

**Ex-Post Project Evaluation 2016 : Package III-3
(Uzbekistan, Kyrgyz, Tajikistan)**

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JAPAN INTERNATIONAL COOPERATION AGENCY

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Republic of Uzbekistan

FY2016 Ex-Post Evaluation of Technical Cooperation Project

–The Project for Water Management Improvement”

External Evaluator: Keisuke Nishikawa, Japan Economic Research Institute Inc.

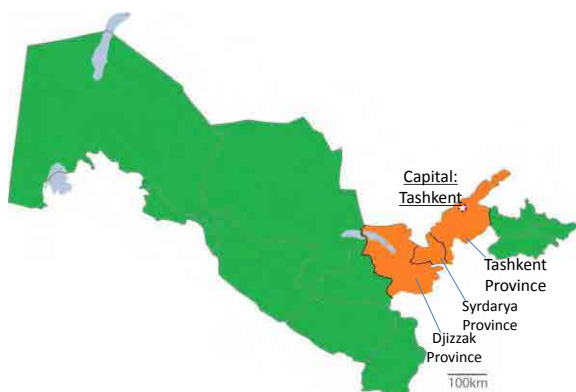
0. Summary

The Project for Water Management Improvement was a project in which pilot Water Users' Associations (WUAs) in three provinces of Uzbekistan (Tashkent Province, Syrdarya Province, and Djizzak Province) were targeted and in which the staff in charge from Basin Irrigation System Management (hereinafter referred to as 'BISM') and the Irrigation Systems Department (hereinafter referred to as 'ISD') were expected to disseminate knowledge and technologies on water distribution management and facility maintenance so that the water management skills of the pilot WUAs would be enhanced. This project was in line with the development policy of Uzbekistan, having a focus on efficient usage of water resources and improvements in water management as well as on the needs to improve water distribution management and maintenance by pilot Water Consumers Associations (hereinafter referred to as 'WCAs'¹) for agricultural production. It was also consistent with Japan's priority assistance area at the time of planning, which had a focus on the support for agricultural and rural development as well as for land reforms and regional reforms in Uzbekistan. Therefore, the relevance of the project is high. With regard to the Project Purpose, while the collection rates of irrigation service fees and improved capacities and activities of WCAs were largely achieved, it could not be judged that the Project Purpose was sufficiently achieved as data on the actual irrigation status at the time of completion were difficult to obtain. Also, since project completion, the collection rates of irrigation service fees have been on a declining trend and training for WCAs based on utilizing the outcomes of this project has not been conducted, showing that continuous activities have not evolved. Therefore, the achievement level of the Overall Goal is limited and the effectiveness and the impact of this project are fair. The efficiency is fair as the project period exceeded the plan though the project cost was within the plan. The sustainability of the effects generated by this project is judged to be fair as there were issues in terms of organizational (partially), technical and financial aspects.

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

¹ WUAs, which were unincorporated associations registered with local governments, became registered with the Ministry of Justice as WCAs because of a revision of the Water Act during the period of this project.

1. Project Description



Project Location



Irrigation Canal Rehabilitated in This Project
(Djizzak Province)

1.1 Background

At the time of ex-ante evaluation, in Uzbekistan, efforts were being made on rehabilitating the irrigation and drainage facilities constructed in the 1970s. However, on-farm irrigation facilities had dilapidated and had reached the end of their useful life. In Uzbekistan, the deterioration had accelerated since its independence in 1991 because of the agriculture sector reform and limited allocation of the national budget for operation and maintenance; meanwhile, WUAs had not learned basic water management techniques, causing problems in water distribution management as well as in the maintenance and renewal of end-point irrigation canals in terms of leakages from dilapidated distribution canals and the adjustment of distribution volumes caused by piled up soil and stones due to the lack of intake gates. As a result, the irrigated land area decreased (gradually decreasing from 3.79 million ha [2003] to 3.56 million ha [2007]) because of losses of irrigation water, excessive distribution of water to certain farms, a lack of water at farms downstream, and widespread salinization caused by water clogging, all of which had caused a decline in agricultural production.

In response to these circumstances, the Government of Uzbekistan planned to improve the WUA's irrigation water management in the areas of Syrdarya Province and Djizzak Province, which were facing issues in the maintenance of irrigation facilities and experiencing salinization damage along the Syrdarya River Basin, which was a major production area of cotton and wheat, and in the area of Tashkent Province, located along the Chirchik River Basin, which was in the same basin system as the two other provinces.

1.2 Project Outline

Overall Goal		Water management conducted by WCAs in Chirchik-Ohangaran BISM and Lower Syrdarya BSIM is improved.
Project Purpose		Water management conducted by pilot WCAs is improved.
Outputs	Output 1	Training system for WCAs is strengthened.
	Output 2	Capacity of pilot WCA staff for water distribution is improved.
	Output 3	Capacity of pilot WCA staff for maintenance of irrigation system is improved.
Total Cost (Japanese side)		348 million yen
Period of Cooperation		November, 2009 – December, 2013 (Extended period: May – December, 2013)
Implementing Agency		Ministry of Agriculture and Water Resources
Other Relevant Agencies / Organizations		None
Supporting Agency / Organization in Japan		Ministry of Agriculture, Forestry and Fisheries
Related Projects		[World Bank] Agricultural Enterprise Support Project (2002-2007), Rural Enterprise Support Project Phase 2 (2009-2016), etc. [Asian Development Bank] Land Improvement Project (2007-2010), Grain Productivity Improvement Project (2004-2009), etc. [International Water Management Institute / Swiss Agency for Development and Cooperation] Integrated Water Resource Management Fergana Valley (2001-2012) [United States Agency for International Development] Water Users' Association Support Project (2004-2009) [Japan International Research Center for Agricultural Sciences] Program for Investigation and Study for Overseas Agriculture and Rural Development and Global Warming Measures (2009-2013)

1.3 Outline of the Terminal Evaluation

In the terminal evaluation conducted in October 2013 (during the extended period²), the

² In this project, while a terminal evaluation was conducted once in November 2012 during the initial project period, an additional evaluation study was conducted in October 2013 during the extended period. In this report, the terminal evaluation conducted during the extended period is shown as 'additional terminal evaluation'.

following judgment had been made regarding the achievement of the Project Purpose and the Overall Goal, and the recommendations described in 1.3.3 had been made.

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

Four out of five indicators set had been achieved and the collection rates of irrigation service fees were on a rising trend after the project had commenced. As the results had improved compared to those at the time of the initial terminal evaluation, it was considered that the Project Purpose, 'Water management conducted by pilot WCAs is improved,' was highly likely to be achieved during the extended period.

1.3.2 Achievement Status of Overall Goal at the Terminal Evaluation

The possibility of the targets for the collection rates of irrigation service fees being achieved in the target area could not be estimated because of a possible occurrence of water shortage; however, a certain degree of achievement had been expected in 2012.

It was also expected that the capacities of WCAs had been evaluated to have improved by its members and that the operations would become more active.

1.3.3 Recommendations from the Terminal Evaluation

The following recommendations were mainly made in the additional terminal evaluation.

- (1) Indicator 1 of the Overall Goal would be changed from 'Collection rate of irrigation service and other fees is increased by 20% from Year 2010 to Year 2016 in the target regions' to 'in order to improve the collection rate of irrigation service, target BISM/ISDs apply techniques developed in the Project to more than 20% of the WCAs by 2018'.
- (2) A seminar on the achievement of this project would be held for those concerned with water management.
- (3) BISM/ISDs would develop an implementing structure and secure the budget to execute the dissemination plan to be formulated by the lecturers.
- (4) The effects of project intervention would be objectively verified. Diagnostic and maintenance techniques of irrigation and drainage facilities would be developed.
- (5) The outcomes achieved in this project regarding the capacity development of WCAs would be utilized in projects on irrigation infrastructure development.
- (6) Techniques and training materials developed in this project would be utilized.
- (7) Problems related to the equipment (excavators and flumes³) provided through this project would be solved.

³ A flume is an artificial canal with a structure composed of integrated side walls and bottoms.

2. Outline of the Evaluation Study

2.1 External Evaluator

Keisuke Nishikawa, Japan Economic Research Institute Inc.

2.2 Duration of Evaluation Study

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

Duration of the study: November, 2016 – April, 2018

Duration of the Field Study: March 27 – April 14, 2017 and July 17 – 21, 2017

2.3 Constraints during the Evaluation Study

As a consequence of a large-scale transfer of personnel at the Ministry of Agriculture and Water Resources, serving as the implementing agency, after project completion, many of those involved in the project at that time had been transferred prior to the ex-post evaluation, leaving limited project-related data within the ministry. The responses from the implementing agency gathered in the questionnaire of the ex-post evaluation were partial and much of the information remained within the range of what the ISDs and WCAs in each province could provide. Also, it was not possible to have a meeting with the long-term Experts in the agricultural area who had been engaged in this project. Therefore, the information described in this report contains the information from the terminal evaluation which does not indicate the achievement status at the time of project completion as well as some information shown in the completion report.

As this ex-post evaluation has been conducted under these circumstances, the evaluation judgment is not necessarily comprehensive based on sufficient information.

3. Results of the Evaluation (Overall Rating: C⁴)

3.1 Relevance (Rating: ③⁵)

3.1.1 Consistency with the Development Plan of Uzbekistan

At the time of planning of this project, in Uzbekistan, the '*Welfare Improvement Strategy (2008-2010)*', formulated in 2007 as the country's poverty reduction strategy, pointed out the issue of widening urban-rural disparities, and the reduction of poverty in rural areas was one of its key challenges. In the '*National Drainage Improvement Program*' (a plan of five years from 2008), a plan on the field of irrigation, measures such as those for maintenance and rehabilitation of drainage canals, provision of agricultural finances, and dissemination of drip irrigation were included. This project was consistent with the direction to promote efficient use of water resources and improvements on water management set in the plan.

In the ex-post evaluation, the statuses of these plans at the time of project completion was

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

⁵ ③: High, ②: Fair, ①: Low

checked and subsequently revealed that the national plan '*Welfare Improvement Strategy (2013-2015)*' had maintained its focus on poverty reduction in rural areas and had contained a target to reduce the proportion of the widespread low-income population in rural areas from 18.5% in 2011 to 13.7% in 2015. In addition, improvements in WCAs' activities had been regarded important for effective use of water resources that were necessary for agricultural production. At the sector level, the '*Government Drainage Improvement Program Phase 2*' (2013-2017) was formulated, including measures such as the rehabilitation of main and inner canals, provision of equipment, such as excavators and drip irrigation equipment, and so on. It was confirmed that this project had been consistent with the objective to improve water management.

3.1.2 Consistency with the Development Needs of Uzbekistan

At the time of planning of this project, WUAs had not had basic water management techniques, causing problems in water distribution management and in the maintenance and renewal of end-point irrigation canals in terms of leakages from dilapidated distribution canals and the adjustment of distribution volumes caused by piled up soil and stones due to the lack of intake gates. As a result, the irrigate land area decreased (gradually decreased from 3.79 million ha [2003] to 3.56 million ha [2007]) because of losses of irrigation water, excessive distribution of water to certain farms, a lack of water at farms downstream, and widespread salinization caused by water clogging, all of which had caused a decline in agricultural production.

According to the Implementing Agency, WCAs continued to be in charge of operation and maintenance of the end-point canals of the irrigation system at the time of project completion. They were important associations for irrigation in terms of agricultural production as there were no organizations in charge other than the WCAs. However, there were not a few WCAs still lacking capacities for the collection rate of irrigation service fees as well as operation and maintenance, indicating that there was continuously a strong need for capacity enhancement. In fact, the collection rate of irrigation service fees was not necessarily high, as stated later, and it was a major factor in not being able to thoroughly conducting maintenance activities.

In Uzbekistan, the general structure was that WCAs would undertake operations and maintenance of the end-sections of the irrigation system. While the number decreased nationally compared to that of 2009, it was confirmed that more than 1,500 WCAs existed and carried out irrigation management in 2013, when this project was completed, and a total of 419 WCAs existed (in 2013) in the three provinces where this project was implemented, indicating that the maintenance and improvement of management skills continued to be needed.

Table 1: Number of WCAs

	2009	2013	2014	2015	2016
Tashkent Province	191	149	148	148	148
Syrdarya Province	110	119	117	116	116
Djizzak Province	104	151	149	148	148
National Total	1,711	1,508	1,496	1,503	1,503

Source: Information provided by the Implementing Agency

Regarding the irrigation areas, as the data from the WCAs targeted in this project could be obtained for only the years after 2013, it was not possible to make comparisons to years prior to that. However, 11,284 hectares of farmland were irrigated in the areas maintained by six WCAs in 2013, where WCAs had been playing a role to distribute water at the end section.

Table 2: Irrigation Areas of WCAs Targeted in This Project

Name of WCA		(Unit: thousand ha)			
		2013	2014	2015	2016
Tashkent Province	Qarasha	1,395	1,395	1,395	1,395
	Jambul Ota	900	900	1,145	1,486
Syrdarya Province	Dustlik	979	964	964	1,236
	Guliston	2,765	2,904	2,878	2,917
Djizzak Province	Samarqand Quduq	2,626	2,627	3,042	2,773
	Pastki Buloq	2,619	2,653	2,734	2,631

Source: Information provided by each ISD

Based on the above, the needs for water distribution management and canal maintenance by WCAs for agricultural production were high both at the time of planning and completion.

3.1.3 Consistency with Japan's ODA Policy

At the time of planning of this project, in Japan's 'Country Assistance Plan for Uzbekistan' (formulated in 2006), 'Agricultural and rural development' was positioned as one of the areas to be supported under one of the priority areas: 'Assistance for restructuring the social sector'. In addition, according to JICA's 'Country Assistance Strategy' at the time of planning, JICA's cooperation for Uzbekistan regarded 'regional development' as a development challenge and agricultural technology improvement was listed as one of the programs; in other words, such policies indicate that there was a direction to strengthen cooperation which was conducive to poverty reduction in the rural areas of the country where disparities were widening in the course of market-oriented economic reform.

