

Republic of Tajikistan

FY2024 Ex-Post Evaluation Report of Japanese Grant Aid Project

“The Project for Rehabilitation of Drinking Water Supply Systems in Pyanj District, Khatlon Region¹”

“The Project for Rehabilitation of Drinking Water Supply Systems in Pyanj District, Khatlon Region (Phase 2)”

External Evaluator: Keisuke Nishikawa, Fortience Consulting Inc.

0. Summary

This project aimed to increase the population with access to safe water by constructing water supply facilities in Pyanj Town and six surrounding villages² in Pyanj District, Khatlon Region, thereby contributing to the improvement of the living environment and sanitation conditions of local residents. Although no coordination or synergistic effects with other JICA projects and other donors were identified during the project’s planning and implementation period, the project aligned with Tajikistan’s development policies and needs at both the planning stage and the time of ex-post evaluation. Furthermore, consistency with Japan’s development cooperation policy at the time of planning were confirmed. Therefore, the relevance and coherence of this project are high. The project implementation largely proceeded as planned, with project costs remaining within the budget. While the project duration slightly exceeded the plan, overall efficiency is judged to be high. Regarding the quantitative effects of this project, the total population served exceeded the target value, and the overall water supply rate also largely achieved the target. Qualitative effects were also confirmed to have materialized sufficiently as anticipated. Regarding the impact, significant positive changes were observed: improvements in living and sanitary conditions due to reduced waterborne diseases, and the elimination of water collection labor leading to women starting new businesses and children spending more time in school. Furthermore, no negative environmental or social impacts were observed, and it was confirmed that benefits reached all people. Therefore, the effectiveness and impacts of the project are high. Regarding the sustainability of the effects achieved through this project, no issues were identified in policy/system aspects, organizational/institutional aspects, technical aspects, or financial aspects. Furthermore, no challenges were observed in terms of environmental and social considerations or risk management. Additionally, the facilities and equipment established have been operated and maintained in good condition. Therefore, the sustainability of the project effects is very high.

In light of the above, this project is evaluated to be highly satisfactory.

¹ In this report, “The Project for Rehabilitation of Drinking Water Supply Systems in Pyanj District, Khatlon Region” is referred to as “Phase 1.”

² Referring to six villages in total — three neighboring villages of Pyanj Town (Shakhmat Village, Imon Mashrabov Village, and Hassan Sherov Village) and three northern villages (Sarmantoi 1 Village, Sarmantoi 2 Village, and Turdishaikh Village)

1. Project Description



Project Location (Pyanj District, Khatlon Region)
(Source: Prepared from the materials provided by JICA)



Elevated Tank Installed in This Project
(Source: Photo taken by the local consultant)

1.1 Background

In Tajikistan, access to safe water was a major challenge, and the government regarded its improvement as one of its top priorities. According to the *National Water Supply Program* (formulated in 2006), the water supply coverage rate in Khatlon Region was only 47%. About 40% of households directly used surface water, and hundreds of thousands of people depended on irrigation water in the summer and water trucks in the winter. Therefore, the prompt development of a new water supply system to ensure access to safe drinking water was urgently needed. Furthermore, in 2004, the rate of noncompliance with national water quality standards in Khatlon Region was 69.7%, significantly exceeding the national average of 46.2%, and was at the worst level among the regions in the country.

Most of the existing water supply facilities were constructed during the Soviet era and had not been properly maintained, resulting in many being out of operation. Out of the 700 water supply systems nationwide, 120 had already ceased functioning, and 360 failed to meet the water quality standards. In Khatlon Region, more than 60% of the 83 rural water supply systems were non-operational. In particular, in Pyanj District of Khatlon Region (with a population of approximately 100,000), the access rate to safe water was 22%, lower than the national average. Therefore, the development of water supply facilities in this district was an urgent task to ensure the provision of safe water to local residents.

1.2 Project Outline

The objective of this project is to increase the population with access to safe water by developing

water supply facilities in Pyanj Town and six surrounding villages in Pyanj District, Khatlon Region, thereby contributing to the improvement of the living environment and sanitary conditions of local residents.

<Grant Aid Project>

Grant Limit	Detailed Design: 42 million yen, Phase 1: 1,586 million yen Phase 2: 265 million yen
Actual Grant Amount	Detailed Design: 41 million yen, Phase 1 and 2: 1,734 million yen
Exchange of Notes Date	Detailed Design: January 2014 Phase 1: June 2014, Phase 2: October 2015
Grant Agreement Date	Detailed Design: January 2014 Phase 1: June 2014, Phase 2: October 2015
Executing Agency	Housing Service Enterprise ³
Project Completion	September 2016
Target Area	Pyanj Town and three neighboring villages, and three northern villages, in Pyanj District, Khatlon Region
Main Contractor(s)	Dai Nippon Construction Co., Ltd.
Main Consultant(s)	Eight-Japan Engineering Consultants Inc.
Preparatory Survey	March 2013 – December 2013
Related Projects	[Technical Cooperation] Dispatch of Experts for Groundwater Development in Hamadoni District, Khatlon Region (FY2012) The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanals (2017–2021) Individual Expert: Water Policy Advisor in the Water Supply Sector (2021–2023) The Project for Strengthening the Implementation Capacity of Water Supply Services through Introduction of Metered Tariff System in Tajikistan

³ In English, it is called the *Housing Service Enterprise*, and in Tajik, *Khojagli Manziliyu Komunal*. As it is commonly referred to as KMK, this report will also use the designation “KMK.”

	(2025–2029, planned) [Grant Aid] The Project for the Improvement of Water Supply in Mir Saiid Alii Khamadoni District of Khatlon Region (2007) The Project for the Improvement of Water Supply in Mir Saiid Alii Khamadoni District of Khatlon Region (Phase 2) (2011) [Other International Organizations and Donors] <European Bank for Reconstruction and Development (EBRD)> Khatlon Water Rehabilitation Project (2013–2016) South Tajik Water Rehabilitation Project (2008–2013)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Keisuke Nishikawa, Fortience Consulting Inc.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: October 2024 – December 2025

Duration of the Field Study: January 12 to January 25, 2025, and April 28 – May 3, 2025

2.3 Constraints During the Evaluation Study

The security situation in Pyanj District, Khatlon Region, where this project was implemented, was not fully stable even at the time of ex-post evaluation. Therefore, on-site activities, including visits to the project sites and qualitative surveys, were substituted by the local consultant. The external evaluator did not enter Pyanj District; instead, discussions were held in the capital, Dushanbe, with the local consultant regarding the survey conducted at the project sites. In addition, information was collected by inviting the director of the Pyanj Water and Sewerage Enterprise (hereinafter referred to as “VK” for Vodokanal), which is responsible for the operation and maintenance of the facilities developed under this project, to the capital for direct discussions.

