemination of chlorine disinfection with the aim of securing safe water.

¹⁸ According to the material provided by JICA, at the time of planning the Project, capacity development relating to facility construction was included in the scope of cooperation on the grounds that DRVSs which were only responsible for operation and maintenance would eventually become responsible for facility construction as well in line with the political intention of MVCS at the time. Thus, it was thought that regional governments would bring about such organizational change.

Utilization of manuals

The facility development manual prepared by MVCS as part of the Project did not become an official manual approved by the Ministry, therefore it has been neither published nor distributed. At the regional and municipal levels, the manuals prepared by the Ministry of Economy and Finance and MVCS are widely used.

In regard to the three manuals (featuring “establishment and management of a JASS”, “operation and maintenance of water supply facilities” and “sanitation education”) used for the pilot projects and training under the Project, only manuals on sanitation education has been reprinted with partial revision in the Piura Region after the completed distribution of the initial stock. For the training provided by DRVSs after the completion of the Project, lecturers prepare their own teaching materials for distribution in digital copies to the trainees. The three manuals are used by the officers of DRVS as a reference material.

(4) Municipalities

Of the ten municipalities which cover the ten villages targeted by the pilot projects, six were visited by the evaluator for the purpose of ex-post evaluation. The situations of these six municipalities (as of November, 2015) are described below.

- Five municipalities have a municipal technical office responsible for guidance on rural water supply and sanitation. Of these, four have been newly created since the completion of the Project.
- Many officers deployed at the above office have concurrent job assignments. A person who participated in the training under the Project and still has the same position is found in only one municipality because of reshuffling after the election of a new mayor. No-one has any of the manuals prepared under the Project.
- Only half of the visited municipalities, i.e. three out of six, have participated in the training held by DRVS on how to provide guidance for JASSs.
- Four municipal authorities have a general idea of the present conditions of rural water supply and JASSs in their municipalities. Three municipal authorities within the four provide training for JASSs.

The evaluator visited additional four municipalities which were not featured in the pilot projects but were considered by DRVS as proactive municipalities in water and sanitation sector. It was confirmed that the respective municipal authorities dispatched their officers to the training organized by DRVSs and are thereby actively providing training and technical guidance for JASSs. The training for JASSs uses teaching materials personally prepared by the officer in charge. In two municipalities, the availability of the manuals prepared under the Project was confirmed but these

manuals are not necessarily used directly in the training while they are used as reference materials for municipal officers.

In general, the training organized by a municipal authority for JASSs is conducted at a convenient site for the participating JASS members based on the distance from a rural community to the site, means of transportation owned by the municipal authorities, necessity for such training and other factors. The site may be the municipal office to invite all the JASSs, or other convenient locations for some JASSs, or may be in each rural community. Of the total ten visited municipalities, all of the seven municipalities which had received training by DRVSSs provide training for JASSs. The remaining three municipalities did not receive any DRVSSs training and do not provide training for JASSs.

When either the national government or a regional government constructs new water supply facilities, the establishment of a JASS and relevant training on its administration are conducted as part of the investment project. According to the interview with regional and municipal authorities, it is often the case that training is outsourced to the private sector, and municipal officers are not involved in the process. Some municipalities expressed their opinion that the involvement of the municipal authority from the initial stage of the process of establishing and providing training for a JASS would make the practice of consistent and continual guidance feasible.

(5) Factors affecting the sustainment of the project outputs and achieved project purpose

The promoting factors and obstacles relating to the sustainment of the project outputs and project purpose are listed below.

< Promoting factors >

- Following a government program designed for capacity development of local governments¹⁹, a technical office has been established in 2015 in those municipalities with a high level of poverty, and officers have been appointed to assist the operation and maintenance of rural water supply facilities. This program requires municipal authorities to diagnose the conditions of water supply facilities and the organizational structure and operation, etc. of JASSs in their own municipalities and also to provide training for some rural villages. Funding is conditional on the state of implementation of these activities. Because of this program, the level of awareness of the operation and maintenance of rural water supply facilities appears to have been increasing among municipal authorities.
- The technical assistance for DRVSSs is continuing under the SABA Project.
- The principal counterparts for the Project have kept their positions at DRVSSs and maintained their activities.