Therefore, this project can be said to have been consistent with the priority area, 'Agriculture and rural development', in the Country Assistance Policy for Uzbekistan and with 'Agrarian reform and regional development', which JICA set forth as a cooperation area.

In light of the above, the implementation of this project was highly consistent with Uzbekistan’s development plans and development needs, as well as Japan’s ODA policy. Therefore, the relevance is high.

3.2 Effectiveness and Impact⁶ (Rating: ②)

3.2.1 Effectiveness

3.2.1.1 Project Output

It was expected in this project that the Project Purpose would be achieved through the achievement of the following three Outputs:

[Output 1] Training system for WCAs is strengthened.

[Output 2] Capacity of pilot WCA staff for water distribution is improved.

[Output 3] Capacity of pilot WCA staff for maintenance of irrigation system is improved.

The relationship between the Outputs / Activities and the Project Purpose, as shown in Figure 1, stipulated that the capacities of pilot WCAs for improved water management would be enhanced by developing textbooks on water management and conducting training on (1) planning and facility operations for water distribution and (2) maintenance of irrigation and drainage facilities and water management would be improved.

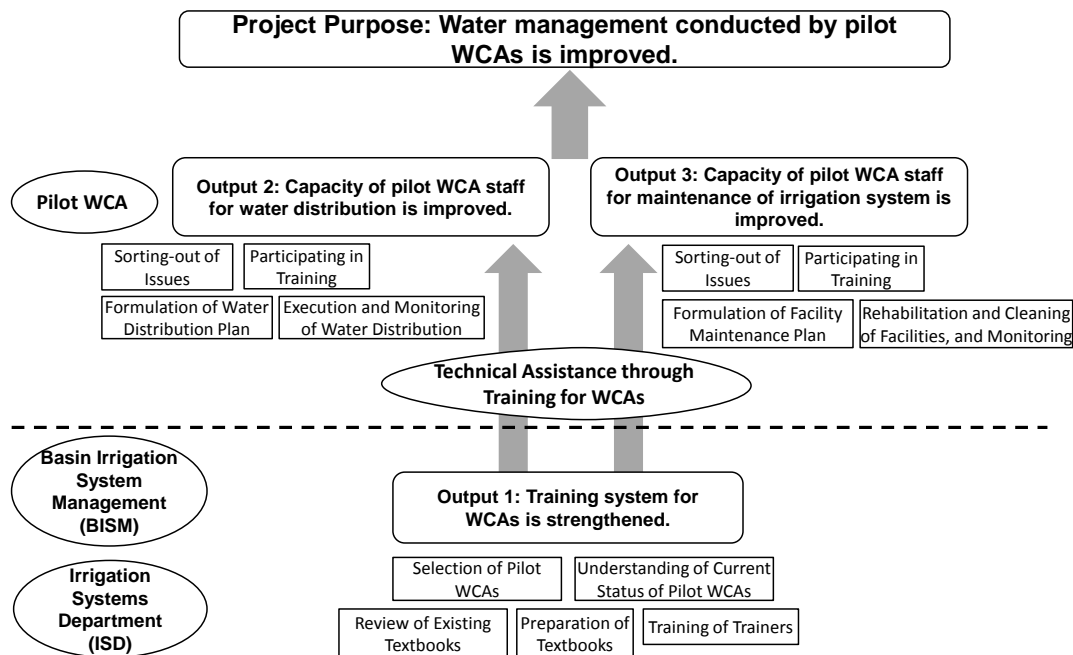


Figure 1: Conceptual Diagram of This Project

⁶ Sub-rating for Effectiveness is to be put with consideration of Impact.

Output 1: Training system for WCAs is strengthened.

(Indicator 1) More than 10 kinds of training materials for pilot WCA staff are developed.

(Indicator 2) More than 6 staff of BSMs and ISDs participated in Training of Trainers, and are able to conduct training for WCA staff.

(Indicator 3) More than 96 times of training for WCA staff are conducted.

As the level of achievement at the time of completion was neither organized nor captured by the Implementing Agency and it was not described in the completion report, the judgment in this report was made mainly based on the information in the additional terminal evaluation.

In this project, four training modules ([1]Concept and roles of WCA, [2]Management and administration of WCA, [3]Financial management of WCA, and [4]Water distribution management and maintenance of irrigation and drainage facilities) were developed and 10 kinds of training materials and one manual were prepared. Furthermore, one piece of visual material, eight kinds of posters, and six kinds of pamphlets were created. According to BSMs, ISDs and WCAs, these materials were utilized in training and the visual material was also distributed to all 52 ISDs across the entire country.

The number of staff that participated in “Training of Trainers” was seven and they conducted training and instruction for WCAs alongside the Experts in this project⁷. However, according to the interview surveys in the additional terminal evaluation, conducted two months before project completion, and those in the ex-post evaluation, while many of these trainers (participants of the Training of Trainers) were feeling a certain degree of improvement in their knowledge and skills, they considered it necessary to have further training on skills for cash flow management, collection rate of irrigation service fees, and business planning of WCAs.

Also, training for WCA staff members was conducted 315 times (number of sessions) by project completion.



Textbooks prepared through this project
(DVD)

⁷ As one of the seven trainees (ISD staff in Tashkent Province) had resigned during the project, the trainer certificate was eventually issued to six trainees.

Based on the above, it is estimated that the indicators have been largely achieved. However, it can be said that some issues have remained in terms of the capabilities of trainers to conduct training in part that they had not reached the level where they had become sufficiently equipped with the skills to independently apply the contents of the training they had received. Also, the number of staff trained to be able to conduct training was virtually only six, which is considered insufficient, including the number in the original plan, as there was a total of 419 WCAs (in 2013) in the three provinces targeted by this project.

Output 2: Capacity of pilot WCA staff for water distribution is improved.

(Indicator 1) More than 12 staff of pilot WCAs participated in the training on water distribution.

(Indicator 2) Water distribution plans for model area are formulated by pilot WCAs every year based on the training.

(Indicator 3) Water distribution records in model area are kept by pilot WCAs based on the training

According to the information organized at the time of the additional terminal evaluation, a total of 958 WCA staff members along with a total of 558 WCA members had participated in the training programs on water distribution planning. Regarding the formulation, implementation and recording of water distribution plans, it was confirmed by the pilot WCAs that the water distribution plans by block among the model areas⁸ selected in each district had been formulated and the actual distribution statuses had been recorded⁹. According to each pilot WCA at the time of ex-post evaluation, training and guidance on the recording of distribution status had been conducted in the second half of the project period.

Therefore, Output 2 can be said to have been achieved.

Output 3: Capacity of pilot WCA staff for maintenance of irrigation system is improved.

(Indicator 1) More than 12 staff of pilot WCAs participated in the training on maintenance of irrigation and drainage.

(Indicator 2) Maintenance plans are formulated, implemented and these records are kept

⁸ Areas set to carry out activities for water management through this project in the irrigated areas of pilot WCAs.

⁹ In the terminal evaluation conducted in November 2012, it was stated that water could not be distributed to all blocks in the model area and training on water distribution planning and management had not been sufficiently conducted in the Qarasha WCA, where the quality of flumes delivered in 2011 was poor, leading to a delay in canal rehabilitation. However, delivery and rehabilitation of flumes was conducted again in 2012-2013, and training on water distribution planning and management was carried out after that. (Source: *Additional Terminal Evaluation Report*)

for one selected water canal every year based on the training by the pilot WCAs.

With regard to the enhancement of capacities for maintenance of irrigation and drainage facilities, targeted as Output 3, according to the additional terminal evaluation report, the training program had been conducted 194 times by September 2013, which had a participation including a total of 570 staff from pilot WCA. Regarding the formulation of maintenance plans, while maintenance plans of all of the 36 canals in total of pilot WCAs had been formulated as planned, maintenance work was completed only in three canals and partially completed in 32 canals. No planned maintenance work was conducted in one of the canals. Records were kept on 35 canals. The major factor for not sufficiently implementing the maintenance plan after formulation was the lack of sufficient funds for conducting maintenance as planned under the financial conditions of the WCAs. 36 canals were selected from the ones managed by each WCA, and it was not due to technical problems that the maintenance had not been sufficient.

Therefore, for Output 3, it is considered that while the indicators on the implementation of training have been achieved, there were some issues in terms of the actual implementation status of the maintenance plans.

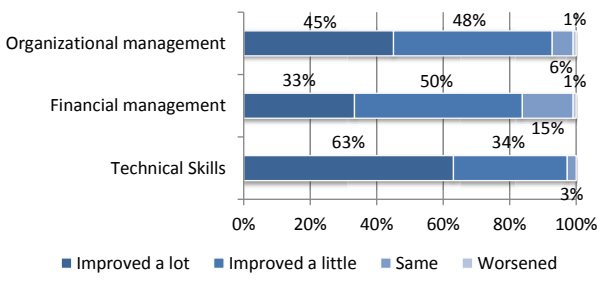
3.2.1.2 Achievement of Project Purpose

The achievement status of Project Purpose at the time of project completion was as shown in Table 3.

Table 3: Achievement Level of the Project Purpose

Purpose	Indicator	Actual Achievement
Project Purpose: Water management conducted by pilot WCAs is improved.	(1) The collection rate of irrigation service and other fees is increased to 60% in the 1st batch of WCAs and to 30% in the 2nd batch of WCAs ¹⁰ .	According to the final data of 2013, at which time this project was completed (information obtained from the ISDs of each province at the time of ex-post evaluation), the collection rates of irrigation service fees were: 68% in Qarasha, 27% in Dustlik and 62% in Pastki Buloq for the first batch; and 55% in Jambul Ota, 28% in Guliston, and 32% in Samarqand Buloq for the second batch. For both batches, all WCAs except Dustlik largely achieved the target values.
	(2) More than 50% of WCA members regard the WCAs' capacity (organization management, efficiency, finance, technique) to have improved.	I In the questionnaire survey conducted with 139 WCA members in September 2012, it became clear that the percentage of those who thought that the capacities of WCAs had improved was: 97% in terms of organizational administration; 97% in terms of efficiency; 98% in terms of financial management; and 96% in terms of technical skills.

¹⁰ As the number of Experts was limited and training was to be efficiently conducted in a sequential manner through this project, six pilot WCAs were divided into two batches (one WCA from each province in each batch), and facilities development and training were conducted with a one-year difference. The first batch included Qarasha, Dustlik and Pastki Buloq and the second batch included Jambul Ota, Guliston and Samarqand Quduk.

		<p>In the interviews with each WCA at the time of ex-post evaluation, many comments were heard that technical instructions in this project, particularly the concrete repairing methods, had been useful. Many comments were also heard on financial aspects stating that they could ask how to sort out figures in a concrete manner. In the beneficiary survey¹¹, changes shown in Figure 2 were confirmed through project implementation.</p>  <p>Figure 2: Evaluation on the Enhancement of the WCAs' Capacities</p> <p>As for organizational management, financial management and technical skills, target values of the indicators are considered to have been sufficiently achieved based on the results from both the interviews with the WCAs and the beneficiary survey.</p>
(3) More than 50% of WCA members increase their participation in WCA's activities.		<p>According to the results of the interviews with 34 WCA members conducted by the Experts in September 2012, 91% of the members thought that WCA meetings had increased and 97% of them thought that maintenance work had increased. In the interviews in the terminal evaluation (November 2012), the results on the recognition by the members of the importance of WCAs being strengthened and on the participation in maintenance of irrigation and drainage facilities and canals having increased were obtained.</p> <p>According to the interviews with WCAs in the ex-post evaluation, operations done by the WCAs had become more active during the project period and the number of meetings and maintenance activities had increased. In the beneficiary survey, of 13 WCA staff members interviewed, responses were obtained from all of them in which they</p>

¹¹ An interview survey with the participants of training courses from six pilot WCAs in Tashkent Province, Syrdarya Province, and Djizzak Province was conducted by the local assistant from July to August, 2017. Responses were obtained from a total of 111 staff and members (13 WCA staff and 98 WCA members: 8 in Qarasha, 18 in Jambul Ota, 29 in Dustlik, 23 in Guliston, 20 in Pastki Buloq, and 13 in Samarqand Quduk; 93 males and 18 females) who could be interviewed on the days of visits at each WCA. The main questions were as follows:

- Satisfaction with the training provided through this project (improvements in the level of understanding through training courses in this project; number of training sessions taken and its sufficiency; whether the capacities of WCAs as a whole had been enhanced as a result of taking the training courses)
- Active operations of WCAs (increases in WCA meetings; increases in facility maintenance work by WCAs)
- Indirect effects caused by capacity enhancement of WCAs (increases in agricultural production and agricultural revenues through the improvements in irrigation conditions; cases of reduction of salinization damages; other economic and social impacts)
- Environmental and social impacts (negative impacts on the natural environment after implementing this project; resettlement of residents or land acquisition)

		stated that both meetings and maintenance activities had increased. From 111 respondents, including 98 members, opinions were heard that 63% of them thought that the relationship between the WCAs and the members (participation in activities, etc.) had improved through this project, and 37% thought it had remained the same. Therefore, this indicator is considered to have been sufficiently achieved.
	(4) 70% of irrigated land in model areas is irrigated based on the WCAs' business plan.	At the time of terminal evaluation in 2012, among the seven model areas, the size of the area where water is distributed in accordance with the plan fell short of the target values in three areas of two WCAs (46% - 55%). 83.8% was recorded as a whole. According to the additional terminal evaluation, two areas out of three had 100% of their land distributed with water as planned in 2013. A severe water shortage occurred in the other area (in Qarasha WCA) in 2013, and the area had to be excluded from the target area. Therefore, the target values were achieved in six model areas, apart from one area in Qarasha WCA where severe water shortage occurred.
	(5) Farm land in model areas that cannot be irrigated is decreased by 10%.	According to the terminal evaluation report (November 2012), the reduction rates of non-irrigated farmland in the model areas in all pilot WCAs were 24.5% – 100% (56.7% on average), indicating that the target was achieved.