3. Results of the Evaluation (Overall Rating: A4)

3.1 Relevance/Coherence (Rating: ③⁵)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of Tajikistan

At the time of planning of this project, improvement of water supply was identified as a top priority for the reconstruction of the social sector in Tajikistan under the *National Development Strategy (NDS) 2007-2015* and the *National Water Supply Program (NWSP)* (formulated in 2006). Regarding access to safe water, the target rates were set at 97% for urban areas and 74% for rural areas by 2015. Furthermore, the *Living Standards Improvement Strategy of Tajikistan for 2013-2015* (formulated in 2013) also included increasing the population with access to drinking water as one of its goals.

At the time of ex-post evaluation, the *National Development Strategy 2016-2030* was positioned as the country's development policy. Within its priority area of "Creating a Prosperous Living Environment," the development of "drinking water supply systems" was identified for achieving this goal. Regarding the water sector, in 2024, the executing agency (KMK) underwent organizational restructuring, splitting into the Committee KMK, responsible for policy and regulation and upgraded to the ministerial level, and the State Unitary Enterprise KMK, overseeing water supply services. At the time of ex-post evaluation, Committee KMK was in the process of formulating a water and sewerage sector improvement program targeting the year 2033. The program was expected to place emphasis on implementing financially sustainable water supply projects nationwide.

Therefore, this project, which involved the development of water supply systems, can be considered consistent with the directions of Tajikistan's development policies at both the planning stage and the time of ex-post evaluation. Although the new sector program was still under formulation at the time of ex-post evaluation, it was expected that a nationwide introduction of financially sustainable water supply systems would be planned, which aligns well with the objectives of this project.

3.1.1.2 Consistency with the Development Needs of Tajikistan

As described in "1.1 Background," at the time of planning of this project, the water supply coverage in Khatlon Region was only 47%, making the establishment of new water supply systems to provide access to safe drinking water an urgent priority. In addition, the non-compliance rate with national water quality standards in the region was 69.7%, significantly higher than the national average of 46.2%, representing the worst level among all regions in

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

⁵ ④: Very High, ③: High, ②: Moderately Low, ①: Low

the country⁶. Most of the water supply facilities at that time had been constructed during the former Soviet era, with little maintenance conducted, and many had become non-operational due to aging. Specifically, among the 83 village water supply facilities in the region, over 60% were not in operation. Furthermore, in the project target area of Pyanj District, the access rate to safe water was only 22%, lower than the national average.

At the time of ex-post evaluation, many local governments in Tajikistan were still facing inadequate water supply, and the overall national demand for water remained very high. In Pyanj District, the target area of this project, all residents of Pyanj Town, who previously experienced restricted water supply hours before the project, gained continuous access to high-quality water services. In addition, in the rural villages where no water supply facilities existed, the project enabled household-level water supply for the first time. However, across the entire Pyanj District, only 37% of the population enjoyed such improved conditions, indicating that further development needs remained. Moreover, as described later, in some northern villages within the project area, limited electricity supply prevents elevated water tanks from being consistently filled, meaning that 24-hour water supply is not fully ensured for all rural residents.

In summary, while the water supply conditions in the areas developed under this project were greatly improved, conditions in other areas remained insufficient, confirming the existence of additional development needs. Therefore, the development needs in the water supply sector in Tajikistan, including Khatlon Region, were high both at the time of planning and at the time of ex-post evaluation, and this project was consistent with those needs.

3.1.1.3 Appropriateness of the Project Plan and Approach

As described in “3.2.1 Project Outputs,” there were no significant discrepancies between the planned and implemented activities of this project. Moreover, there were no issues observed in the realization of the project effects, and both the project plan and its approach can be considered appropriate.

Regarding the selection of the project target area, during the planning of this project, the Government of Tajikistan requested the development of facilities in one town and 59 villages in Pyanj District. In response, the following considerations were made: (i) assessing the status of water supply facility development and operation in the 1 town and 59 villages of Pyanj District, (ii) prioritizing villages for future cooperation and identifying specific issues, and (iii) narrowing down the target towns and villages based on the project scale feasible under a grant aid framework. As a result, in addition to Pyanj Town, which already had a water utility, it was judged appropriate to target up to six villages. Therefore, the project plan was formulated to focus on high-priority areas within a scale that could be supported.

Furthermore, evaluations of similar past projects highlighted that, following the

⁶ Summarized citation from p. 1 of the Ex-Ante Evaluation Sheet for this project

implementation of grant aid projects, implementation of technical cooperation projects which aimed at improving the operation and maintenance capacity of executing agencies contributed to the enhancement of both project effectiveness and sustainability. Based on this lesson, this project included the technical cooperation project titled “The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanals,” which aimed to improve the operation and maintenance capacity of the Pyanj VK to further enhance project effectiveness and sustainability. In addition, another similar project had identified the issue that 24-hour water supply could not be achieved due to electricity supply problems. Taking this into account, in this project, planned power outage schedules were identified in advance, and equipment and facility capacities were designed to ensure that sufficient water could be stored during the periods when electricity was available; the construction was carried out accordingly⁷. Therefore, it can be concluded that this project adequately incorporated lessons learned from past experiences.

3.1.2 Coherence (Rating: ②)

3.1.2.1 Consistency with Japan’s ODA Policy

At the time of project planning, Japan’s ODA policy towards Tajikistan was stipulated in the Country Assistance Policy for the Republic of Tajikistan (December 2012). One of its priority areas was “regional development,” with the goal of comprehensively improving the water supply services for residents in Khatlon Region, which borders Afghanistan. In addition, JICA Country Analysis Paper for the Republic of Tajikistan (updated in December 2014) identified rural development and the improvement of basic social services, particularly in Khatlon Region, as a key priority area.

In this way, the improvement of water supply for residents in Khatlon Region was explicitly stated as a target in the Country Assistance Policy, and the enhancement of basic social services in the region was positioned as a focus area in JICA Country Analysis Paper. Therefore, the project, which aimed to improve the water supply situation in rural areas, was consistent with these directions.

3.1.2.2 Internal Coherence

Following the implementation of this project, the technical cooperation project entitled “The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanals (2017-2021)” was planned and implemented. In launching a volumetric tariff system based on the reading of household water meters introduced through this project in

⁷ However, as described later, due to the frequency of power outages being worse than anticipated, the ex-post evaluation revealed that the elevated water tanks in part of the project area (three northern villages) were not necessarily maintaining sufficient water storage.

Pyanj District, the technical cooperation project was planned to transfer relevant skills to Pyanj VK, which had no prior experience in operating such a system. Consequently, synergistic effects were expected between this project, which developed water supply facilities, and the technical cooperation project, which supported the capacity enhancement of water utility operations. In practice, through the latter project, the volumetric tariff system was introduced in the target area of this project (Pyanj Town and the six surrounding villages), utilizing the facilities developed under this project, thereby improving the financial condition. Furthermore, in the latter project, new distribution networks were constructed in three villages adjacent to the target area of this project⁸, resulting in an expansion of the service coverage area.