¹⁹ Incentive Plan to Improve Municipal Management and Modernization: this program entails granting subsidies to municipal authorities according to performance in order to enhance their administrative capacity. Targets for achieving performance are presented every six months, and subsidies are allocated according to the degree of achievement in each municipal authority.

< Obstacles >

- The personnel at municipal authorities and JASSs frequently change. In the case of municipal authorities, members of the municipal technical office often change every four years after the election of a new district head and the handing-over is frequently inadequate. In the case of JASSs, board members may be replaced every two years in the election and the handing-over is often inadequate. Because of this, there is a need for the repeated training of members of district technical offices and JASSs.
- DRVSs face constraints in terms of the means of transportation and budget while municipal authorities tend to face an additional constraint relating to manpower. DRVSs or most municipal authorities have only one vehicle for use for official duties.²⁰ Most officers deployed at municipal technical offices have concurrent job assignments.

3.2.2.2 Achievement of Overall Goal

As the level of achievement of the relevant indicators is high as shown in Table 3, it is inferred that the overall goal of “the water supply and sanitation conditions are improved in rural villages and small towns in the Piura and Lambayeque Regions” was achieved.

Table 3 Level of Achievement of the Overall Goal

Overall Goal	The water supply and sanitation conditions are improved in rural villages and small cities in the Piura and Lambayeque Regions. <Achieved>
Indicator	Results
① Increase of the number of rural villages and small cities with drinking water supply services that are adequate in quality and quantity	Although no data for this indicator has been obtained, it is inferred that this indicator has been achieved because of the implementation of many water supply facility construction projects ²¹ and continued assistance for the municipal authorities and JASSs. <Achieved>
② 5% increase of the coverage of rural water supply in each region by 2017	The coverage increased by 7.3% in the Piura Region and 5.3% in the Lambayeque Region in the three year period from 2012 to 2015. <Achieved> <Rural water supply coverage> 2012: Piura 77.3%, Lambayeque 82.8% 2015: Piura 84.6%, Lambayeque 88.1%
③ Decline of the incidence rates of water-borne diseases	No data for this indicator has been obtained. A decline of the frequency of the occurrence of diarrhea has been reported in some pilot rural villages. Because of the ongoing improvement of the water supply and sanitation services in other rural villages, it is inferred that this indicator has been <Achieved>.

Note: Although Indicator ② was not included in the PDM, it was introduced prior to project completion following a recommendation by the terminal evaluation report that target figures for the overall goal indicators should be determined. It must be noted that the rural water supply coverage is a percentage of households receiving water supply through an individual tap or communal tap in those municipalities other than urban municipalities (where a JASS in rural area does not exist) of each region and is calculated using data published by the National Bureau of Statistics and Information.

²⁰ The vehicles provided under the Project have been actively used as the only means of transportation for the Piura DRVS and the Lambayeque DVS.

²¹ For example, new national, regional or municipal investment projects for the construction of water supply facilities were approved for some 360 rural villages in the Piura and Lambayeque Regions in 2014.

The Project is believed to have made the following contribution in relation to improvement of the water supply service (Indicators ① and ②) and decline of water-borne diseases (Indicator ③).

(1) Promotion of infrastructure development by regional governments

While, no positive contribution to the Piura DRVS is feasible as this organization is not involved in facility development, the Lambayeque DRVS has been involved in the planning and design of seven projects from the time of project completion to the time of the ex-post evaluation. Although the involvement of DRVS is limited to the preparatory stage due to the fact that the actual construction work is undertaken by the Department General of Infrastructure of Lambayeque Region, it is possible that the transfer of skills under the Project has promoted the construction of new facilities to a certain extent in terms of securing quality of planning, design and construction.

(2) Improvement of the operation and maintenance of rural water supply facilities

In both of the targeted regions, the Project has contributed to improvement of the water supply service through the provision of technical support for and training of municipal authorities / JASSs and continued sanitation education. There are rural villages in which the management of a JASS has improved even though these rural villages were not subjects of the pilot projects. It is safe to assume that the sustainability of the water supply service has increased in these rural villages. The usage-based tariff which resulted in a conspicuous improvement of the water supply service under the pilot projects has not yet been introduced in a vast majority of rural villages. However, awareness of the necessity for this has been growing among those involved in water supply at the regional, municipal and rural community levels. As the Project established concrete examples of the successful introduction of the usage-based tariff, there is a possibility of its accelerated introduction in the coming years.