Source: Terminal Evaluation Report (November 2012), Additional Terminal Evaluation Survey Report (October 2013) and information collected at the time of ex-post evaluation

There were five indicators set for the Project Purpose shown in Table 3, and their achievement levels can be summarized as follows:

- Indicator 1: This indicator is judged to have been largely achieved as the collection rates of irrigation service fees exceeded the target values in all WCAs except Dustlik WCA.
- Indicator 2: This indicator can be said to have been achieved as capacity enhancement was sufficiently recognized to have been above the target values in the interviews with each WCA and information from the beneficiary survey.
- Indicator 3: Increases in WCA activities and improvements in the relationship were seen at a high level among the WCA staff and the members. Therefore, the indicator is considered to have been achieved.
- Indicators 4 and 5: As no annual data on actual irrigated and non-irrigated land areas were provided by the Implementing Agency or any of the WCAs, the achievement level at the time of completion could not be quantitatively captured. Based on the results of the terminal evaluation, the target values of Indicator 4 were achieved in six model areas, apart from one area in Qarasha WCA where a severe water shortage had occurred, and Indicator 5 was also achieved.

Based on the above, the Project Purpose with an aim to improve water management in

the pilot WCAs is estimated to have been largely achieved. However, it cannot be judged to have been sufficiently achieved, as the data at the time of completion could not be confirmed.

In this project, in addition to the development of training modules and the fosterage of trainers, training programs on water distribution and facility maintenance were conducted for WCA staff and the capacities of staff at BISM, ISDs, and WCAs were aimed to be enhanced. It was confirmed that the three Outputs were closely related to the Project Purpose. While Output 2 was achieved, Output 1 had an aspect in which the capacities of trainers had not reached a sufficient level to be able to apply the outcomes of training, and there were some issues with the Output 3 regarding the actual implementation status of maintenance plans. With regard to the indicators for the Project Purpose, the indicators on the collection rate of irrigation service fees, capacity enhancement, and more active operations of WCAs were largely achieved, but the data on the actual irrigation status at the time of completion remained uncertain. Therefore, no conclusive judgment that all the indicators of the Project Purpose were sufficiently achieved can be made.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

In this project, it was expected as the Overall Goal that water management by WCAs in the areas under the jurisdiction of targeted BISM would improve. The indicators to measure the achievement level and their achievement statuses at the time of ex-post evaluation were as described in Table 4.

Table 4: Achievement of the Overall Goal

Goal	Indicator	Actual Achievement
Overall Goal: Water management conducted by WCAs in Chirchik-Ohangaran BISM and Lower Syrdarya BISM is improved.	(1) Collection rate of irrigation service and other fees is increased by 20% from Year 2010 to Year 2016 in the target regions.	<p>[At the time of terminal evaluation (November, 2012)] As it was difficult to obtain data that could be used as a basis for estimating increases in the collection rate of irrigation service fees from all WCAs (369 WCAs) for all of the areas under the jurisdiction of two BISM, the data were only captured for the pilot WCAs. The actual rate at the end of FY2009 was 13.4% but it increased 17.7% to reach 31.2% at the end of September, 2012. Therefore, a certain degree of achievement of the Overall Goal was expected.</p> <p>[At the time of additional terminal evaluation (October, 2013)] Due to concerns on the occurrence of water shortage, there was an opinion that the possibility of achieving a 20% increase could not be predicted, and there was another opinion that achievements in all WCAs would be impossible due to a shortage of manpower. Therefore, a revision of the indicator itself was recommended as the achievement of Indicator 1 would be difficult and it could be affected by external factors. In the</p>

		<p>new PDM, this indicator was revised to state, <u>In order to improve the collection rate of irrigation service fees, target BISM/ISDs apply techniques developed in the Project to more than 20% of WCA by 2018</u>.</p> <p>[Information collected at the time of ex-post evaluation] A comparison of the collection rates of irrigation service fees of 2009 and 2016 (actual amount of collection / amount planned at the beginning of the financial year) that could be obtained from the six pilot WCAs showed an increase from 13.4% in 2009 to 30.3% in 2016.</p> <p>Regarding the spreading of activities to other WCAs, some textbooks developed through this project could have been utilized when the Ministry of Agriculture and Water Resources conducts training for WCAs in each region, but no concrete data on the level of their utilization existed.</p>																
	<p>(2) More than 50% of sample WCA members show appreciation for the improvement of the capacity of WCAs and increase their participation in the WCAs' activities in the target regions.</p>	<p>[At the time of terminal evaluation] While the extraction of WCAs needs to be done carefully, the target value was likely to have been achieved.</p> <p>[At the time of ex-post evaluation] As the beneficiary survey results in Figure 3 indicate, many opinions were heard that the capacities of WCA members had improved after participating in the training courses of this project. Also, regarding the frequency of WCA meetings and maintenance activities, 69% of the 13 respondents (WCA staff) replied <u>Increased</u>, 15% <u>Same</u> and 15% <u>Decreased</u>.</p> <table border="1"> <caption>Data for Figure 3: Evaluation on the capacity enhancement of individual WCA staff and members</caption> <thead> <tr> <th>Category</th> <th>Improved a lot</th> <th>Improved a little</th> <th>Same</th> </tr> </thead> <tbody> <tr> <td>Organizational management</td> <td>48%</td> <td>47%</td> <td>5%</td> </tr> <tr> <td>Financial management</td> <td>42%</td> <td>46%</td> <td>12%</td> </tr> <tr> <td>Technical Skills</td> <td>53%</td> <td>45%</td> <td>2%</td> </tr> </tbody> </table> <p>Figure 3: Evaluation on the capacity enhancement of individual WCA staff and members</p>	Category	Improved a lot	Improved a little	Same	Organizational management	48%	47%	5%	Financial management	42%	46%	12%	Technical Skills	53%	45%	2%
Category	Improved a lot	Improved a little	Same															
Organizational management	48%	47%	5%															
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Technical Skills	53%	45%	2%															

Source: Terminal Evaluation Report (November, 2012), Additional Terminal Evaluation Report (October, 2013), and information collected at the time of ex-post evaluation

As a rise in the collection rate of irrigation service fees and an increase in the members' participation in activities was most important for the improvement of water management by WCAs, there was a close link between the achievement of the indicators and the Overall Goal. Dissemination of outcomes from this project to other WCAs under the jurisdiction of BISM/ISDs targeted in this project was also incorporated into the Overall Goal.

Regarding Indicator 1, it was difficult to comprehensively capture the collection rates of irrigation service fees of the three provinces targeted in this project after 2009, and

only analysis of data from the pilot WCAs of this project could eventually be conducted. While the collection rate of irrigation service fees of these six WCAs increased by 16.9% (from 13.4% to 30.3%) from 2009 to 2016, it had been declining every year after it had reached 41.0% in 2013, which was the completion year of this project, as indicated in 3.4.4 Financial Aspects for the Sustainability of Project Effects. Also, no spreading of activities from the pilot WCAs to other WCAs was observed after project completion. The main factors heard from the people concerned with this project were that: (1) while the fund to repair canals and flumes had been required to let sufficient irrigation water reach farms and the collection of the irrigation service fees were to be subsequently made, such endeavors had not been realized; and (2) revenues had not increased much as the international market trends for wheat and cotton had not been favorable; while, the cropping of wheat and cotton had been controlled by the government (making it impossible to shift to cultivation of horticulture produce which have higher values).

While Indicator 1 was set as the indicator for the Overall Goal for nearly four years since the project commenced, it was changed to a different indicator at the time of the additional terminal evaluation as it was difficult to achieve and could be influenced by weather conditions. However, for the majority of the project period, as the activities had been conducted with a view to achieving the indicator set at the beginning, the initial indicator was evaluated in this ex-post evaluation. The achievement status of the indicator set at the time of additional terminal evaluation was uncertain as no information was provided by the Implementing Agency. However, from the interviews with BISM/ISDs, it was clear that training by utilizing the outcomes of this project had not been continued, meaning that further evolutions of surrounding WCAs were limited.

As for Indicator 2, while the meaning for sample was not clear, it was considered to be synonymous with the WCAs that had been randomly selected from the WCAs under the jurisdictions of the two BISM. However, as no data were provided by the Implementing Agency and while it was difficult in this ex-post evaluation to randomly extract non-targeted WCAs and to conduct a survey due to time constraints, the judgment was made based on the beneficiary survey and the interviews with the pilot WCAs. As the members usually participated in various activities of WCAs, capacity enhancement of the staff and the members was important. In the beneficiary survey, it was seen that they had been feeling the enhancement of capacities in organizational management, financial management, and technical skills. Regarding the active operations of WCAs, it was confirmed that they had declined in Tashkent Province and largely increased in the two other provinces. It has been considered that the major factor for reduced activities in Qarasha WCA, Tashkent Province, was that several locations where the rehabilitated flumes had collapsed again were observed and were not rehabilitated further.

Based on the above, while the information to make a judgment was not necessarily sufficient, the achievement level of the Overall Goal can be said to have been limited based on the information obtained.

The continuation statuses of the Outputs and the Project Purpose after project completion are shown below.

Table 5: Continuation Status of the Outputs and the Project Purpose

Outputs, Project Purpose, Indicators	Achievement Status of the Indicators
<u>Output 1: Training system for WCAs is strengthened.</u>	
(Indicator 1) More than 10 kinds of training materials for pilot WCA staff are developed.	It was heard that the textbooks created had been used as needed depending on the contents of the training programs conducted by the Ministry of Agriculture and Water Resources (e.g., drip irrigation techniques). Revisions had not been made in particular.
(Indicator 2) More than 6 staff from BISM and ISDs participate in Training of Trainers, and are able to conduct training for WCA staff.	While the lecturers trained in this project sometimes gave lectures as needed in the training program conducted by the Ministry of Agriculture and Water Resources, there were no systematic training programs in place for WCAs.
(Indicator 3) More than 96 times of training for WCA staff are conducted.	No training programs utilizing the outcomes of this project had been conducted for the pilot WCA staff and the staff of neighboring WCAs.
<u>Output 2: Capacity of pilot WCA staff for water distribution is improved.</u>	
(Indicator 1) More than 12 staff of pilot WCAs participate in the training on water distribution.	No similar training had been conducted after this project was completed.
(Indicator 2) Water distribution plans for model areas are formulated by pilot WCAs every year based on the training.	The plans confirmed at every site visited in the ex-post evaluation were called the 'Business Plans', in which water distribution and maintenance for that year had been planned and necessary costs had been set based on the plan, and the amounts implemented and collected for irrigation services had been recorded. In doing this, forms for water distribution and maintenance plans created in this project were being utilized.
(Indicator 3) Water distribution records in model areas are kept by pilot WCAs based on the training.	
<u>Output 3: Capacity of pilot WCA staff for maintenance of irrigation systems is improved.</u>	
(Indicator 1) More than 12 staff of pilot WCAs participate in the training on maintenance of irrigation and drainage.	No similar training had been conducted after this project was completed.
(Indicator 2) Maintenance plans are formulated and implemented, and these records are kept for one selected water canal every year based on the training by the pilot WCAs.	The plans confirmed at every site visited in the ex-post evaluation were called the 'Business Plans', in which water distribution and maintenance for that year had been planned and necessary costs had been set based on the plan, and the amounts implemented and collected for irrigation services had been recorded. In doing this, the water distribution and maintenance plans created in this project were being utilized.
<u>Project Purpose: Water management conducted by pilot WCAs is improved.</u>	
(Indicator 1) The collection rate of irrigation service and other fees is increased to 60% in the 1st batch of WCAs and to 30% in the 2nd batch of WCAs.	The collection rates of irrigation service fees in 2016 were: 41% in Qarasha, 26% in Dustlik, and 33% in Pastki Buloq for the Batch 1; and 34% in Jambul Ota, 26% in Guliston, and 26% in Samarqand Buloq for the Batch 2. All of the WCAs showed declines from 2013.

(Indicator 2) More than 50% of WCA members regard that the WCAs' capacity (organization management, efficiency, finance, technique) is improved.	According to the beneficiary survey, the skills acquired in this project were maintained after project completion (the same status as the achievement status of the Project Purpose).
(Indicator 3) More than 50% of WCA members increase their participation in the WCAs' activities.	(As described in Indicator 2 of the Overall Goal) In the beneficiary survey, 69% of the 13 respondents (WCA staff) replied 'Increased', 15% 'Same', and 15% 'Decreased'. Also, according to the interviews with each WCA, many members always participated in the formulation of WCAs' business plans and maintenance activities.
(Indicator 4) 70% of irrigated land in model areas is irrigated based on the WCAs' business plan.	The achievement status was uncertain as no data on the actual irrigated and non-irrigated areas by year had been provided by the Implementing Agency or WCAs.
(Indicator 5) Farm land in model areas that cannot be irrigated is decreased by 10%.	

Source: Information obtained from the interviews conducted during both the site visit and the beneficiary survey

The continuation statuses of each Output and the Project Purpose of this project were organized as shown in the table above based on the information obtained when each BISM, ISD and WCA was visited. The result shows that no similar training by using the textbooks created through this project had been conducted as a whole, and it was only when the textbooks were consistent with the contents of a different training program conducted by the Ministry of Agriculture and Water Resources (e.g. a program on drip irrigation technique) that the textbooks created through this project were utilized and the lecturers participated as needed. Regarding the formulation and the implementation of water distribution and maintenance plans, it was required that each WCA prepare business plans every year, and the forms from the water distribution and maintenance plans created through this project were being utilized in that case.