However, while this project was completed in 2016, the technical cooperation project was significantly delayed due to the deterioration of the security situation and did not commence until 2017. Consequently, some activities that had initially been planned for implementation under the technical cooperation project were substituted by the technical assistance part (soft component) of this project. Therefore, no effects attributable to concrete coordination with other JICA projects were observed during the planning or implementation period of this project. Accordingly, in this ex-post evaluation, internal coherence between the two projects was not confirmed.

3.1.2.3 External Coherence

Before and after the implementation of this project, in Khatlon Region, support such as the development of water supply facilities was implemented through the “Central Tajik Water Rehabilitation Project” (2008–2013) by the European Bank for Reconstruction and Development (EBRD), the “Water Supply Improvement and Rehabilitation Project” (2017–2019) by the Asian Development Bank (ADB), and the “Rural Water Supply and Sanitation Project” (2019–2024) by the World Bank. However, Pyanj District was not included in the target areas of these projects, and no particular coordination with this project was observed. Therefore, external coherence was not confirmed.

At both the time of planning and ex-post evaluation, this project was consistent with the development policies of the Government of Tajikistan, which emphasized the importance of improving water supply services. In addition, since the improvement of water supply services has always been required in various parts of the country, the project was also consistent with the

⁸ The water supply service area was expanded to one village adjacent to Pyanj Town and the three neighboring villages, and to two villages adjacent to the three northern villages. Specifically, the expansion covered one village (Chamaniston) adjoining Pyanj Town and the three neighboring villages (Shakhmat, Imon Mashrabov, and Hassan Sherov), and two villages (Safkoz and Ochabar) adjoining the three northern villages (Sarmantoi 1, Sarmantoi 2, and Turdishaikh).

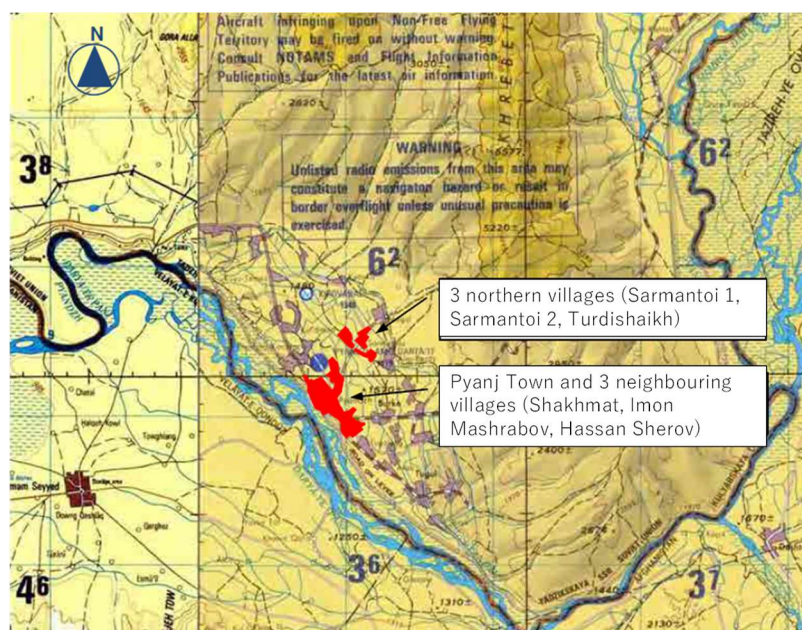
development needs of Tajikistan. The project contents and approach were also considered appropriate. Although no particular internal or external coherence was confirmed, the project was consistent with Japan's ODA policy toward Tajikistan at the time of planning.

Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

This project developed water supply facilities in Pyanj Town and six surrounding villages, and the specific plan and actual achievements were as follows. A detailed location map of the project target area is also presented below.



Source: Preparatory Survey Report

Figure 1 Location Map of the Project Target Area

Table 1 Planned and Actual Details of the Facilities

Facilities		Pyanj Town and Three Neighboring Villages		Three Northern Villages	
		Plan	Actual	Plan	Actual
Water Intake Facilities	Intake wells (newly constructed)	4	4	2	2
	Well pumps	56 m ³ /h × 4 units	56 m ³ /h × 4 units	30 m ³ /h × 2 units	30 m ³ /h × 2 units
Water Transmission Facilities	Transmission pipes	φ100–300 mm × 0.5 km	φ100–300 mm × 0.5 km	φ100 mm × 0.2 km	φ100 mm × 0.2 km
Disinfection Facilities	Dissolution tanks (with agitators)	2 units	2 units	2 units	2 units
	Injection pumps	2 units	2 units	2 units	2 units
Water Distribution Facilities	Elevated water tanks	1,800 m ³ × 1 unit	1,800 m ³ × 1 unit	250 m ³ × 1 unit	250 m ³ × 1 unit
	Distribution pipes	φ 75~250 mm × 65 km	φ 75~250 mm × 65 km	φ 75~150 mm × 25 km	φ 75~150 mm × 25 km
	Service connections	4,796 locations	3,933 locations	831 locations	834 locations
	Fire hydrants	16 locations	26 locations	1 location	1 location
Buildings	Administration office	1 building	1 building	-	-
	Well management building/disinfection room	1 building	1 building	1 building	1 building

Source: Preparatory Survey Report and materials provided by JICA

Since the Preparatory Survey, a total of eleven minor design and related changes were made to the facilities. However, none of these changes had any significant impact on the project's effects. The main changes were as follows.

- The number of water service connections was adjusted to reflect the actual residential conditions⁹.
- In Pyanj Town, the number of fire hydrants was increased from 16 to 26 in order to strengthen fire-prevention measures.
- To prevent freezing during severe winter conditions, the structure of the wellhead was changed from an above-ground type to an underground type.

In addition, as described later, technical assistance (soft component) was added. On the other hand, with regard to equipment, the items indicated in the table below were procured as originally planned.

⁹ According to Pyanj VK, the changes in the number of water service connections were based on the results of detailed surveys conducted in the target area, and water service connections were installed for all households covered by the project.

Table 2 Equipment Procured under This Project

Category	Equipment
Vehicles for Operation & Maintenance / Construction	Cargo truck with crane, pickup truck, and mini backhoe loader (one unit each)
Construction Machinery	Engine-driven welding generator, submersible sand pump, asphalt cutter, and electric welding machine (one unit each)
Tools	Pipe threading machine, pipe wrench, chain tong, tool set, electric grinder, electric high-speed cutter, etc.
Piping Materials	Branch valves with saddles, steel pipes for water supply, PVC pipes, water meters, taps, etc.