(3) Contribution to a decrease of water-borne infectious diseases

In the rural villages targeted by the pilot projects, improved sanitation practices and a decline of the number of cases of diarrhea have been reported²², suggesting a possible contribution by the Project. In other rural villages, no concrete contribution by the Project has been confirmed. In the Project, it is thought that contribution has been made indirectly towards reducing waterborne infectious diseases through promoting sanitary education and improving water supply services in rural areas.

²² According to the results of the beneficiary survey, a decline of the frequency of the occurrence of diarrhea is observed in three out of four rural villages where comparison with the baseline survey results in the Project is possible. Based on response of the village population, 30% of the residents possess the sanitation manual prepared under the Project and 60% of residents have ever received information on sanitation from a JASS in the post-project period.

3.2.2.3 Other Impacts

(1) Socioeconomic and environmental impacts of the pilot projects

In four rural villages targeted by the pilot projects for the introduction of new water supply facilities, short-term employment opportunities for construction work were created and became a source of temporary income for local residents. The pilot projects did not require the resettlement of residents or the acquisition of land and no negative impacts on the natural environment have been reported.

(2) Dissemination of the project outputs to other regions

The results of the Project, i.e. knowledge and good practices acquired through the pilot projects and several manuals, have not yet been successfully disseminated to other regions except for a seminar held in the San Martin Region during the project period. Partly because of the replacement of officers in charge, MVCS is found to be little aware of the results of the Project and no work has been conducted by MVCS to examine the possible dissemination of them or to make government policies reflect them.

Summarizing the evaluation on effectiveness and impacts of the Project, with the implementation of the Project, the project purpose of “the capacity to implement water supply and sanitation services in rural villages and small cities in the Piura and Lambayeque Regions is improved” has been mostly achieved. The overall goal has also been mostly achieved as positive contribution of the Project to an improved water supply service and decrease of the number of cases of water-borne infectious diseases was confirmed. Based on the above, it is fair to say that the Project has largely achieved its objective. Therefore, the effectiveness and impact of the Project are high.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

The planned and actual inputs by the Japanese and Peruvian sides to the Project are outlined in the following table.

Table 4 Planned and Actual Input

Type of Input	Planned	Actual (at the time of project completion)
Japanese Side		
(1) Dispatch of experts	4 experts (overall supervision; water supply planning; O & M planning)	7 experts (77 person-month) (overall supervision; water supply planning; O & M planning; groundwater development; sanitation education planning; maintenance of water purification plants)
(2) Acceptance of trainees	Several per year	2 trainees
(3) Provision of equipment	Vehicles, etc.	Vehicles, PCs, printers, copiers and projectors, etc.
(4) Local subcontracting	Study in 2 regions; facility development at 3 sites in the pilot project in each of the 2 regions	Study in 2 regions; facility development at 2 sites in the pilot project in each of the 2 regions; introduction of water meters at 3 sites in each of the 2 regions
(5) Administration cost	(Planned cost is unknown)	58 million yen
Total funding by the Japanese side	Approx. 400 million yen	435 million yen
Peruvian Side		
(1) Assignment of counterparts	1 MVCS coordinator; at least 3 full-time coordinators in each region; specialist engineers	2 MVCS coordinators; regional coordinators (7 in the Piura Region and 6 in the Lambayeque Region)
(2) Other	Payment of the necessary costs, including those of the office for experts, furniture and stationary	Payment of the necessary costs, including those of the office for experts, furniture, stationary, manual for facility development and business trips (956,000 Soles)

Source: Material provided by JICA, Material prepared by the Project

3.3.1.1 Elements of Inputs

The pilot projects to construct new water supply facilities was originally planned to be implemented at six sites. However, the number of sites was later reduced to four because of the longer than expected preparatory period due to the delayed deployment of engineers in the Piura Region and the lengthy time required for adjustment with another ongoing projects in the Lambayeque Region. Instead, the number of pilot project sites not involving construction work was increased from four to six, making the total number of pilot projects ten as planned. Moreover, in consideration of the outcomes of the pilot projects at earlier stages and requests made by the targeted rural villages, the installation of water meters was added at those sites of the pilot projects not involving construction work.

According to the Japanese experts and Peruvian counterparts, the Japanese inputs were mostly as planned, and there were no problems relating to the timing and the quality as well as quantity of the inputs. In contrast, the planned Peruvian inputs faced the following difficulties which affected the planned activities of the Peruvian side.