With regard to the Project Purpose, the collection rates of irrigation service fees had declined in all WCAs after project completion, and all WCAs except Jambul Ota had fallen below the target values set for the time of project completion. In the beneficiary survey, responses stating that the capacities had been enhanced through training were obtained, and it was confirmed in the site survey that the maintenance of the facilities rehabilitated and the accounting management were being conducted. However, the overall achievement cannot be said to be sufficient as the information on the irrigation areas had not been compiled.

3.2.2.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

In this project, no negative impacts on the natural environment were expected. As the rehabilitation work on basic facilities, such as canals, drainage canals and gates, was

carried out in areas maintained by the pilot WCAs, it was checked with the Implementing Agency and other organizations concerned whether there were any impacts to the natural environment caused by the work, all of whom indicated that there was none. In the beneficiary survey, all the respondents replied that no negative impacts were seen. It is considered that there have been no problems as a whole.

(2) Resettlement and Land Acquisition

According to the Implementing Agency and other organizations concerned, neither the resettlement of residents nor land acquisition occurred as a small-scale rehabilitation of existing facilities was conducted during this project. In the beneficiary survey, responses were obtained from all of the respondents indicating that there were no such cases, which suggests that there have been no problems.

(3) Other Impacts

In the terminal evaluation, it was reported from some WCA members that the effects in the form of increases in agricultural production had been generated as a result of the improvements in water distribution. Therefore, in the ex-post evaluation, the beneficiary survey was conducted to confirm the changes in agricultural production and revenues in the pilot WCAs.

The result is, as shown in the Figures 4 and 5 below, that the proportion of members with increases in agricultural production was 87%, and the proportion of the members with increases in revenues was 69%. The average rate of increase in revenues was 58% and it is regarded that this project made a certain degree of contribution through the improvement of water distribution.

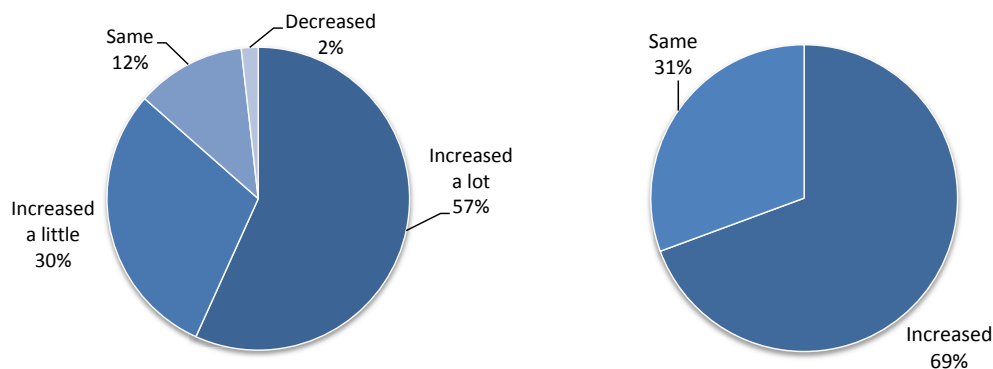


Figure 4: Changes in Agricultural Production Figure 5: Changes in Agricultural Revenues

In addition, as certain information in the terminal evaluation explained that some

WCAs had reported salinization damages as being alleviated, it was checked through the beneficiary survey in the ex-post evaluation. As a result, 77% of the respondents answered that this project had generated the effect of salinization damage alleviation. More concretely, water flows became smoother with the excavators procured through this project, which led to an improvement in drainage management. Therefore, in this project, it is considered that the alleviation effect of salinization damages had been felt by the WCAs and the rehabilitation of canals had contributed to the improvement in agricultural environment.

In this project, capacity enhancement of WCAs in the field of water management was planned by developing training materials, fostering the staff of BISM and ISD as trainers, and providing training to the WCAs, and various activities were carried out during the project period. Regarding the Outputs, while the training materials were developed and a number of training sessions on water distribution and maintenance were conducted, the trainers-to-be did not reach a level where they were sufficiently equipped with the skills to apply the outcomes of training, and some issues were seen in the actual implementation status of maintenance plans. Concerning the Project Purpose, while the indicators on the collection rates of irrigation service fees as well as the capacity enhancement and active operations of WCAs had largely been achieved, no data on the actual irrigation situations at the time of completion could be obtained. Therefore, the effectiveness is judged to be fair.

With regard to the Impact, the target cannot be said to have been achieved as the collection rates of irrigation service fees have been declining in recent years. The level of achievement was limited as no systematic expansion from the pilot WCAs to the WCAs in other areas was observed. Also, continued activities related to the Outputs and the Project Purpose were not seen after project completion, and the information on irrigated and non-irrigated land areas was not sufficient. Therefore, it cannot be said that the activities have been sufficiently continued. On the other hand, neither negative impacts on the natural environment nor resettlement of residents / land acquisition occurred, and a certain degree of increase both in agricultural production and revenues as well as alleviation effects on salinization damage were observed.

In light of the above, the effectiveness and impact of this project are fair.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

The planned and actual inputs of this project were mainly as shown below.

Table 6: Planned and Actual Inputs of This Project

Inputs	Plan	Actual (At the time of project completion)
(1) Experts	3 Long-term Short-term (approx. 8 man-months a year)	Long-term: 4 in total Short-term: 6 in total
(2) Participants received	Approx. 3 participants x 3 years (Regional training 'WCA Strengthening', etc.)	6 participants (Counterpart training in Japan)
(3) Equipment	For BISM and ISD: Vehicles, water measurement devices, PCs, etc. For WUA: Excavators, small vehicles, motorbikes / bicycles, water measurement devices, PCs, communication equipment, etc.	12 small vehicles, audiovisual equipment for training, heavy equipment for WCAs' activities (6 excavators), motorbikes / bicycles, PCs, etc. 878 thousand US dollars (Approx. 70 million yen)
(4) Local costs borne	Unknown	1.546 million dollars (Approx. 133 million yen)
Japanese Side: Total Project Cost	350 million yen	348 million yen
Inputs from Uzbekistan	<ol style="list-style-type: none"> 1. Assignment of Counterparts (Ministry's headquarters and at the local level) 2. Provision of facilities, such as the project office, etc. (Ministry's headquarters and BISM's) 3. Project operation cost (Salaries for the counterparts, office supplies, etc.) 	<ol style="list-style-type: none"> 1. Assignment of 12 counterparts 2. Project office within the Water Planning Board, incidental materials and equipment, electricity and water supply, provision of offices and incidental facilities at each pilot WCA 3. Project operation cost: 168.3 million in sum (Central government: 45.3million sum, Local government: 123 million sum)



Light Van Procured through This Project



Excavator Provided to Each WCA

3.3.1.1 Elements of Inputs

Table 6 summarizes as much information as possible on the planned and actual inputs from project-related materials. According to the Implementing Agency, elements of inputs from the Japanese and Uzbek sides were mostly in accordance with the plan.

There was one more long-term Expert from Japan compared to the total in the plan. However, the table above shows the total number and this increase was actually due to a change of the Expert in charge of ‘Project Coordination / Training’ during the project period, and technical assistance was provided virtually by three long-term Experts. Likewise, the number of counterparts is the total number and there were seven counterparts each at the time of commencement and completion of this project.

The elements of inputs are considered to have been adequate in light of the contents of the project and its implementation situations. In this project, procurement of excavators and flumes as well as rehabilitation of the target irrigation facilities that had been damaged were also carried out. Each WCA commented that they were effective for improving the collection rate of irrigation service fees, along with formulating and implementing water distribution and maintenance plans.

3.3.1.2 Project Cost

The actual project cost of this project (inputs from Japan) was 348 million yen. Despite the extended period, it was within the planned amount (350 million yen, 98% of the plan). While the details are unknown, the project costs are considered to have been utilized efficiently as there were no insufficient activities.

3.3.1.3 Project Period

The planned period of this project was 42 months, from November 2009 to April 2013, and the actual period was 50 months, from November 2009 to December 2013. Because of a delay of activities caused by the delay of the rehabilitation work of facilities and a shortage in the achievement level of some Outputs and the Project Purpose, an extension of the project period was proposed in the terminal evaluation. As a consequence, the cooperation period was extended by eight months and concluded at 119% of the plan.

In light of the above, while the project cost was within the plan, the project period exceeded the plan. Therefore, the efficiency is fair.

3.4 Sustainability (Rating: ②)

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

In order to continue the efforts for capacity enhancement of WCA staff, it is necessary to

have a policy focus on agricultural promotion through adequate water management. According to the Implementing Agency, improvements in water management is one of the top priorities for the Ministry of Agriculture and Water Resources, and similar to the ‘Government Drainage Improvement Program Phase 2’ (2013-2017), which was the irrigation sector policy at the time of project completion and ex-post evaluation, the ‘Government Drainage Improvement Program Phase 3’ (2018-2022), being formulated, would be planned to include a stronger focus on the efforts for soil enrichment, water resources development and the development of water-saving techniques.

Also, the roles to be played by BISM, in charge of inter-provincial canals, and ISD, in charge of large-scale canals within provinces, are institutionalized, and regular communications and coordination as well as information channels between BISM, ISDs, and WCAs are established. Therefore, the sustainability of policies and institutions on agricultural promotion through irrigation is considered to be high as a whole.

3.4.2 Organizational Aspects for the Sustainability of Project Effects

It will be necessary to establish an organizational structure to continue capacity enhancement of the staff and to conduct training so that water management by WCAs will be carried out appropriately.

The organizational structure of the target area of this project is summarized as shown in Table 7.

Table 7: Relationship between the Agencies Involved in This Project

Name of BISM	Name of ISD	Province	Name of WCA	
Chirchik-Ohangaran BISM	Parkent Korasuv ISD	Tashkent Province	First batch	Qarasha
			Second batch	Jambul Ota
Lower Syrdarya BISM	Shuruzak Syrdarya ISD	Syrdarya Province	First batch	Dustlik
			Second batch	Guliston
	Hovos-Zomin ISD	Djizzak Province	First batch	Pastki Buloq
			Second batch	Samarqand Quduk

The Qarasha and Jambul Ota WCAs in Tashkent Province are managed by the Parkent Korasuv ISD (546 staff), positioned under the Chirchik-Ohangaran BISM. The Dustlik and Guliston WCAs in Syrdarya Province are under the Shuruzak Syrdarya ISD (275 staff), and the Pastki Buloq and Samarqand Quduk WCAs in Djizzak Province are under the Hovos-Zomin ISD (416 staff). Both of these two ISDs are those under the Lower Syrdarya BISM.

Each WCA is mainly structured with the director, technician, and accountant, comprising a

total of three to six members. A WCA is an independent body and is not a subordinate organization of BISM or ISDs, which are government organizations, but the information related to irrigation statuses and the collection rates of irrigation service fees and so forth are collected by ISDs. Also, most of the WCA staff members are also farmers and the WCAs have a structure with several staff members being elected by the members to play the function as secretariats and persons in charge of planning and implementing the maintenance plan. They have been conducting such work in the office as necessary.

Table 8 shows the total number of members and farmers of each WCA.

Table 8: Number of WCA Members (2016)

Name of WCA	Total number of members	Number of farmers among the total members
Qarasha	25	25
Jambul Ota	25	24
Dustlik	73	68
Guliston	47	43
Pastki Buloq	40	40
Samarqand Quduk	40	40

Source: Information provided by each ISD

Note: As the number of members is shown per farmer household, no breakdown by gender is available. Each house has females, but mostly, males attend WCA meetings.

As described above, the roles related to canal management by the BISM, ISDs, and WCAs were clearly demarcated according to the size of irrigation canals. The information on WCAs' irrigation area sizes and the collection rates of irrigation service fees was collected and captured by the BISM and ISDs. As the maintenance of irrigation facilities was largely carried out by the BISM and ISDs without any problems, it was considered that they had a sufficient structure and number of staff members. However, no structure in which BISM and ISD staff members was to provide training and guidance to the WCA staff had been established and seven trainers fostered through this project had not been seen to be systematically conducting training courses to the WCAs or playing a leading role. In the additional terminal evaluation, one of the recommendations was that the BISM/ISDs develop an implementing structure and secure a budget to formulate dissemination plans for the other WCAs, but those actions had not been conducted by the time of the ex-post evaluation.

Therefore, while it is regarded that there have been no problems in the structure to operate and maintain the facilities of the BISM and ISDs, there were some issues in terms of capacity enhancement of the WCAs in that no structure to continuously conduct and expand training programs to the staff or members of WCA had been developed.

3.4.3 Technical Aspects for the Sustainability of Project Effects

According to the Implementing Agency, textbooks, manuals, and so forth created through this project were utilized only when the contents were related to the training courses the Ministry of Agriculture and Water Resources had conducted, instead of continuing independent training programs. From observing the actual storing conditions of those textbooks, it was not seen that they were continuously being utilized after project completion, and had been used only limitedly. In relation to the preparation of water distribution plans and the development of accounting records in the WCAs, it was uniformly heard at the time of site surveys that their knowledge had deepened and they had been utilizing the methods at the time as a result of carrying out this project. It was thought that they were equipped with the technical skills to formulate and manage the plans. However, while the collection rates of irrigation service fees did not rise, maintenance of equipment was not conducted in a sufficient manner, and no training was provided by the BISM or ISDs. It cannot be said that the pilot WCAs were playing a leading role for neighboring WCAs.