Source: Materials provided by JICA

As the items (cost-bearing obligations) borne on the Tajik side, the project had envisaged the installation of terminal household water distribution pipes, the installation of booster pumps to supply water to the upper floors of apartment buildings in Pyanj Town, and the construction of a connecting pipe between the existing transmission main located on the premises of Pyanj VK and the transmission main constructed under this project. While the installation of the terminal household distribution pipes was completed as planned, with some revisions to the quantities, the installation of booster pumps for apartment buildings was deemed unnecessary. This was because, after the commencement of water supply, adequate water pressure was secured when the household service pipes were connected to the top floor (4th floor) of the apartment buildings. The installation of the connecting pipe between the existing and new transmission mains had been planned as a contingency measure in case water demand increased beyond the population initially assumed under this project, making it necessary to use the existing wells. In practice, at the time of ex-post evaluation, the four wells constructed under the project were sufficient to meet the water demand, and therefore the connecting pipe was not installed. According to Pyanj VK, should the service area expand further and demand increase in the future, they plan to drill new wells rather than connect to the old existing wells.



Photo 1 Intake well
(Photo taken by the local consultant)



Photo 2 Water tap installed at school
(Photo taken by the local consultant)

3.2.2 Project Inputs

3.2.2.1 Project Cost

The project cost was planned to be 1,893 million yen on the Japanese side (detailed design: 42 million yen; Phase 1: 1,586 million yen; Phase 2: 265 million yen) and 55 million yen on the Tajik side (Phase 1: 54 million yen; Phase 2: 1 million yen).

The actual project cost on the Japanese side amounted to 1,775 million yen (detailed design: 41 million yen; Phase 1: 1,494 million yen; Phase 2: 240 million yen), representing 94% of the planned amount. Meanwhile, the actual expenditures on the Tajik side were unknown.

Therefore, this ex-post evaluation assessed the project cost based solely on the Japanese side, and it can be concluded that the project cost was within the plan.

3.2.2.2 Project Period

The project period, including the detailed design and bidding periods, was planned to be 31 months from February 2014 to August 2016. As shown in Table 3, the actual project period was 34 months, from January 2014 to October 2016.

Table 3 Planned and Actual Project Periods

	Plan	Actual
Signing of Grant Agreement	February 2014	January 2014
Detailed Design Period (including bidding period)	3.5 months	8 months (February 2014 – September 2014)
Construction Period	26.5 months	25 months (September 2014 – September 2016) Handover of the facilities: October 2016
Total	31 months	34 months

Note: The definition of project completion was “handover of the facilities.”

Source: Preparatory Survey Report; materials provided by JICA

A three-month delay occurred in this project. This was due to a temporary deterioration in security in Pyanj Town, located in the border area with Afghanistan, after the start of the project, which prevented project personnel from Japan from entering the town for three months. During this period, only partial implementation was possible through remote project supervision. Construction of the facilities under this project was completed in August 2016, and after cleaning and disinfecting the pipelines, water supply to residents began in early September of the same year (with the final handover taking place in October of the same year). In addition, due to the deterioration in security, the technical cooperation project titled “The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanals,” which had been scheduled to begin in parallel with this project, was delayed until 2017. Consequently, a technical assistance component (soft component)¹⁰ that had not originally been planned for this project was added with a scheduled period of three months.

In light of the above, although project implementation was significantly constrained by the temporary deterioration of security in Pyanj Town, partial implementation continued. Therefore, this period is counted as part of the project period. Accordingly, the project period totaled 34 months, which is considered to have slightly exceeded the plan.

The project largely achieved its planned outputs, and the project cost remained within the plan; however, the project period slightly exceeded the plan. Therefore, efficiency of the project is high.

3.3 Effectiveness and Impacts¹¹ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

At the time of project planning, the population served by the water supply system in the target area and the water supply coverage rate in those areas were established as effect indicators. In

¹⁰ To facilitate the smooth commencement of the technical cooperation project, this project provided initial instructions on water meter reading and tariff collection.

¹¹ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

the ex-post evaluation, the actual values of these indicators were confirmed, as shown in Table 4.

Table 4 Target and Actual Values of the Effect Indicators

Indicators	Baseline (2012)	Target (2020) 4 years after project completion	Actual ^{Note 2}				
			2020	2021	2022	2023	2024
			4 years after project completion	5 years after project completion	6 years after project completion	7 years after project completion	8 years after project completion
Population Served in the Target Area (of which, the three northern villages)	Approx. 6,500 people (0 people)	Approx. 29,000 people (Approx. 5,200 people)	37,880 people (5,400 people)	38,380 people (5,480 people)	38,920 people (5,620 people)	39,410 people (5,710 people)	39,880 people (5,780 people)
Water Supply Coverage in the Target Area ^{Note 1} (of which, the three northern villages)	27% (0%)	100% (100%)	Approx. 93% (70-75%)	Approx. 93% (70-75%)	Approx. 93% (70-75%)	Approx. 93% (70-75%)	Approx. 93% (70-75%)

Note 1: If 24-hour water supply is provided to all facilities and households in the project target area, the water supply coverage rate becomes 100% ((population receiving safe water supply / population of the target area) × percentage of supply hours).

Note 2: The actual value includes the population of three villages (with a combined population of approximately 8,000) located adjacent to the project target area and within the expanded water supply area covered by the technical cooperation project. Since the exact number of people receiving water in each village is not known, the figure reflects the total population of the area supplied by the executing agency: the project target area (Pyanj Town + three adjacent villages + three northern villages) plus the three villages included in the expanded service area under the technical cooperation project.

Source: Ex-ante Evaluation Sheet; Information provided by Pyanj VK

Although the population served in the target area significantly exceeded the target value in 2020 (target year: four years after project completion), this is largely attributable to the expansion of the service area under the technical cooperation project to include three additional villages¹² adjacent to the target area. While the exact population of these three villages is unknown, it is estimated to be approximately 8,000. Adding this number to the original target value results in approximately 37,000 people¹³. The actual value exceeded this figure (around 37,000), and the population served has continued to increase gradually thereafter.

On the other hand, although the target was to achieve a 100% water supply coverage rate across the entire project area, the frequent power outages in the three northern villages—occurring far more often than anticipated—have prevented the system from consistently

¹² One village adjacent to Pyanj Town and the three neighboring villages (Shakhmat Village, Imon Mashrabov Village, and Hassansherob Village) - Chamaniston Village - and two villages adjacent to the three northern villages (Sarmantoi 1 Village, Sarmantoi 2 Village, and TurdishaiKh Village) - Safkoz Village and Ochoabar Village

¹³ Since the population of each village is not known, the figure represents the combined population of the project target area - Pyanj Town, the three adjacent villages, and the three northern villages (29,000 people) - plus the population of the three villages (approximately 8,000 people) included in the expanded service area under the technical cooperation project.

providing 24-hour water supply. As a result, the overall coverage rate reached approximately 93%. However, even in the three northern villages, water is supplied for more than 70% of each day, and in Pyanj Town and the adjacent villages—which together account for approximately 85% of the total population of the project area - 24-hour water supply has been fully achieved. Therefore, the overall achievement of the water supply coverage rate is considered high. Furthermore, as shown in Table 5, the executing agency has been able to maintain a situation in which neither treatment nor distribution capacity falls short, by increasing both the volume of produced water and the volume of water distributed in line with the gradual increase in the population and number of households receiving water.