- Shortage of specialized personnel (especially in the Piura Region) and budget allocation to implement the planned activities.
- Frequent replacement of the officers involved in the pilot projects at the national (MVCS), regional (DRVSs) and municipal levels due to a change of the administration and change of senior personnel following local elections.
- Low priority given by mayors to water supply projects, insufficient involvement of the municipal authorities due to the limited budget and manpower.
- Busy schedule experienced by the counterparts due to the SABA Project using DRVVs as the counterpart in both regions.

3.3.1.2 Project Cost

The total project cost for the Japanese side was originally planned to be approximately 400 million yen. The actual cost of 435 million yen exceeded the planned cost (109% of the planned cost). As there wasn't a huge cost over-run and the details of the planned cost are unknown, it was impossible to determine the reasons for this cost over-run.

3.3.1.3 Period of Cooperation

The planned project period was 48 months from April, 2009 to March, 2013. The actual project period from June, 2009 to March, 2013 (46 months: 96% of the planned period) was shorter than the planned period. The commencement of the Project was delayed by the delayed procedural clearance by the Peruvian side, resulting in a two months delay of the signing of the contract between JICA and supporting organizations in Japan. Nevertheless, the Project was completed by the originally planned completion date.

Although the project period was within the plan, the project cost exceeded the plan. Therefore, efficiency of the Project is fair.

3.4 Sustainability (Rating: ②)

3.4.1 Related Policy and Institutional Aspects for the Sustainability of Project Effects

As already mentioned in 3.1 Relevance, the water supply and sanitation sector is a priority sector for government policies at the time of the ex-post evaluation. In recent years, a series of new policies supporting water supply and sanitation in rural areas have been introduced, including the laying of in-house piping in rural area as part of public investment project, integrated construction of water supply facilities and sanitation facilities (improved toilets, etc.) and emphasis on chlorine disinfection. The year of 2015 showed the accelerated introduction of municipal technical offices assigned to support rural water supply at the municipal level as part of decentralization²³, illustrating the growing emphasis on operation and maintenance. Based on the above, the institutional sustainability of the Project is judged to be high.

²³ See 3.2.2.1 (5).

While the introduction of a usage-based tariff under the pilot projects achieved an important result, the installation of water meters is not usually incorporated in rural water supply projects implemented by MVCS.²⁴ Even though MVCS is responsible for the preparation of guidelines for water supply projects in Peru, it has not yet prepared guidelines which are relevant to the introduction of a usage-based tariff for the rural water supply service.

3.4.2 Organizational Aspects of the Implementing Agency for the Sustainability of Project Effects

MVCS maintains a system of constructing rural water supply and sanitation facilities under the National Rural Water Program since the time of project completion to the time of the ex-post evaluation.

The Piura DRVS and the Lambayeque DRVS have two and three counterpart persons engaged in water supply and sanitation-related work respectively. While the specialist personnel at the Lambayeque DRVS are full-time regional government employees, those at the Piura DRVS are on a six month rolling contract.

While the Piura DRVS used to belong to the General Department of Social Development, it currently belongs to the General Department of Infrastructure. In the Lambayeque Region, DRVS which used to belong to the General Department of Social Development has become the Executive Department of Housing and Sanitation, which is an independent entity directly answerable to the regional governor. According to an explanation by the heads of DRVSs, the General Department of Infrastructure has long been responsible for the construction of facilities in the water supply and sanitation sector. However, both DRVSs have been aiming at acquiring the capability to conduct such construction work independently, and the recent organizational shake-ups are part of this process.²⁵

At the municipal level, as mentioned before, there have been ongoing efforts to establish a municipal technical office and to deploy full-time staff members to support operation and maintenance in rural villages. In line with these efforts, the registration of JASSs to gain corporate status is in progress at the village level.

The situation described above suggests that the manpower strength of DRVSs has been generally maintained and that it is expected to be sustained to a certain extent. It is also fair to say that the project sustainability in terms of the organizational aspect at the municipal and village levels is becoming more solid.