With regard to the equipment, out of the six excavators procured— which was regarded as a major piece of equipment among the equipment procured through this project—only one excavator, that is, the one at the Jambul Ota WCA, was operating at the time of the site survey of ex-post evaluation, while the rest of them were out of order, including two excavators which had been used just before the site survey. All of the excavators were managed by the WCAs. According to the WCAs, spare parts were procured after they had broken down and they were then repaired, but they had been left in a broken condition during the winter when the excavators were not being used, mainly because of financial issues. It was considered uncertain whether they would be repaired and re-operated every time impending breakdowns occurred. It was of concern that the dredging work on canals would not be conducted efficiently if they couldn't re-operate the equipment.

12 light vans procured as another major piece of equipment were confirmed to have generally been utilized as a means of transport for the staff of the BISM, ISDs and WCAs.

Regarding the maintenance of flumes, while they were managed largely in good condition in most of the pilot WCAs, two flume systems that had been repaired during this project and had subsequently



A flume which collapsed after project completion (Qarasha WCA)

collapsed after project completion had not been repaired at the Qarasha WCA, and it was confirmed that sufficient water had not been supplied to the majority of the members along those flumes. In the beneficiary survey, more opinions stating that the WCA's operation and maintenance had become worse were heard at Qarasha WCA more frequently than those heard in other WCAs. However, as major damage, such as the collapse of flumes, was not a phenomenon that could be repaired independently by the WCAs, it was thought that technical assistance from an ISD would be necessary.

Based on the above, it can be said that there have been issues in implementing the training programs necessary for the maintenance and improvement of capacities in water management and in operation and maintenance of the facilities and equipment.

3.4.4 Financial Aspects for the Sustainability of Project Effects

It was necessary to secure a budget for conducting training and continue healthy operation and maintenance of facilities and equipment in order to improve the collection rate of irrigation service fees of the WCAs, all of which would lead to improvements of the textbooks developed in this project to be utilized and the capacities of WCAs. At the time of terminal evaluation, there were constraints in the financial scales of the BISMs and ISDs, and it was anticipated that the assistance to the WCAs, other than that for training, would be at a much smaller scale compared to that of the project implementation period, and it was pointed out that the pilot WCAs had the challenges of further strengthening the collection of irrigation service fees and operating the heavy equipment provided through this project.

In the ex-post evaluation, no information on the budget situations of the BISMs or ISDs had been provided, which made it impossible to confirm the amount and proportion of the budget allotted to training programs for WCAs in recent years. On the other hand, the annual data on the collection rate of irrigation service fees could be obtained from each WCA, which are summarized in Table 9 below.

Table 9: Changes in the Collection Rate of Irrigation Service Fees at the Pilot WCAs

(Unit: thousand Sum)

		Actual in 2009			Actual in 2013			Actual in 2014			Actual in 2015			Actual in 2016		
		Planned Amount	Amount Collected	Rate of Collection	Planned Amount	Amount Collected	Rate of Collection	Planned Amount	Amount Collected	Rate of Collection	Planned Amount	Amount Collected	Rate of Collection	Planned Amount	Amount Collected	Rate of Collection
First batch	Qarasha	3,622	956	26.4%	13,920	9,450	67.8%	13,920	9,680	69.5%	18,890	10,990	58.2%	25,003	10,254	41.0%
	Dustlik	30,163	4,000	13.3%	34,863	9,447	27.1%	42,482	9,867	23.2%	39,695	9,988	25.2%	42,002	10,975	26.1%
	Pastki	21,796	3,569	16.4%	32,000	19,800	61.9%	35,862	16,269	45.4%	35,862	15,858	44.2%	46,800	15,650	33.4%
	Buloq															
Second batch	Jambul	15,757	2,197	13.9%	13,500	7,400	54.8%	13,500	8,600	63.7%	17,175	5,800	33.8%	24,127	8,100	33.6%
	Ota															
	Guliston	77,573	3,845	5.0%	36,326	10,195	28.1%	45,435	12,311	27.1%	42,807	13,809	32.3%	38,251	9,871	25.8%
	Samarqand	26,220	8,965	34.2%	29,883	9,565	32.0%	35,138	8,635	24.6%	35,145	8,760	24.9%	35,145	9,120	25.9%
	Quduk															
Total		175,131	23,532	13.4%	160,492	65,857	41.0%	186,337	65,362	35.1%	189,574	65,205	34.4%	211,328	63,970	30.3%

Source: Terminal Evaluation Report (for 2009) and information provided by ISDs in each province (2013-2016)

The situations of the collection of irrigation service fees by each WCA show a gradually worsening trend after project completion. The collection rate, which was 41% on average in 2013 (completion year), had been consistently declining to 35% in 2014, 34% in 2015 and 30% in 2016. Therefore, operation and maintenance activities had still been limited and the maintenance of excavators and so on had not been sufficiently carried out. As stated above, while the revenues of member farmers had been increasing according to the Implementing Agency and WCAs, costs for agricultural materials and ingredients had also been on the rise, and each farmer prioritized the repayment of their existing debts, and, the issue that the revenues were not necessarily being directed to payments of irrigation service fees which did not carry any penalties for non-payment was the major factor for the declining trend. Therefore, there is a concern about the sustainability of the financial status as the training budget of the BISM and ISDs was uncertain and the revenues of the WCAs were deteriorating.

In light of the above, some problems were observed in terms of the organizational, technical and financial aspects of this project. Therefore, the sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The Project for Water Management Improvement was a project in which pilot WUAs in three provinces of Uzbekistan (Tashkent Province, Syrdarya Province, and Djizzak Province) were

targeted and in which the staff in charge from BISM and the ISD were expected to disseminate knowledge and technologies on water distribution management and facility maintenance so that the water management skills of the pilot WUAs would be enhanced. This project was in line with the development policy of Uzbekistan, having a focus on efficient usage of water resources and improvements in water management as well as on the needs to improve water distribution management and maintenance by pilot WCAs for agricultural production. It was also consistent with Japan's priority assistance area at the time of planning, which had a focus on the support for agricultural and rural development as well as for land reforms and regional reforms in Uzbekistan. Therefore, the relevance of the project is high. With regard to the Project Purpose, while the collection rates of irrigation service fees and improved capacities and activities of WCAs were largely achieved, it could not be judged that the Project Purpose was sufficiently achieved as data on the actual irrigation status at the time of completion were difficult to obtain. Also, since project completion, the collection rates of irrigation service fees have been on a declining trend and training for WCAs based on utilizing the outcomes of this project has not been conducted, showing that continuous activities have not evolved. Therefore, the achievement level of the Overall Goal is limited and the effectiveness and the impact of this project are fair. The efficiency is fair as the project period exceeded the plan though the project cost was within the plan. The sustainability of the effects generated by this project is judged to be fair as there were issues in terms of organizational (partially), technical and financial aspects.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

In this project, it was confirmed that various activities had been conducted during the implementation period and that the capacities of persons in the BISM, ISDs and WCAs had been enhanced. However, some issues were observed in terms of the sustainability of the effects generated after project implementation as no similar activities had continued and the collection rates of irrigation service fees had declined after the project was completed. In order to improve operation and maintenance statuses of a number of WCAs, including those targeted in this project, it is considered effective that the Ministry of Agriculture and Water Resources allocate the budget to rehabilitate water distribution facilities and provide technical assistance (training) on such rehabilitation and WCA operations at the same time. Moreover, it is thought to be important to improve the productivity in cotton and wheat cultivation sectors and further encourage the cultivation of produce with higher monetary values so that farmers will be able to pay the irrigation service fees without delay.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

Importance of the business plan with an objective of creating highly sustainable and applicable cases of success

In this project, two WCAs were selected from each of the three provinces under certain criteria and assistance was provided. Through the rehabilitation of facilities and training on operation management as well as on financial and technical aspects, a certain level of effect was observed, such as a certain improvement in the collection rate of irrigation service fees during the implementation of this project. However, while the facilities were improved in this project, operation and maintenance statuses of some WCAs had been deteriorating again because of low collection rates of irrigation service fees after project completion. For the improvement of water management, consistent collection of irrigation service fees is essential in the medium to long term. Therefore, it is considered effective: to make the cultivation of cotton and wheat (means of foreign exchange earnings) more efficient; to encourage the cultivation of highly-valued agricultural produce at the same time so that the stable payment of irrigation service fees will be possible; and to promote the diversification of farmers' revenue sources and structural changes. Under the agricultural policy emphasizing foreign exchange earning, while there was a constraint making it difficult to shift from the cultivation of cotton and wheat to the cultivation of other crops, a desired approach when a similar project is planned in the future would be to partially adopt factors to promote increases of farmers' revenues (e.g., encouraging the cultivation of high-valued crops) and to create successful cases by experimenting with such factors as pilot activities with a view to providing necessary cooperation for improving the collection rate of irrigation service fees. Also, in such cases, it is important to have an approach that can be practically disseminated to other regions and to have the perspective to link with other projects as necessary.

Need to formulate an exit strategy associated with project completion

It became clear in the ex-post evaluation that the series of training programs conducted in this project had seldom been conducted after project completion. Also, the collection rates of irrigation service fees had been gradually declining after the project was completed, and it was observed that the project effects were not necessarily continued. One of the factors was the lack of formulating an activity plan, securing of the budget and the development of the implementing structure to ensure the sustainability of the project effects during the project period. Therefore, in planning a technical cooperation project, it is important to formulate a post-project activity plan with a view to continuing the project's activities and disseminating them to other regions,

which is an exit strategy in other words, and to secure the budget and develop a structure so that the Implementing Agency will be able to implement it consistently even after the completion of the project.

End

The Kyrgyz Republic

FY2016 Ex-Post Evaluation of Technical Cooperation Project

“The Project for the Support for Joint Forest Management in the Kyrgyz Republic”

External Evaluator: Hirofumi Azeta, Japan Economic Research Institute Inc.

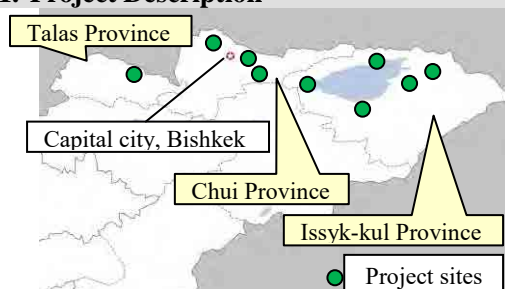
0. Summary

The objective of this project was to strengthen the framework for expanding Joint Forestry Management (hereinafter referred to as JFM) in a sustainable manner in Kyrgyz by establishing JFM mechanisms at the project sites, executing forest management activities, monitoring forest management activities, and preparing and disseminating a JFM implementation guideline, thereby contributing to the increase in the number of JFM implementation areas.

This project was consistent with the development plan and the development needs of Kyrgyz, as well as the priority areas of Japan’s ODA policy; thus, its relevance is high. The project purpose was mostly achieved as the framework for expanding JFM in a sustainable manner was constructed through the execution of pilot projects, and the number of JFM implementation areas was increased because the successful experiences of pilot projects were shared with other regions. However, since the increase was not made due to efforts by the Kyrgyz side to expand JFM on its own, the impact was partially unachieved. Therefore, the effectiveness and impact are fair. In regard to the implementation of the project, as both the project cost and period were within the plan, the efficiency of the project is high. As for the related policy for and institutional aspects of the sustainability of project effects, although policies on and the legal system of JFM were made clear, there were some problems. Organizational and technical aspects do not have any specific issues. As for the financial aspects, the fact that agencies at central and field level did not have budgets for the development of small-sized infrastructure, which were necessary for the expansion of JFM, was a problem. As mentioned above, because there were minor problems in the related policy and institutional aspects as well as in the financial aspects, the sustainability of project effects is fair.

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

1. Project Description



Project Locations



Apricot trees planted by forest users

1.1 Background

The total forest area in Kyrgyz, which was 1,190 thousand hectares in 1930 (6% of the nation's land), decreased to 620 thousand hectares (3%) in 1966 due to inefficient forest management. Through the forestation policies implemented and conducted since then, the total forest area increased to 870 thousand hectares (4.3%) in 2003, although a lack of thinning had resulted in forest degradation.

Aiming to achieve efficient forest management, Kyrgyz undertook reform efforts, including shifting production activities of forest products in State Forest Fund (SFF) areas from the government sector to the private sector. In addition, as one of the pillars to promote reform, the decision was made to introduce the JFM scheme: a mechanism in which forest users are responsible for forest management based on an agreement among three parties both at SFF areas and on publicly owned land¹. The three parties include (1) local forest stations (Leskhozoes), the lower bodies of the State Agency of Environment Protection and Forestry (SAEPF), (2) village associations (Ail-Okumotues, also known as AO), the lowest level of local administrative bodies and (3) forest users (that is, residents and local communities).

However, although the JFM scheme was established as a system, its specific actions were not determined and its implementing mechanism in Kyrgyz was not necessarily sufficient. Therefore, improvement in the capacities of the related parties and both the enhancement of the mechanism for the implementation and the promotion of JFM were strongly needed.

Based on this background, the Government of Kyrgyz requested technical cooperation from Japan in 2007 for forest restoration and conservation through JFM. The objective of this project was to strengthen the framework for expanding JFM by SAEPP and the State Agency for Local Self-Governance and Interethnic Relations (hereinafter referred to as SALGIR)² in a sustainable manner in Kyrgyz by (1) the construction of implementation mechanisms at JFM project sites selected in Issyk-kul Province and Chui Province, (2) the implementation of forest management activities by forest users in JFM project sites, (3) the monitoring of forest management activities and support activities at JFM project sites, and (4) the preparation and dissemination of a JFM implementation guideline.