Table 5 Volume of Water Produced, Volume of Water Distributed,
and Number of Households Served

Indicators	2021	2022	2023	2024
Volume of Water Produced (m ³) ^{Note 1}	833,676	984,420	1,015,020	1,061,140
Volume of Water Distributed (m ³) ^{Note 1}	811,740	926,909	949,100	956,670
Number of Households Served (household) ^{Note 2}	5,268	5,276	5,336	5,482

Note 1: The volume of water produced refers to the amount of treated water generated at the water treatment plant, while the volume of water distributed refers to the amount of water subsequently sent from the distribution reservoir into the distribution network.

Note 2: The number of households includes those in Pyanj Town and the six villages covered by this project, as well as the three villages added through the expansion under the technical cooperation project.

Source: Information provided by Pyanj VK

Based on the above, the quantitative effects of this project are considered to have been largely achieved.

3.3.1.2 Qualitative Effects (Other Effects)

At the time of project planning, it was anticipated that the project would generate qualitative effects, including a reduction in the burden of water-fetching work borne by children and women. As part of the ex-post evaluation, a qualitative survey¹⁴ was conducted in the project area to assess the extent to which this burden had been alleviated. All respondents reported that the need to fetch water had been significantly reduced. Even in the northern villages, where a 24-hour water supply has not yet been fully achieved, respondents stated that, compared with the situation

¹⁴ [Respondents] A total of 22 residents from the project area participated in the survey (11 from Pyanj Town, 5 from Imon Mashrabov Village adjacent to Pyanj Town, and 6 from Sarmantoi Village in the northern area). The gender ratio of respondents was 50% male and 50% female. As noted in “3.1.1.2 Consistency with Development Needs,” most areas of Pyanj Town had restricted water supply hours before the project, but a 24-hour water supply was achieved after project implementation. In the rural villages, no water supply facilities existed prior to the project; the project enabled household connections for the first time.

[Method] Interviews were conducted using a questionnaire. Households located along the distribution pipelines in the target area were visited at intervals, and interviews were conducted with residents who were at home at the time.

before the project, the need to fetch water had largely disappeared and that they were able to use water supplied through the piped system.

In the qualitative survey, additional questions were asked regarding the stability of water supply, supply hours, water quality, water pressure, satisfaction with the water supply services, degree of happiness associated with having continuous access to water, water tariff levels, and payment status. The results were as follows.

- Stability of water supply: Stable (100%)
- Supply hours:
24 hours (Pyanj Town, Imon Mashrabov Village)
10 hours (Sarmantoi 1 Village)
- Water quality: Good (100%)
- Water pressure: Good (100%)
- Satisfaction with the water supply service: Very satisfied (100%)
- Sense of well-being from always having access to water: Very happy (100%)
- Water tariff levels: Reasonable (100%)
- Payment status: Paying without delay (100%)

In Pyanj Town—the only area within the project site where partial water supply had been available even before project implementation—all 11 respondents stated that the stability of water supply, water quality, and water pressure had all improved significantly compared with the situation prior to the project.

Based on the above, the qualitative survey confirmed that water-fetching labor has been substantially reduced after project implementation, and that water supply conditions have greatly improved, except for certain limitations in the northern villages. Even in the northern villages, residents understood that the remaining causes were due to power outages, and they perceived the current situation as a significant improvement compared with the pre-project period, when no piped water service existed and water-fetching was always necessary. Furthermore, all respondents reported being satisfied and happy with the water supply service, indicating that the qualitative effects of the project have been fully realized.

3.3.2 Impacts

3.3.2.1 Intended Impacts

At the time of project planning, the project was expected to have an impact by improving the living environment of residents in Pyanj Town and surrounding villages through the provision of safe water to a larger number of people. Specifically, improvements in hygiene conditions—such as a reduction in waterborne diseases—were anticipated.

The qualitative survey revealed that all respondents felt that hygiene conditions had improved significantly. While waterborne diseases had been common in the past, 82% of respondents (18

people) reported that such diseases had disappeared after the completion of the project¹⁵. Regarding actual water quality, in addition to the Pyanj VK conducting chlorine-level measurements on its own, the Ministry of Health's State Sanitary-Epidemiological Service, which also maintains a base in Pyanj District, regularly carries out water quality testing. Certificates confirming the absence of water quality issues are issued accordingly. Although concrete data on the number of waterborne disease cases could not be obtained during the ex-post evaluation, the certificates are considered the objective evidence that hygiene conditions have improved and that good-quality water is being supplied on a continuous basis.

In addition, as noted in "3.3.1.2 Qualitative Effects (Other Effects)," the burden of water-fetching work by children and women has been reduced. According to Pyanj VK, this has resulted in noticeable changes compared with the situation before the project: for example, children are now able to spend more time at school, meaning they have more time available for study; and some women have begun new activities such as sewing businesses or bakeries. These are the impacts that had not been observed prior to project implementation.

3.3.2.2 Other Positive and Negative Impacts

1) Impacts on the Environment

At the planning stage, the project was classified as Category B, as it did not fall under the sectors or characteristics likely to cause significant environmental impacts, nor was it located in areas particularly sensitive to such impacts, as defined in the JICA Guidelines for Environmental and Social Considerations (April 2010). It was therefore judged that the project would not have any significant adverse environmental effects. In Tajikistan, KMK submitted an application for an environmental impact assessment to the Committee for Environmental Protection in June 2013, and in August of the same year, it was determined that such an assessment was not required. No special conditions were imposed.

According to the Pyanj VK, various measures were taken during construction to minimize dust, including water spraying, dust collection, and proper maintenance of equipment. With respect to wastewater, it was ensured that all used water was treated before being discharged as wastewater. In addition, night-time construction was avoided, and equipment was selected in advance to minimize noise as much as possible. Noise considerations were also addressed at the equipment selection stage by choosing low-noise machinery, and construction activities were carried out while keeping residents informed. In practice, these conditions were monitored throughout the construction period, and no particular problems were observed in relation to noise, vibration, air quality, or water quality. Moreover, no complaints were received from surrounding residents. In the qualitative survey conducted in the ex-post

¹⁵ Fourteen percent of respondents (3 people) stated that waterborne diseases had "improved but not disappeared," while 4% (1 person) reported that such diseases "still exist."

evaluation, no respondents indicated that there had been any environmental issues during construction or after project completion.

With regard to groundwater levels, Pyanj VK monitors them seasonally and has confirmed that the levels fluctuate between 5 and 10 meters below the ground surface. The groundwater used as the water source is drawn from a depth of 60 to 100 meters and is under pressure, making it less susceptible to contamination from the ground surface. Monitoring results also indicate that there has been no long-term decline in groundwater levels, and that water abstraction has not affected the quantity of the source. In addition, no particular issues have been observed concerning either water quantity or water quality.