²⁴ In Peru, introduction of usage-based water tariff for water supply started from the urban areas, while, fixed rates are still common in rural areas. It has not been easy to introduce usage-based water tariff to rural areas because additional investment is required to install meters and it is necessary to establish strict charge levying systems to address the lower willingness to pay charges among rural residents compared to urban residents. In consequence, in one municipality, the installation of water meters was removed from the scope of a water supply project proposed on the instruction of MVCS.

²⁵ The Project commenced based on the assumption that a single regional department would provide integral support for both the construction of facilities (planning and implementation of an investment project) and operation and maintenance of the water supply and sanitation facilities. However, such organizational arrangement has not yet been realized in any region in Peru.

3.4.3 Technical Aspects of the Implementing Agency for the Sustainability of Project Effects

The principal counterpart staff members in the two regions have been kept in their posts. Although the manuals prepared under the Project are not frequently used, the technical competence developed under the Project is believed to be maintained at the regional level as long as staff members with suitable skills are kept in their posts.

Staff members of JASSs and municipal authorities are frequently replaced and the business handing-over is insufficient in many cases, making it difficult to sustain the technical competence at a reasonable level. Therefore, technical sustainability would be assured only when repeated training are given. However, the two regions and the municipalities cannot always keep such training because of the limited means of transportation and insufficient budget. In short, the sustainability of the technical aspect of the Project is not fully guaranteed at the municipal and village levels.

3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects

The budget of the Piura DRVS and Lambayeque DRVS for the water supply and sanitation sector is shown in the table below, and a slight increasing trend can be observed. In 2015, there was a major increase in both regions because MVCS allocated a temporary additional budget for training, awareness raising and chlorine disinfecting equipment supply, etc. in the rural sanitation sector.

Table 5 Budget Expenditure by DRVSs for Water and Sanitation Sector

(Unit: thousand Soles)

	Piura	Lambayeque
2010	154	69
2011	141	73
2012	166	77
2013	235	80
2014	191	94
2015	416	224

Source: DRVS of Lambayeque and Piura
 Note: The above amounts do not include construction projects in water and sanitation sector.
 1 Sol = around 34 Yen (average for 2010 - 2015)

At the regional and municipal levels, major constraints in terms of the means of transportation and budget have been obstructing efforts to provide training and technical support for lower level administrative organizations.²⁶ For 2015, there is supplementary budget allocation for regional governments and municipal authorities under a government program but this is only a temporary measure²⁷. Some 70% of the rural villages targeted by the pilot projects have saved some

²⁶ Both the Piura DRVS and Lambayeque DRVS have only one vehicle each. Most municipal authorities also have only one vehicle each.

²⁷ In the regions, “Incentive Funds based on Social Achievements and Results” (*Fondo de Estímulo al Desempeño y Loro de Resultados Sociales*: FED) are implemented, while in the municipal authorities, the “Incentive Plan to Improve Municipal Management and Modernization” (*Programa de Incentivos a la Mejora de la Gestión Municipal*: PI) is implemented.

money. However, many JASSs are facing financial strain due to the non-payment of the water charge by residents whose willingness to pay is not particularly strong making rapid repairs of the facilities difficult and constraining operation and maintenance of the facility.²⁸ As such, the financial sustainability faces some problems.

In short, some minor problems have been observed in terms of the technical and financial aspects. Therefore, sustainability of the project effects is fair

4. Conclusions, Lessons Learned and Recommendations

4.1 Conclusions

The Project was implemented for the purpose of improving the capacity of DRVSs, selected municipal authorities and JASSs in the Piura and Lambayeque Regions in the north of Peru through pilot projects and training, thereby upholding improvement of the water supply and sanitation conditions in rural villages and small cities in these regions. The Government of Peru consistently emphasized the sanitation sector from the time of the ex-ante evaluation. Moreover, via the Project, DRVSs in the target regions for the first time acquired the capability to conduct appropriate guidance and support on operation and maintenance of water supply and sanitation services for municipal authorities and JASSs, while the regions have needed to conduct ongoing training for those municipal authorities and JASSs that have frequent turnover of personnel. Thus, the Project is highly consistent with policies and development needs in Peru. Moreover, it is consistent with the aid policy of Japan. Accordingly, relevancy of the Project is high. Through implementation of the Project, the capacity was strengthened on the regional level and among the municipal authorities and JASSs targeted by the pilot projects, so the project purpose was largely achieved. Concerning the overall goal, since water supply services were improved, and it was confirmed that contribution was made to reduce waterborne infectious diseases, intended impacts were generally realized as planned. Accordingly, the Project effectiveness and impact is high. Inputs on the Japanese side were appropriate, while the inputs on the Peruvian side were confronted by constraints in terms of human resources and budget. The project period was largely as planned. However, because project costs on the Japanese side exceeded budget, the project efficiency is fair. On the level of municipal authorities and JASSs, since there are frequent personnel changes and there have been partial technical and financial issues such as lack of means of transport (vehicles) and funds, the sustainability of the project effects is fair.