Originally, the pilot projects were planned to be implemented only in Issyk-kul Province and Chui Province. However, a pilot project was implemented in Talas Province, in addition to the two provinces mentioned above in order to cover as many provinces as possible, in consideration of the nationwide dissemination of JFM in the future.

¹ A collective term of the lands under the jurisdiction of local authorities, which do not include SFF areas under the jurisdiction of SAEPP.

² The National Agency for the Affairs of Local Self-Governance (NALSG), which was one of the implementing agencies, was reformulated into the SARGIR during the execution of this project.

1.2 Project Outline

Overall Goal	The number of JFM implemented areas is increased.	
Project Purpose	Framework for expanding JFM in a sustainable manner by the State Agency for Environment Protection and Forestry (SAEPF) and National Agency for the Affairs of Local Self-Governance (NALSG)* is strengthened.	
Outputs	Output 1	JFM administration bodies among Leskhozoes, Ail-Okumotues and forest users are organized in the project sites for JFM in Issyk-kul Province and Chui Province.
	Output 2	The forest management activities are implemented by forest users at the project sites for JFM.
	Output 3	The forest management activities by forest users and support activities by Leskhozoes and Ail-Okumotu at project sites for JFM are monitored.
	Output 4	The JFM implementation guideline is comprehended by relevant organizations.
Total cost (Japanese Side)	279 million yen	
Period of Cooperation	January 2009 – January 2014	
Implementing Agency	The State Agency for Environment Protection and Forestry (SAEPF), the National Agency for Affairs of Local Self-Governance (NALSG)*	
Other Relevant Agencies / Organizations	Leskhozoes in Issyk-kul Province and Chui Province and Ail-Okumotues in Issyk-kul Province and Chui Province	
Supporting Agency/Organization in Japan	The Forestry Agency	
Related Projects	<p>Technical cooperation</p> <ul style="list-style-type: none"> - The Project for Development of the Rural Business with Forest Products (2015 - 2019) <p>Other international organizations and aid organizations</p> <ul style="list-style-type: none"> - Switzerland, Kyrgyz-Swiss Forestry Support Program (1995 - 2010) - The United Nations Development Programme, the Environment 	

* NALSG was reformulated into the State Agency for Local Self-Governance and Interethnic Relations (SALGIR).

1.3 Outline of the Terminal Evaluation Study

1.3.1 Achievement Status of Project Purpose at Terminal Evaluation

At the time of terminal evaluation, it was concluded that the project purpose, “Framework for expanding JFM in a sustainable manner by SAEPF and NALSG (SALGIR) is strengthened”, was expected to be achieved because (1) the experiences and knowledge of SAEPF and SALGIR on the implementation of JFM were accumulated, (2) JFM activities were implemented at seven additional sites solely upon the efforts of the Kyrgyz side³, (3) this project proposed revisions be made to the existing legal system as well as the establishment of a new legal system, and (4) the finalization works on the JFM guideline were under progress.

1.3.2 Achievement Status of Overall Goal at Terminal Evaluation (Including Other Impacts)

It was concluded that the overall goal, “JFM implemented areas are increased”, was expected to be achieved⁴ because JFM was implemented at seven sites which had not been included as pilot project sites and seminars had been organized in all provinces using a draft of the JFM guideline.

1.3.3 Recommendations from the Terminal Evaluation

At the time of terminal evaluation, the following recommendations were extracted for the stakeholders of the project.

- (1) The JFM scheme should be adaptive to a wide range of activity purposes, such as the production of forest products or environmental protection, and the JFM guideline should be revised regularly based on the results from execution of JFM activities.
- (2) SAEPF should consider the establishment of a legal system for JFM practices. In addition, a funding mechanism for JFM should be standardized, for example, by establishing a dedicated fund for it, in order to assure forest management in the long run.
- (3) The cooperation between SAEPF and SALGIR should be further strengthened in order to expand JFM in areas other than SFF areas.
- (4) The capacities of staff members from SAEPF and SALGIR responsible for JFM should be further enhanced.

³ One of the performance indicators set for the project purpose was “ JFM is implemented only by the Kyrgyz side at more than two sites other than the project pilot sites by the end of the project”.

⁴ The performance indicators set for the overall goal were (1) JFM is implemented at not less than 10 sites other than the project sites and such sites should be selected not only from SFF areas but also from AO areas, and (2) "JFM implementation guideline" is utilized in other provinces.

- (5) Networking with relevant groups, such as the agricultural sector, universities and research institutes, donor organizations, and NGOs should be enhanced for the expansion of JFM. Good practices and knowledge of JFM should be shared with related organizations for mutual learning at the JFM project sites.

2. Outline of the Evaluation Study

2.1 External Evaluator

Hirofumi Azeta, Japan Economic Research Institute Inc.

2.2 Duration of Evaluation Study

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

Duration of the Study: November 2016 – April 2018

Duration of the Field Study: March 27, 2017 – April 8, 2017, August 7, 2017 – August 12, 2017

2.3 Constraints during the Evaluation Study

This project targeted strengthening the framework for expanding JFM in a sustainable manner in Kyrgyz through the implementation of JFM activities at JFM project sites (pilot sites).

However, the definition of JFM was not necessarily clear. In the appraisal of this project, JFM was defined as “a scheme in which forest users are responsible for forest management at SFF areas and publicly owned land based on an agreement among three parties: Leskhozoes, AOs and forest users”. This was based on the definition, which was suggested in the draft JFM concept prepared for the Kyrgyz-Swiss Forestry Support Program (KIRFOR), executed by Switzerland from 1995 to 2010. According to the definition, JFM is “an approach of cooperation of the stakeholders in the forest management process, where there exists a clearly defined responsibility, rights and benefits adequate to contribution in forest ecosystem development determined by contractual relationship”,

On the other hand, the definition of JFM given by the government of Kyrgyz seems to be “the participation of the residents in forest management”, although it was not clearly mentioned in documents, such as the Concept of Forestry Development (-2025) or the National Forestry Programme⁵. Therefore, a three-party agreement among Leskhozoes, AOs and forest users is a prerequisite for JFM according to the definitions set forth by the appraisal of this project and KIRFOR, but not according to the definition of the government.

Regarding the three-party agreement mentioned above, the forms of agreements were not uniform. In this project, pilot projects were executed at ten sites in total and written agreements

⁵ Several staff members mentioned that they understood the JFM involved the concluding of CFM agreements and lease contracts (both to be explained later) with residents.

among three parties, or JFM project agreements, were concluded for six sites. For the remaining four sites, agreements were only made orally.

The roles of the three parties at the ten pilot sites of this project were different among the sites. As it was relatively common that JFM projects were executed in SFF areas which were under the jurisdiction of Leskhozoes, there were several examples in which the roles of stakeholders were determined as: (1) Leskhozoes provided lands and seedlings together with technical support, (2) AOs allowed for the use of roads and water in AO areas, and (3) forest users undertook land preparation works and planted trees, and maintained them. On the other hand, in cases which JFM projects were executed in the areas under the jurisdiction of AOs, there were examples in which the roles of stakeholders were determined as: (1) Leskhozoes provided technical support and seedlings, (2) AOs provided land, and (3) forest users planted trees and maintained them.

Regardless of JFM project agreements being concluded, forest users had to make contracts on land use with the Leskhozoes or AOs which had jurisdiction over the corresponding lands. The contracts concluded in such cases are called Collaborative Forestry Management (hereinafter referred to as CFM) contracts or lease contracts. CFM contracts and lease contracts are summarized as follows:

Table 1. Summary of a CFM Contract and Lease Contract

Form of contract	Parties to a contract	Examples of contracts
CFM (based on Decree 377)	Forest users (residents) and Leskhozoes conclude contracts.	Forest users carry out maintenance activities of the forests under the jurisdiction of Leskhozoes and obtain outputs of forests, such as fruits, in return. Fruits or the proceeds from sales of fruits are divided between Leskhozoes and forest users.
Lease (based on Decree 482)	Forest users conclude contracts with Leskhozoes in cases involving SFF areas and with AOs in cases involving AO areas.	Forest users use land, pay lease fees, plant fruit and timber trees in the land, and generate income from fruit and timber sales. In some cases, forest users share income from fruit and timber sales with Leskhozoes or AOs instead of paying lease fees.

As mentioned above, there were several definitions of JFM and the forms of three-party agreements were not uniform. Therefore, in this ex-post evaluation, this project was evaluated based on the assumption that the definition of JFM was “a scheme in which forest users are responsible for forest management at SFF areas and publicly owned land based on an agreement among three parties: Leskhozoes, AOs and forest users” as described in the appraisal. Similarly, this project was evaluated based on the assumption that three-party agreements were concluded when three parties were involved in decision-making on JFM in any form. The evaluation did not consider whether written agreements were concluded.

3. Results of the Evaluation (Overall Rating: B⁶)

3.1 Relevance (Rating: ③⁷)

3.1.1 Consistency with the Development Plan of Kyrgyz

At the time of planning, Kyrgyz was targeting the achievement of sustainable forest management by involving residents and local communities and also by clarifying the roles of the government in the forestry sector in the *Second National Poverty Reduction Strategy (2006-2010)* formulated in February 2006, the *Country Development Strategy (2007-2010)*, the *Concept of Forestry Development (-2025)*, the *National Forestry Programme (2005-2015)* and the *National Action Plan for Development of Forestry (2006 – 2010)*.

At the time of project completion, the *Sustainable Development Program (2013-2017)* targeted expanding the forest area, referring to the preservation of biodiversity and revival of the natural ecosystem as one of the environmental actions needed for sustainable growth.

At the time of project completion, the *Concept of Forestry Development (-2025)* and *National Forestry Programme (2005-2015)* were effective, and thus a target of achieving sustainable forest management through involving residents and local communities and through clarifying the role of government in the forestry sector was retained. Therefore, it is possible to say that expanding a type of JFM in which forest users take responsibilities for forest management based on three-party agreements among Leskhozoes, AOs, and forest users was expected to contribute to the achievement of the targets specified in both the *Concept of Forestry Development* and *National Forestry Programme*.

It is therefore concluded that this project has been highly consistent with the national development policy.

3.1.2 Consistency with the Development Needs of Kyrgyz

The proportion of forest area to the nation's land in Kyrgyz was 6% in 1930 and it decreased to 3% in 1956 as a result of inefficient forest management executed during the former Soviet Union Era. Although it increased to 4.3% in 2003 under the forestation policies promoted since then, a lack of thinning after planting, due to financial difficulties and a lack of human resources, resulted in forest degradation.

At the time of planning, the government of Kyrgyz recognized through the *National Forestry Programme (2005-2015)* that the involvement of residents and local communities was necessary in order to achieve sustainable forest management under financial hardship and the lack of human resources as mentioned above. At the same time, the *National Forestry Programme* mentioned the necessity of distributing the roles of supervision and regulation functions to the

⁶ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁷ ③: High, ②: Fair, ①: Low

government sector and those of economic activities to the private sector (residents and local communities) in order to improve efficiency of forest management because Leskhozoes had been responsible for all aspects of forest management, such as supervision, regulation and economic activities when *National Forestry Programme* was formulated⁸. JFM was introduced as one of the measures to address such issues and the *National Forestry Programme* pointed out the necessity for the establishment and improvement of a JFM implementation system.

According to a survey conducted in 2011, the proportion of the total forest area in Kyrgyz, which was 5.61% of the nation's land, was higher than 4.3% in 2003. However, according to Food and Agriculture Organization of the United Nations, the increase occurred because forests which were not included in the previous statistics were subsequently counted and not because the number of forests had increased. SAEPF also mentioned that the quality of the forests had not shown any changes before the end of the project.

The development policy of Kyrgyz at the time of project completion was the *Sustainable Development Program (2013-2017)*, in which the impacts of climate change on food supplies and hydroelectric power generation were matters of concern and the necessity for the restoration of the ecosystem was recognized. It also targeted increasing the total forest area, a number which was 5.61% in 2011, to 5.62% by 2017. One of the measures which was pointed out to achieve this target was the supports for the cultivation of fast growing trees by local communities.

It is thus possible to say that the needs for increasing the total forest area and for the improvement in forest quality existed at the time of project completion, because the total forest area did not show any increase, the quality of forest did not show a major improvement and the *Sustainable Development Program* recognized the necessity to increase the total forest area to react to the climate change.

It is therefore concluded that this project has been highly consistent with the development needs of Kyrgyz.

3.1.3 Consistency with Japan's ODA Policy

In a diplomatic policy called the "Central Asia plus Japan" dialogue, which was launched during the round-trip visit to Central Asia by the Minister for Foreign Affairs, Yoriko Kawaguchi, in August 2004, Japan identified the importance of the democratization of the societies and the promotion of the market economy. Based on this, the Country Assistance Program for Kyrgyz established in April 2009, which was under the preparation of the Ministry of Foreign Affairs of Japan at the time of project planning, proposed "Promoting poverty

⁸ It was not expected that the participation of private operators in forest management activities had led to the decrease in the forest quality, because Leskhozoes monitored the activities and they could cancel contracts in case activities described in contracts were not carried out. According to the implementing agency, the decreases in forest quality was not observed due to the participation of private operators at the time of project completion.

reduction through economic growth based on a free market economic principle” as the overall goal and “Development of Infrastructure for Economic Growth” as one of the priority areas for assistance. In addition, “local development” and “agricultural development” were included as specific measures to achieve “Development of Infrastructure for Economic Growth”. It can be said that this project was expected to contribute to the achievement of “Development of Infrastructure for Economic Growth”, as it plans to support income maintenance measures of forest users in industries such as beekeeping, jam and dry fruits production, and other activities. Therefore, this project was in line with Japan’s ODA policy.