Based on the above, it is considered that there were no environmental issues as a whole.

2) Resettlement and Land Acquisition

As this project was to be implemented mainly within existing premises, no resettlement of residents was anticipated; however, the acquisition of 370 m² of land had been planned. This land was government-owned, and procedures for transferring ownership were to be carried out in accordance with the requirements in the country. According to the executing agency, the necessary steps were duly followed within the government, and the process proceeded appropriately. No particular concerns arose, and the land is now owned by Pyanj VK. No resident resettlement occurred.

In the qualitative survey as well, none of the respondents reported any resettlement of residents or acquisition of private land. As a whole, it can be judged that no particular concerns were identified.

3) Gender Equality, Marginalized People, Social Systems and Norms, People's Well-being and Human Rights

This project aimed to benefit all residents in the target area equitably, regardless of gender, age, or other characteristics, and it also improved water supply services to public facilities such as schools, kindergartens, and the district central hospital. From a gender perspective, the effects of the project have reached all residents without distinction, and, as noted above, the burden of water-fetching, previously borne largely by women and children, has been reduced. As a result, women are now able to allocate more time to economic activities, and children are able to devote more time to their studies. In addition, for people who had been unable to access adequate health care services due to the insufficient medical system, the provision of safe water and the resulting improvement in hygiene conditions have brought clear health benefits, including the prevention of infectious diseases. In the qualitative survey, no respondents identified problems related to these aspects, and overall, the effects of the project are reaching all members of the community.

Furthermore, through the implementation of this project, it has become evident that the VK can ensure financial sustainability through proper facility management and operation based on a volumetric tariff system, and that public health and environmental conditions have improved. As a result, the project has served as a model¹⁶ for rural water supply across the country and has had a significantly positive influence on policy formulation in the water sector. For the staff of Pyanj VK as well, the ability to operate the system effectively and efficiently in a manner that sets a model for other VKs in the country has become a major source of pride, contributing to improved staff satisfaction. In this respect, the project can be said to have generated a substantial impact.

4) Unintended Positive / Negative Impacts

Following this project, the technical cooperation project “The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanals” was implemented. Under this project, the service area was expanded beyond the original project areas to include one village (500 households) adjacent to Pyanj Town and two villages (a total of 540 households) in the northern area. The installation of water meters and the establishment and introduction of a billing system for volumetric tariffs under this project, together with the subsequent technical cooperation project’s efforts to institutionalize the volumetric tariff system, enabled residents to reduce their water consumption. This, in turn, formed the basis for the expansion of the service area to villages outside the original project scope. In this way, the implementation of this project generated an additional impact by further increasing the number of residents who are able to receive water supply services.

Regarding the quantitative indicators for this project (population served and water supply coverage), the water supply coverage in the three northern villages fell short of the target values, primarily because frequent power outages hindered adequate pumping to the elevated water tank. However, the overall population served exceeded the target, and the overall water supply coverage can be considered largely achieved. The qualitative effects were also confirmed to have materialized sufficiently, as originally envisaged. With respect to impacts, notable improvements were observed, including improved living and hygienic conditions due to the reduction in waterborne diseases, as well as the elimination of water-fetching labor, which enabled women to

¹⁶ As noted later in “3.4.1 Policy and System,” Tajikistan’s water sector places a strong emphasis on ensuring that water utilities can operate on a financially sustainable basis. JICA is also planning to implement the technical cooperation project “The Project for Strengthening the Implementation Capacity of Water Supply Services through Introduction of Metered Tariff System in Tajikistan” (scheduled for 2025–2029). The project targets Pyanj District, Khamadoni District, Jomi District, and Bokhtar District in Khatlon Province, and aims to establish a foundation for nationwide rollout of the volumetric tariff model by strengthening operation and maintenance capacities for water supply facilities, improving manuals and related documentation, verifying the effectiveness of the tariff collection system, preparing guidelines for national expansion of the volumetric tariff model, and developing trainers who will be responsible for promoting the model.

start new businesses and allowed children to spend more time at school. No negative environmental or social impacts were identified, and the benefits were found to extend to all residents.

Therefore, effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ④)

3.4.1 Policy and System

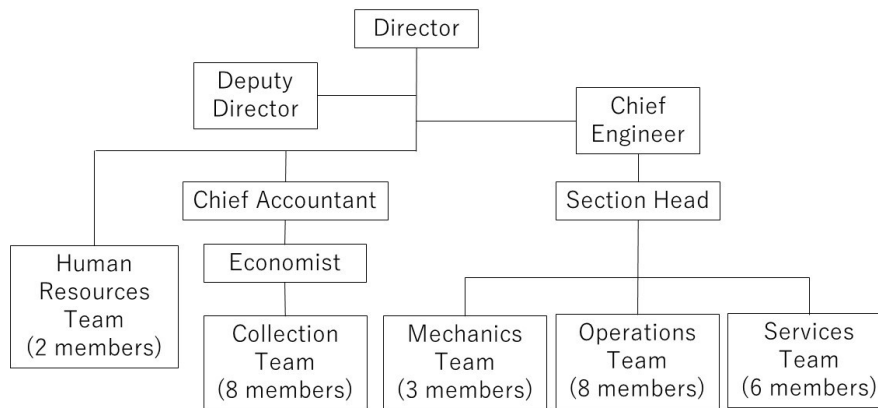
As verified in “3.3.1 Relevance,” the *National Development Strategy 2016-2030* identifies the development of drinking water supply systems as one of its priority areas. At the sector level as well, a new plan targeting 2033 was under formulation at the time of ex-post evaluation. This plan is expected to place emphasis on ensuring that water utilities in the country can operate on a financially sustainable basis. In addition, KMK was reorganized in 2024 into two entities—the Committee KMK and the State Unitary Enterprise KMK—as part of reforms aimed at improving the overall water supply sector. In local governments across the country, with the exception of major cities¹⁷, there has been no change in the arrangement whereby the local VKs are responsible for operating water supply services.

In this way, at the time of ex-post evaluation, the national-level plan identified the establishment of a drinking water supply system as a priority area, and the sector plan under formulation likewise placed emphasis on developing water utilities in the country that can operate on a financially sustainable basis. This is consistent with the direction of this project. In addition, regarding institutional arrangements for the water supply sector, organizational structures within the central government have been strengthened, and in Pyanj District, the Pyanj VK will continue to be responsible for operation and maintenance. As a whole, sustainability in terms of policy and system is considered high.