In light of the above, the Project is evaluated to be satisfactory.

²⁸ For example, as much as 40% of the rural community in Lambayeque shows delinquency rates of more than 10%.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

Ministry of Housing, Construction and Sanitation (MVCS)

- Important results of the pilot projects, particularly the introduction of a usage-based tariff, should be carefully examined and verified with a view to introducing it nation-wide in order to review the policies and guidelines used for rural water supply and sanitation service delivery.
- To facilitate more efficient implementation of support by municipal authorities for JASS after the construction of facilities, consideration should be given to methods for ensuring the continuity between the training via the consultants in the facilities construction projects and training / technical support by municipal authorities following the implementation of such projects.

Piura Region and Lambayeque Region

- The regional DRVSs can play an important role in supporting municipal authorities that have a high turnover of personnel. On the other hand, the Project's sustainability depends on continuous engagement of the key counterpart employees in the regional DRVSs. In consideration of the above points, the regions should take steps to ensure that the key counterpart employees continue to stay involved in the DRVS' sanitation duties.
- The manuals that were prepared in the Project should be fully utilized through, where necessary, revising, reprinting and distributing as electronic media.
- It is desirable for regional DRVSs to consolidate the good practices obtained through the pilot projects and disseminate them inside and outside of the regions.

4.2.2 Recommendations to JICA

- JICA should consider the compilation of examples of good practices established in the Project, including the introduction of a usage-based tariff. JICA also should consider the provision of further assistance for the nationwide dissemination of such good practices via the Ministry of Housing, Construction and Sanitation.

4.3 Lessons Learned

Introduction of a usage-based tariff for rural water supply

The introduction of a usage-based tariff for rural water supply can improve the quality and sustainability of the water supply service. For the effective introduction of such a tariff, it is important to select water supply systems using groundwater as the water supply source (this enables a reduction of the electricity cost), villages where water does not reach terminal areas due to the wasteful use of water (this improves the water supply service through a reduction of water consumption) and villages where the water charge collection rate is low

(this improves the overall water supply due to the termination of water supply to non-payers). Other necessary actions include the training of members of JASSs and enhancement of the willingness of users to pay by means of education. Moreover, as users find it difficult to accept a user-based tariff without receiving an adequate service, the introduction of a user-based tariff along with improvement of the water supply facilities is desirable.

Dissemination through the involvement of the central government

For any technical cooperation project designed to introduce a new approach in local areas, it is essential to secure the continued and actual involvement of the central government in order to increase the level of nationwide dissemination effects. The pilot projects for this Project clearly established that the introduction of a usage-based tariff could prove to be an effective means of improving the overall water supply in rural areas. However, the less than expected involvement of the Ministry of Housing, Construction and Sanitation due to the major negative impact of the replacement of counterpart officials meant that there was no ministry-wide momentum to examine the actual experiences under the Project to make government policies reflect such experiences.

Sufficient checking of the local readiness to accept technical cooperation

At the preparatory stage of technical cooperation, it is necessary to sufficiently check the local readiness and assignment of qualified counterpart personnel to accept cooperation by policy documents, consensus documents, etc. In the case of the Project, examination of the readiness in the Piura Region was insufficient and the commencement of various activities was delayed as a result.

Sufficient checking of the preconditions

At the time of formulation of the Project, it was considered that there would be organizational reform to make DRVSSs responsible for the implementation of rural water supply infrastructure projects based on the policy of the Ministry of Housing, Construction and Sanitation at the time. On this ground, the capacity development of the regional housing and sanitation authorities (DRVSSs) was conducted in relation to not only operation and maintenance but also improvement of the water supply facilities under the Project. In reality, this reform did not take place. When organizational reform is assumed to be a precondition for technical cooperation, careful examination and confirmation are essential due to the fact that organizational reform often takes a long time from its inception to its realisation.