This project was highly consistent with the development policy of Kyrgyz, and development needs, as well as Japan’s ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact⁹ (Rating: ②)

3.2.1 Effectiveness

3.2.1.1 Achievement of Project Purpose

Output 1: JFM administration bodies among Leskhozoes, AOs, and forest users, are organized at the JFM project sites in Issyk-kul Province and Chui Province.

Figure 1. JFM project sites



In this project, ten JFM project sites were selected from Issyk-kul Province, Chui Province and Talas Province. Initially, pilot projects were planned for execution only in Issyk-kul Province and Chui Province, but a pilot project was also executed in Talas Province in addition to the two provinces mentioned above in order to cover as many provinces as possible, in consideration of the nationwide dissemination of JFM in the future.

As mentioned above, JFM was defined as “a scheme in which forest users are responsible for forest management at SFF areas and publicly owned land based on an agreement among three

⁹ Sub-rating for effectiveness is to be put with consideration of impact.

parties: Leskhozoes, AOs and forest users” in this project. At these project sites, the three parties were involved in the execution of JFM activities.

In six out of the ten project sites, JFM project agreements, which specified respective roles, were concluded by three parties including Leskhozoes, AOs and forest users. At the four remaining sites, pilot projects were executed without concluding written agreements. Regardless of the conclusion of written agreements, Leskhozoes and AOs were involved in decision-making, such as decisions on the selections of forest users, and the monitoring of JFM activities were executed through collaboration efforts of Leskhozoes and AOs at all project sites. Therefore, it is possible to say that three-party agreements were made at all pilot project sites by the conclusion of written agreements or oral agreements.

In order for forest users to use forest land, lease contracts or CFM contracts were concluded between forest users and Leskhozoes or AOs regardless of the written agreements mentioned above being concluded. Selections of forest users were made through public notices and biddings based on the respective decrees applicable for CFM and leasing.

Therefore, it was concluded that Output 1 had been accomplished.



Photo 1. Plantation of poplars at Ak-Beshim



Photo 2. Plantation of apricots at Kok-Moinok

Output 2: The forest management activities are implemented by Forest Users at the JFM Project Sites.

As mentioned above, ten JFM project sites were selected from Issyk-kul Province, Chui Province, and Talas Province and forest management activities were carried out with the participation of Leskhozoes, AOs, and forest users at all project sites. Therefore, it is possible to say that Output 2 was accomplished. As specified in the indicators of this output, it was also confirmed that forest users appreciated JFM schemes, their awareness for forest conservation was enhanced, and administrative procedures related to JFM, such as those on land use, were clarified.

Therefore, it was concluded that Output 2 had been accomplished.

Output 3: The forest management activities by forest users and supporting activities by Leskhozoes and AOs at the JFM project sites are monitored.

In this project, SAEPF determined a monitoring format on which the forested area, numbers of forest users, activities, and other information were recorded. Although not many Leskhozoes submitted monitoring reports at first, all Leskhozoes started submitting the information on forest management activities and support activities as a result of the fact that the monitoring format had been simplified in 2012 and the reporting frequency had been changed from quarterly to biannually. However, although it was expected that three parties including Leskhozoes, AOs, and forest users shared and understood the monitoring procedures through the indicators of this output, forest users were not involved in monitoring and they did not understand the monitoring processes either.

Therefore, it was concluded Output 3 had been mostly accomplished.

Output 4: The JFM implementation guideline is comprehended among relevant organizations.

In this project, the JFM guideline was prepared based on the experiences gained through pilot projects. The final draft of the guideline, which was prepared in November 2013, was approved by Decree 318 of SAEPF. In order to promote understanding of the JFM guideline, seminars were organized, with the expectation that the staff members of all AOs in all districts of Issyk-kul Province, Chui Province, and Talas Province would participate. However, seminars were organized in some districts, inviting all AOs, because the JFM guideline had been approved in November 2013, shortly before the completion of the project, although seminars were initially planned to be organized in each district of the target provinces. This probably occurred because the distance from each AO to the seminar venues was far and the participation of the staff members of AOs was limited.

Therefore, it was concluded that Output 4 had been partly accomplished.

3.2.1.2 Achievement of Project Purpose

The level of the achievement of the project purpose at the time of project completion is indicated as follows:

Table 2. Achievement of Project Purpose

Project Purpose	Indicator	Actual
Framework for expanding JFM in a sustainable manner by the State Agency for Environment Protection and Forestry (SAEPF)	① Comprehension on the JFM implementation knowledge and experience is shared among relevant staff of SAEPF and NALSG*.	As news on project activities was compiled in newsletters and distributed, the knowledge and experiences of staff members of SAEPF and SALGIR on the implementation of JFM were enhanced. However, because SALGIR had not been in a position to give instructions to AOs following a law issued in 2012, it was not involved in

and National Agency for the Affairs of Local Self-Governance (NALSG)* is strengthened.		expanding JFM at the time of project completion.
	② JFM is implemented by only Kyrgyz side in more than two (2) sites different from the project pilot sites by the end of the project.	It was confirmed that new JFM activities were started without the supports offered through the project in the areas under the jurisdiction of four Leskhozoes and three AOs before the completion of the project ¹⁰ .
	③ Legalization process of rules and regulations for JFM implementation should be initiated.	A proposal on the revision of the existing legal system and the establishment of new legal system in order to optimize JFM related decrees was submitted to SAEPF and SALGIR in the 16 th working-group meeting organized in June 2012. In addition to this, a proposal on the commencement of the revision of the existing legal system and the establishment of a new legal system immediately after the completion of the JFM guideline was made to SAEPF at the time when the second draft of the JFM guideline was submitted in June 2013.
	④ “JFM implementation guideline” is utilized by relevant organizations.	The final draft of the JFM guideline was prepared in November 2013 and approved by Decree 318 of SAEPF.

* NALSG was reformulated into the State Agency for Local Self-Governance and Interethnic Relations (SALGIR).

The final draft of the JFM guideline was completed in November 2013 and it was approved by SAEPF. However, the approval of the guideline was made only two months before the completion of the project, it is not possible to say that the JFM guideline was utilized by relevant organizations at the time of project completion. Therefore Output 4 was achieved at a limited level.

However, it can be said that the project achieved Outputs 1, 2, and 3 because (1) the knowledge and experiences of the implementation of JFM were shared and understood by SAEPF and SALGIR, (2) JFM activities were started at seven sites through the efforts of the Kyrgyz side before the completion of the project, and (3) the actions toward institutionalizing necessary rules for the implementation of JFM were started.

Therefore, it was concluded that the project mostly had achieved its project purpose, “Framework for expanding JFM in a sustainable manner by SAEPF and NALSG (NALSG was reformulated into SALGIR) is strengthened”. However, as mentioned above, SALGIR had not been in a position to give instructions to AOs since 2012; thus, it was not included in the framework for expanding JFM at the time of project completion.

¹⁰ The three AOs were Milyanfan, Ibraimov, and Shamsly AOs in Chui district. The information from four Leskhozoes could not be obtained.

3.2.2 Impact

3.2.2.1 Achievement of the Overall Goal

The level of achievement of the overall goal at the time of project completion was observed as follows:

Table 3 Achievement of Overall Goal

Overall Goal	Indicator	Actual
JFM implementation areas are increased.	① JFM is implemented in not less than 10 sites different from the project sites and such sites should be selected not only from SFF areas but also from AO areas.	At the time of project completion, it was confirmed that new JFM activities were started without the supports of the project in the SFF areas under the jurisdiction of four Leskhozoes and in the areas under the jurisdiction of three AOs. In the ex-post evaluation, it was confirmed that JFM was started by 18 AOs near project sites and in ten AOs in other regions ¹¹ .
	② “JFM implementation guideline” is utilized in other provinces.	At the time of project completion, SAEPF was not using the JFM guideline. Furthermore, in the sites where JFM activities were executed, the utilization of the JFM guideline was not observed. The information to show the utilization of the JFM guideline in other provinces was not available.

At the time of ex-post evaluation, it was confirmed that JFM was started with the involvement of 18 AOs near project sites and 10 AOs in Batken Province. In 14 among 28 sites mentioned above, JFM was started in AO areas¹².

It was also confirmed that JFM activities were started in Batken Province, imitating the successes of one of the JFM project sites, namely, the Kok Moinok project site. In this project, guidance on the methods of plantation, maintenance, pesticide inputs, and other methods for the cultivation of apricots was provided at the Kok Moinok project site. The fact that the Kok Moinok project site shared such skills upon accepting site visits led to the expansion and successes of JFM in Batkek Province.

However, the utilization of the JFM guideline was not identified at the JFM project sites in the project and in other provinces. Besides, SAEPF did not take any actions to expand JFM. Therefore, it is not possible to say that the achievement of the project purpose led to the achievement of the overall goal.

Therefore, the project has achieved its overall goal at a limited level.

The levels of continuity of the project purpose and outputs after the completion of the project are stated as follows:

¹¹ In these regions, three parties fulfilled their roles, for example, AOs provided lands; Leskhozoes provided seedlings and technical support; and forest users carried out land development, tree plantation, and maintenance. According to the interviewees, AOs and Leskhozoes were involved in the selections of forest users. Therefore, it can be said that JFM activities based on the three-party agreements were implemented.

¹² At the remaining 14 project sites, Leskhozoes provided land and AOs were involved in decision-making processes, such as the selections of forest users.

Output 1: JFM mechanism on involving stakeholders into decision-making are functioned in the Project Sites of JFM in Issyk-Kul Province and Chui Province.

JFM activities were terminated at two out of ten project sites, but continued at the remaining eight sites.

It was confirmed that the JFM mechanism on involving Leskhozoes and AOs into decision-making processes was functioning at three out of eight of the project sites where JFM activities were executed in AO areas. In contrast, AOs were not involved in decision-making at the remaining five project sites executed in SFF areas.

Therefore, the continuity of the mechanism on involving stakeholders into decision-making was limited.

Output 2: The forest management activities are implemented by forest users in the Project Sites of JFM.

It was confirmed that forest management activities by forest users were continued at many JFM project sites. There were some contracts discontinued because the trees planted died or forest users moved out of project sites or got sick, but many contracts were continued. After reviewing the beneficiary survey¹³ conducted in the ex-post evaluation, it was confirmed that forest users appreciated the concept of JFM, as 96% of the interviewees answered that JFM was “significantly appropriate” or “slightly appropriate” as a source of generating income.

In addition, 80% of interviewees answered that their “awareness for environment improved”, and thus it was confirmed that their awareness toward forest conservation was enhanced through JFM activities.

Output 3: The forest management activities by forest users and the supporting activities by Leskhozoes and AOs at the JFM project sites are monitored properly.

Although monitoring of forest management activities was continued by Leskhozoes, execution of support activities were not documented. Furthermore, AOs and forest users were not involved in the monitoring. Therefore, the continuity of the output was limited.

¹³ The beneficiary survey was conducted on the forest users at the ten JFM pilot project sites (all pilot project sites) in Issyk-kul province, Chui province and Talas province in order to measure the effects and impacts which could not be measured by the predetermined indicators only and also to confirm the changes at the JFM project sites had been brought about by the projects. The beneficiary survey included interviews with 100 households of forest users at nine pilot project sites, excluding Orkutu project site, and also six households of forest users who participated in JFM activities at Orkutu project site. Although the beneficiary survey was planned to include interviews with forest users whose contracts were cancelled, it was not possible to contact them in many cases, especially if they were not involved in forest management activities at the time of ex-post evaluation. Therefore, the proportion of the forest users whose contracts were continued became bigger and the result might be biased upward. At Orkutu project site, as there were no lists of forest users, the answers were given only by the residents cooperative to the survey. Therefore, the result of the survey might be biased upward.

Output 4: The JFM implementation guideline is comprehended among relevant organizations.

Utilization of the JFM guideline was not identified at the project sites of this project. The main reason for this seems to be the fact that SAEPF did not organize seminars on JFM which targeted Leskhozoes and AOs after the completion of the project, and the efforts to promote an understanding of the JFM guideline were limited.

In addition, lease fees were set at a very low level and they could not be changed according to the changes in price levels set in most of the lease contracts concluded at Leskhozoes. No examples of lease fees being determined based on the methods described in the JFM guidelines were identified. One of the reasons for this is that the method to determine lease fees as described in the JFM guideline was not authorized by any laws or decrees.

Project Purpose: Framework for expanding JFM in a sustainable manner by the State Agency for Environmental Protection and Forestry (SAEPF) and National Agency for the Affairs of Local Self-Governance (NALSG) is strengthened.

According to SAEPF, although it had encouraged Leskhozoes to expand JFM through its annual meetings and it had also supported Leskhozoes to carry out contract processes for JFM activities, it did not organize any seminars or training utilizing the JFM guideline.

SALGIR had not been in a position to give instructions to AOs since 2012, that is, before the completion of the project, and thus it was not involved in the expansion of JFM.

Therefore, it cannot be said that the framework for expanding JFM in a sustainable manner by SAEPF and SALGIR was maintained.

Although a portion of the outputs of the project was continued, the activities to promote an understanding of the JFM guideline were not continued. It can be said that the achievement of the overall goal was limited as a result.

3.2.2.2 Other Impacts

In the field survey of the ex-post evaluation, it was confirmed that no negative impacts on the natural environment occurred and that no resettlements and land acquisitions were made.

Although it was not possible to obtain specific information on the increase in the total forest area and the improvement in the quality of the forests brought about by this project, it was confirmed that the trees were planted through the execution of JFM activities and the maintenance of the trees planted were continued at most of the project sites.