3.4.2 Institutional/Organizational Aspect

Prior to this project, the Pyanj VK, responsible for operating the water supply services in the target area, had 17 staff members. As the scale of operations expanded to four times its previous size as a result of this project, the organization had increased its staffing to a total of 33 personnel, including the director, by the time of the ex-post evaluation. The VK consists of the following five teams: human resources, collection, mechanics, operations, and services. The mechanics team is responsible for electrical system management, welding, and other technical work. The operations team oversees the daily operation and maintenance of the entire water supply system. The services team is in charge of the inspection and maintenance of distribution pipes, as well as the operation and management of the VK’s vehicles.

¹⁷ In Dushanbe and Khujand, unlike in other areas, the local governments themselves operate the water supply services.



Source: Prepared by the evaluator based on information provided by Pyanj VK

Figure 2. Organizational Chart of Pyanj VK (simplified)

According to the information obtained, the Pyanj VK has a sufficient number of staff, both in terms of qualifications and experience, to operate the water supply services. No particular issues were identified regarding the organizational structure or staffing. Therefore, the sustainability in the organizational and institutional aspects is considered to be high.

3.4.3 Technical Aspect

At the time of planning, in order to introduce a volumetric tariff system in Pyanj District based on meter readings from the household water meters installed under this project, it was planned to implement a technical cooperation project to transfer the technical knowledge and skills to the VK, which had no prior experience with such a system. Accordingly, this project itself did not envisage support through technical assistance (soft component).

However, shortly after this project commenced, security conditions in Pyanj Town temporarily deteriorated, resulting in delays in initiating the planned technical cooperation project. As it became difficult to launch the technical cooperation project before the completion of this project, it was decided that three urgent output areas would be added and implemented as a soft component under this project. These output areas were:

- 1) Renewal of existing service contracts in Pyanj Town and conclusion of new service contracts in areas newly supplied with water under this project;
- 2) Establishment of a tariff collection system for the volumetric tariff arrangement; and
- 3) Strengthening of the organizational structure of the Pyanj VK.

Table 6 presents the status of achievement at completion for these soft component outputs.

Table 6 Soft Component Output Areas and Status of Achievement at Completion

Outputs Expected to be Achieved	Status at the Completion of the Soft Component (End of November 2016)
<u>Output 1</u> Renewal of existing water connection contracts and conclusion of new contracts are carried out.	Number of water connection contracts: 3,497 households (73% achievement) Number of households that paid the connection fee: 160 households (as of November 2016) ¹⁸
<u>Output 2</u> A tariff collection system for the volumetric tariff is established.	All tariff collection manuals, customer management ledgers (handwritten and electronic versions), and related forms were prepared.
<u>Output 3</u> The new organizational structure of Pyanj VK is established.	Number of newly hired staff: 2 in the collection team, 3 in the mechanics team Number of administrative staff who participated in training: a total of 35 participants Operation and maintenance ledger: completed Number of technical staff who participated in training (classroom training only): 9 participants

Source: Prepared based on the materials provided by JICA

At the time of ex-post evaluation, when the technical cooperation project had also been completed, the following progress had been observed in relation to these output areas.

- As of the end of 2024, the number of water connection contracts reached 5,730, and all contract holders are receiving water supply services. Tariff collection is also being carried out without delay.
- Fourteen of the staff members are technicians. They have, on average, more than 15 years of experience, and their technical capacity is considered sufficient. For example, when a pumping unit broke down, they were able to procure a replacement within two weeks and restore pumping from the relevant well within the subsequent two weeks.
- Although the equipment introduced under this project was new to the technicians, they learned how to operate and manage it through the operational training provided under the soft component and have been using it without any problems since then.
- Regular training for technicians is not being conducted internally within the VK.

At the time of ex-post evaluation, all facilities and equipment introduced under this project were being fully utilized without any problems, and no issues were observed that could not be addressed from a technical standpoint. The number of water connection contracts has continued to increase steadily since project completion, and water tariffs are being collected without delay using the tariff collection manuals, customer management ledgers, and related forms developed

¹⁸ With the completion of this project, support for concluding customer contracts and subsequently collecting connection fees was provided through the soft component, and the figures for the number of water connection contracts and the number of connection fees collected reflect the situation at the time of completion of the soft component (the month following the completion of this project). Since then, the numbers of water connection contracts and connection fee collections have continued to increase gradually. Accordingly, the figures presented here are not related to the level of achievement of effectiveness and impacts.

under the soft component. Although Pyanj VK has not introduced its own internal training program, its staff have continued to operate the system effectively by applying the knowledge and skills acquired through this project and the subsequent technical cooperation project. As a whole, the technical sustainability of the project is considered to be sufficiently ensured.

3.4.4 Financial Aspect

The recent revenue and expenditure status of the Pyanj VK is as follows.

Table 7 Revenue and Expenditure of the Pyanj VK

(Unit: Somoni)

Item	2021	2022	2023	2024
<u>Total Revenue (Water Tariff Revenue)</u>	<u>1,047,819</u>	<u>1,126,913</u>	<u>1,312,044</u>	<u>1,333,648</u>
<u>Total Expenditures</u>	<u>1,098,824</u>	<u>1,126,913</u>	<u>1,312,044</u>	<u>1,341,135</u>
Salaries	343,401	404,198	536,560	537,537
Operation, Maintenance, Repairs, and Electricity Costs	42,957	45,278	66,500	93,896
Office Expenses	39,376	49,776	60,612	75,550
Other	566,719	536,227	541,060	526,645
Taxes	106,371	91,434	107,312	107,507

Source: Prepared based on information provided by Pyanj VK

After the implementation of this project, Pyanj VK established a strong financial base and has grown to become the VK with the highest profit ratio in Tajikistan. While other VKs remit 8% of their tariff revenue to KMK, Pyanj VK is the only one with sufficient financial capacity to pay 15% (included under “Other” in Table 7). Although operation and maintenance costs have shown an upward trend as the facilities and equipment age, Pyanj VK remains in a sufficiently sound financial position to cover these expenses, and the financial sustainability of the project is considered high.

3.4.5 Environmental and Social Aspect

As described above, the Pyanj VK measures the chlorine level of the supplied water on a routine basis, while other water quality parameters are tested by the Ministry of Health, with results confirming that there are no issues. Groundwater levels are also monitored seasonally by the Pyanj VK¹⁹.

During project implementation, adequate measures were taken to mitigate environmental impacts, and after project completion, regular monitoring of water quality and groundwater levels has continued. No notable negative environmental or social impacts have occurred, nor

¹⁹ Pyanj District is located close to the Pyanj River, a major river forming the border with Afghanistan, and thus it has the characteristic of not being subject to significant declines in water levels.

are any expected to arise after the time of ex-post evaluation.

3.4.6 Preventative Measures to Risks

Although delays occurred during project implementation due to a temporary deterioration in the security situation—as described under “Efficiency”—appropriate measures were taken by the relevant stakeholders, and the delays were kept to a minimum. As a result, there was virtually no negative impact on the generation of project effects. After project completion, the security situation stabilized, and water supply services have been provided without interruption. No particular risks are anticipated in the future.

3.4.7 Status of Operation and Maintenance

The water supply system developed under this project is inspected comprehensively every three months in accordance with Pyanj VK’s maintenance plan, and, on a daily basis, the equipment—including pumps, electrical systems, and chlorine injection—are checked. Records of these activities are kept, and necessary spare parts have been procured as needed. In the ex-post evaluation, on-site inspections were also conducted by a local consultant in Pyanj Town, Imon Mashrabov Village, and Sarmantoi 1 Village, and no malfunctioning equipment was observed. In the qualitative survey, 95% of respondents reported that the water supply system is being properly maintained²⁰.

Regarding the water supply situation, as described above, a 24-hour water supply has been achieved in Pyanj Town and the adjacent villages. In the northern villages, the frequency of power outages has increased, and the VK pumps water to the elevated tank as much as possible during the hours when electricity is available. However, a 24-hour supply to residents has not been achieved. Nevertheless, apart from the issue of power outages, no particular problems have arisen in the operation or maintenance of the water supply system. Although accurate data were not available, it was reported that the system as a whole has not experienced any notable leakage, and that most of the distributed water is being converted into tariff revenue (i.e., non-revenue water remains low).

Therefore, there are no specific issues in the operation and maintenance of the facilities and equipment installed under this project, all of which are functioning in good condition. The only challenge identified relates to insufficient pumping to the elevated tank in the northern villages due to power outages, which is beyond the control of the Pyanj VK and is thus regarded as an external constraint.

Based on the above, the operation and maintenance status of the project facilities is considered satisfactory as a whole.

²⁰ Five percent of respondents answered that they “did not know.” However, all respondents were satisfied with the water supply service.

No issues have been observed in the policy/system, institutional/organizational, technical, financial, and environmental and social aspects, including the current status of operation and maintenance. Future risks have been well mitigated. Therefore, sustainability of the project effects is very high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aimed to increase the population with access to safe water by constructing water supply facilities in Pyanj Town and six surrounding villages²¹ in Pyanj District, Khatlon Region, thereby contributing to the improvement of the living environment and sanitation conditions of local residents. Although no coordination or synergistic effects with other JICA projects and other donors were identified during the project's planning and implementation period, the project aligned with Tajikistan's development policies and needs at both the planning stage and the time of ex-post evaluation. Furthermore, consistency with Japan's development cooperation policy at the time of planning were confirmed. Therefore, the relevance and coherence of this project are high. The project implementation largely proceeded as planned, with project costs remaining within the budget. While the project duration slightly exceeded the plan, overall efficiency is judged to be high. Regarding the quantitative effects of this project, the total population served exceeded the target value, and the overall water supply rate also largely achieved the target. Qualitative effects were also confirmed to have materialized sufficiently as anticipated. Regarding the impact, significant positive changes were observed: improvements in living and sanitary conditions due to reduced waterborne diseases, and the elimination of water collection labor leading to women starting new businesses and children spending more time in school. Furthermore, no negative environmental or social impacts were observed, and it was confirmed that benefits reached all people. Therefore, the effectiveness and impacts of the project are high. Regarding the sustainability of the effects achieved through this project, no issues were identified in policy/system aspects, organizational/institutional aspects, technical aspects, or financial aspects. Furthermore, no challenges were observed in terms of environmental and social considerations or risk management. Additionally, the facilities and equipment established have been operated and maintained in good condition. Therefore, the sustainability of the project effects is very high.

In light of the above, this project is evaluated to be highly satisfactory.

²¹ Referring to six villages in total — three neighboring villages of Pyanj Town (Shakhmat Village, Imon Mashrabov Village, and Hassan Sherov Village) and three northern villages (Sarmantoi 1 Village, Sarmantoi 2 Village, and Turdishaikh Village)

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

The facilities and equipment developed under this project are being properly maintained, and no particular concerns have been observed. However, it was also found that the northern villages have not achieved a 100% water supply rate due to frequent power outages. Although this is attributable to factors outside the scope of this project, it is important for Pyanj VK and KMK to continue requesting the electricity authority to improve the power supply conditions, and to consider measures such as securing an independent power source or a dedicated power line to enable pumping to the elevated water tanks even during power outages, with a view to achieving a 24-hour water supply for residents.

4.2.2 Recommendations to JICA

Through this project, water supply facilities and equipment in Pyanj District were upgraded, and a tariff collection system for the volumetric tariff was developed and introduced through the soft component, followed by the technical cooperation project that supported the establishment of the volumetric tariff. As a result, the financial condition of Pyanj VK has improved to the level where it is regarded as the best in the country. Therefore, there are no particular recommendations to JICA regarding the further realization of the project's effects. On the other hand, although the water supply system in Pyanj District was comprehensively renewed and significant improvements were achieved, similar approaches cannot necessarily be implemented in all regions of the country due to budgetary constraints at the national level. While it will require time, it is important for VKs in each region to implement facility improvements that focus on their most critical issues—such as prioritizing the repair of leakage points—to reduce non-revenue water. In addition, by installing household water meters and introducing the volumetric tariff, both user behavior change and improvements in utility service delivery can be promoted simultaneously, which is expected to lead to increased tariff revenue, improved financial conditions of utilities, and ultimately the realization of new investments. Therefore, it is important for KMK to share the experience gained in supporting Pyanj District with other VKs in the country and gradually introduce the volumetric tariff nationwide. It would also be desirable for JICA to support the dissemination of this model to the extent possible.

4.3 Lessons Learned

Assistance for improving utility operations in parallel with facility development in the water supply project

As described in “3.2 Efficiency,” this project developed not only the facilities and equipment for water abstraction and transmission in the target area, but also the distribution network. At the same time, household water meters were installed and support was provided for introducing a

volumetric tariff collection system, enabling the VK to operate the service independently. By accurately identifying the issues related to water supply in the target area and addressing them not only through infrastructure development but also by supporting the introduction of a volumetric tariff collection system, the project succeeded in generating integrated effects. Although the scale of facility development may vary depending on local conditions, when planning similar projects, it is important not only to carry out facility improvements but also to support the establishment of a tariff collection system for a volumetric tariff. Doing so will encourage future new investments by water utilities, expand service areas, and ultimately increase the number of residents who have continuous access to safe water.

5. Non-Score Criteria

5.1 Performance

5.1.1 Objective Perspective

After project commencement, the security situation in Pyanj Town temporarily deteriorated, and in 2015 the travel advisory level was raised. As a result, the start of the technical cooperation project intended to strengthen the capacity of Pyanj VK personnel was delayed until 2017. However, because this project added a soft component in the latter half of 2016 and provided initial technical guidance on meter reading and tariff collection within the project itself, the operation of the water supply system proceeded smoothly during the period until the technical cooperation project began. This can be highly regarded as an example of flexible and timely measures taken to ensure capacity development of VK staff in line with facility development, even in the face of unforeseen circumstances.

5.2 Additionality

None.

(End)