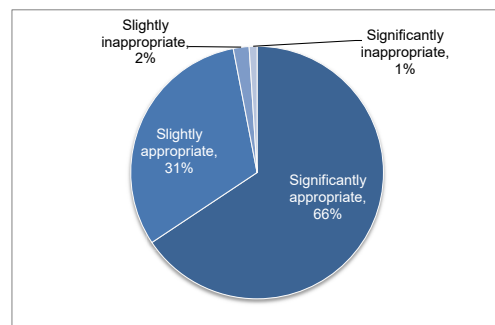


Figure 2. Answers by forest users on the appropriateness of JFM activities as sources of generating income

Therefore, it was surmised that the execution of the JFM activities led to the increase in total forest area and also the improvement in the quality of forests.

It was also confirmed through the interviews with the implementing agency and residents that no resettlements or land acquisitions were made for either implementation of JFM activities or installations of project equipment.

In addition, in the beneficiary survey, 89% of forest users answered that the JFM activities contributed to an improvement in their livelihoods and 97% of the interviewees answered that the JFM activities were appropriate as sources of generating income¹⁴. Therefore, it was confirmed that JFM activities were appropriate measures for the improvement in livelihoods.

Moreover, 57% of the interviewees answered that “the women in the households have some money for their own uses”, and 60% of them answered that “the amount that women can use increased”. From these findings, it can be assumed that the money that women could use increased in some households involved in JFM activities. Therefore, it was confirmed that this project had partly contributed to an increase in the incomes of women.

Since this project partly achieved the project purpose and overall goal, effectiveness and impact of the project are judged to be fair. The project purpose was mostly achieved, as Leskhozoes, AOs and SAEPF had accumulated knowledge and experiences on JFM through the execution of pilot projects and they had built the framework for expanding JFM in a sustainable manner.

JFM was implemented at more than ten sites which were not included as project sites, as expected in the overall goal. However, this is because provinces which were not included in the project sites of this project learned from the successful examples of this project and its skills through site visits, and not because the Kyrgyz side expanded JFM in a sustainable manner, such as through organizing seminars for Leskhozoes and AOs and utilizing the JFM guideline. Therefore, it was not possible to say that the achievement of the project purpose had led to the achievement of the overall goal, and thus a part of the overall goal had not been achieved.

3.3 Efficiency (Rating: ③)

3.3.1 Inputs

The inputs of this project are noted as follows:

Inputs	Plan	Actual
(1) Experts	- 2 Long-Term (120MM*) - Short-Term: forest management, etc. dispatched upon necessity	- 4 long-Term (122.6MM) - 5 Short-Term (5.0MM, simple method of land survey with handy

¹⁴ Interviewees do not include the forest users at Orkutu project site. At Orkutu project site, activities which led to generating income were not conducted. Forest users in Orkutu project site carried out activities such as the removal of fallen trees and branching, then they used such trees and branches for firewood; thus, all of them answered that the expenses for fuel purchases decreased by conducting such activities.

		GPS, nursery management, forest disease and pests control, Fruit cultivation technique, and natural forest management of those such as spruce forest)
(2) Trainees received	15- 25 persons	33 persons
(3) Equipment	<ul style="list-style-type: none"> - One vehicle (four-wheel drive) - Office equipment (computers, printers and miscellaneous) - Other equipment necessary for the execution of the project 	<ul style="list-style-type: none"> - Two vehicles (four-wheel drive) - 10 computers - Two printers - 113 sets of GPS receivers - Other equipment necessary for the execution of the project
(4) Overseas activities cost	-	8.9 million Kyrgyz Som (KGS)
Japanese Side Total Project Cost	300 million yen	279 million yen
Kyrgyz Side Operational Expenses	<ul style="list-style-type: none"> - Assignments of counterparts - Project office space (capital city, Bishkek), project office at the field level (Issyk-kul Province) and other necessary goods and facilities necessary for the project 	<ul style="list-style-type: none"> - Assignments of counterparts: SAEPF 57 persons and SALGIR 24 persons - Provision of local cost: 1.6 million KGS in total (expenses necessary for the execution of the pilot projects, such as vehicle fuel and a part of the expenses for local employees) - Provision of the project office space (in the building of SAEPF head office)

* MM stands for man month.

3.3.1.1 Elements of Inputs

The inputs of this project by both the Japanese side and Kyrgyz side were almost as planned.

The actual engagement of long-term experts was 122.6 MM, while the planned engagement was 120.0 MM. This was because the long-term experts made their engagements slightly longer than planned in order to handover their duties.

In addition, the dispatches of short-term experts, which were made based on both the contents of technical transfers and research necessary for the execution of pilot projects, were appropriate.

The actual number of vehicles was two, although it was planned to be one. The main reason for this was that not only the experts engaged in the project but also staff members from SAEPF used the vehicle for the execution of pilot projects. Another reason was that the planned number of pilot project sites, which was five, increased to ten.

In the light of above, it was concluded that the inputs of this project were appropriate.

3.3.1.2 Project Cost

As mentioned above, the Japanese side's total project cost was 279 million yen and it was within the plan. During the execution of this project, the Kyrgyz side covered some expenses necessary for the execution of pilot projects, such as a portion of vehicle fuel expenses and local employee costs. However, the background for this could not be identified.

In light of the above, it was concluded that the project cost was within the plan.

3.3.1.3 Project Period

The project period, which was initially planned to be five years, starting from November 2008, was actually from January 2009 to January 2014¹⁵. The commencement of the project was delayed by two months, but no problems due to this delay were identified. Therefore, it can be said that the project period was as planned.

Both the project cost and project period were as planned, so the efficiency of the project is high.

3.4 Sustainability (Rating: ②)

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

At the time of ex-post evaluation, *Concept of Forestry Development (-2025)* was still effective and it targeted the promotion of forest production activities by forest users and multipurpose uses and conservation of forests through the execution of such activities.

The contractual procedures for JFM were defined by existing decrees, for example, those of CFM contracts and lease contracts were determined in Decree 377 and Decree 482 respectively. Contract procedures for JFM were carried out based on these decrees at the time of ex-post evaluation as well.

The JFM guideline, whose final draft was prepared in November 2013, was approved by Decree 318 of SAEPP and the decree was effective at the time of ex-post evaluation.

However, it was found in some cases contracts were cancelled unilaterally by Leskhozos although only a few actual cases of cancellation were seen in the ex-post evaluation. Because afforestation takes a long time, 49-year lease contracts are concluded in many cases. However, the contract terms of initial contracts are normally set for five years in order to exclude pernicious private operators who only occupy lands by concluding contracts but do not plant any trees. If forest users cannot meet contract conditions, for example, they cannot complete the target of afforestation within five years, in some cases their contracts are not renewed, and in

¹⁵ On the record of discussions (hereinafter referred to as R/D) on the implementation of this projects, it was mentioned that the term of cooperation was five years, starting from the dispatch of JICA experts.

other cases the contracted area is decreased upon entering into a long-term renewal of the contract. According to SAEPF and some forest users, there were some Leskhozoes which distorted the definitions of such conditions and canceled the contracts unilaterally, even though the conditions mentioned in the original contracts were met.

In the ex-post evaluation study, it was not possible to identify examples in which lease fees were determined based on the methods for setting lease fees, as described in the JFM guideline. In many contracts, lease fees were set at very low levels and they were not revised reflecting price levels.

Therefore, as there are some contracts which do not follow designated procedures, it can be said that there are some problems in related policy and institutional aspects for the sustainability of project effects.

3.4.2 Organizational Aspects for the Sustainability of Project Effects

At the time of ex-post evaluation, the Unit for Forestation Monitoring, Forestry User Organizations, and the information system of the Department of Forest Eco System were responsible for JFM at SAEPF. Two staff members out of the six assigned in the unit were in charge of JFM.



Figure 3. Organization chart of SAEPF

Source: Documents provided by SAEPF.

At SALGIR, the Section for Monitoring Function and Duties of Local Authorities was the section responsible for environmental conservation including the forestry sector. However, it

was not involved in the actual operations of JFM as it was not in a position to give instructions to AOs from 2012.



Figure 4. Organization chart of SALGIR

Source: Documents provided by SALGIR.

At a typical Leskhoz, there were about 30 – 40 staff members, and several members including a director and officers were involved in the implementation of JFM.

At a typical AO, there were about 25-30 staff members, and one or two staff members were in charge of the forestry sector. AOs were in charge of arrangements and contractual procedures when JFM was implemented in areas under its jurisdiction.

SAEPF had an organizational setting in place which supported Leskhozoes in carrying out contractual procedures for JFM. Many Leskhozoes and AOs had constructed and maintained an implementing mechanism for JFM, leaving several staff members responsible for JFM. Therefore, it is considered that there are no problems in the organizational aspects for the sustainability of project effects.

3.4.3 Technical Aspects for the Sustainability of Project Effects

At SAEPF, the Unit for Forestation Monitoring, Forestry User Organizations, and the information system of the Department of Forest Eco System were responsible for JFM and supported Leskhozoes in carrying out the procedures for concluding lease contracts and CFM contracts. There were two officers in the unit and both of them had deep knowledge about the contractual procedures for JFM, and thus no issues were identified in the technical aspects. According to the unit, it had been improving its knowledge level through providing guidance in

the unit, no matter whether officers had experiences in JFM.

The technical skills required at Leskhozoes included: knowledge for carrying out the JFM contract procedures, GPS handling skills to specify project areas, and selection of species suitable for plantation. During interviews, most of the Leskhozoes answered that they had these skills. According to Leskhozoes, although SAEPF did not provide training or technical guidance, staff members with vast knowledge and experience provided guidance to others in Leskhozoes. Therefore, it can be said that the technical levels at Leskhozoes were continuously maintained and improved.

AOs carried out the procedures of the contract with forest users when JFM activities were executed in AO areas. At the same time, they were also required to reflect the opinions and viewpoints of residents into JFM activities. AOs answered that they could carry out the contract procedures of JFM and reflect the opinions of residents into JFM activities without any problems. However, as training for AOs had not been conducted, it can be said that the efforts to maintain and improve the necessary technical skills were limited. AOs received a support by surrounding Leskhozoes upon the execution of JFM activities when needed.

Although there were some problems in the technical aspects of AOs, it can be said that there were no major issues in the technical aspects for the sustainability of project effects because it was confirmed that SAEPF provided Leskhozoes with guidance on contractual procedures and Leskhozoes also had the technical skills needed for the implementation of JFM.

3.4.4 Financial Aspects for the Sustainability of Project Effects

A large part of the budget of each Leskhoz, which were the main implementers of JFM, was allocated by SAEPF¹⁶. Although it was possible for Leskhozoes to use the income from lease fees paid by forest users for the expenses of their own activities until 2016, the government later determined that lease fee incomes should be deposited to the account of the Ministry of Finance¹⁷. Therefore, at the time of ex-post evaluation, Leskhozoes did not have any funds other than the budget allocated by SAEPF.

The total budget amount allocated by SAEPF to Leskhozoes from the completion of the project to the time of ex-post evaluation is shown as follows:

¹⁶ According to Leskhozoes, the sales of seedlings were the revenues of Leskhozoes but the monetary amounts were very small.

¹⁷ At the time of ex-post evaluation, the stakeholders in the government were discussing the creation of a system to manage the lease fee incomes of Leskhozoes collectively in the bank account of SAEPF and to reallocate the funds based on the budget requests by Leskhozoes.

Table 4. Total Budget Allocation from SAEPF to Leskhozoes

Unit: million KGS

	2012	2013	2014	2015	2016
Total budget allocation to Leskhozoes	114.7	114.0	129.6	169.9	198.8

Source: Documents provided by SAEPF.

According to Leskhozoes, they could cover only personnel and general expenses using the budgets allocated by SAEPF.

Although infrastructure facilities, such as irrigation facilities, were necessary in some cases when JFM activities were being executed, the budget that Leskhozoes received from SAEPF was not sufficient to develop the infrastructure mentioned above.

AOs had their own revenue sources, such as tax revenues, in addition to the budget allocated by the government, but they could cover only personnel and general expenses using such funds and they did not have budgets to develop infrastructure for JFM either.

Table 5. Total Budgets of AOs

Unit: million KGS

	2012	2013	2014	2015	2016
Total budget allocation from the government to all AOs in the country	1,005.3	797.1	1,403.9	1,471.3	1,727.7
Total self-generated budget of AOs	1,811.2	40,686.8	4,008.7	4,284.9	4,274.1

Source: Documents provided by SALGIR.

In the light of above, it can be said that the financial aspects for the sustainability of project effects had some problems.

3.4.5 Current Status of Operation and Maintenance

In this project, facilities necessary for the execution of the pilot projects were installed at each pilot project site. The biggest one among such facilities was the irrigation system developed at the Kok-Moinok project site. It was confirmed that the maintenance of the irrigation system were carried out by “Oasis Sakura”, a group formulated by forest users, and that the irrigation system was usable without any problems.

Small facilities were installed at each pilot project site in addition to this, and no facilities were identified which could not be used due to the lack of maintenance.

In light of the above, some minor problems are observed in terms of the policy background and financial aspects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of this project was to strengthen the framework for expanding JFM in a sustainable manner in Kyrgyz by establishing JFM mechanisms at the project sites, executing forest management activities, monitoring forest management activities, and preparing and disseminating a JFM implementation guideline, thereby contributing to the increase in the number of JFM implementation areas.

This project was consistent with the development plan and the development needs of Kyrgyz, as well as the priority areas of Japan's ODA policy; thus, its relevance is high. The project purpose was mostly achieved as the framework for expanding JFM in a sustainable manner was constructed through the execution of pilot projects, and the number of JFM implementation areas was increased because the successful experiences of pilot projects were shared with other regions. However, since the increase was not made due to efforts by the Kyrgyz side to expand JFM on its own, the impact was partially unachieved. Therefore, the effectiveness and impact are fair. In regard to the implementation of the project, as both the project cost and period were within the plan, the efficiency of the project is high. As for the related policy for and institutional aspects of the sustainability of project effects, although policies on and the legal system of JFM were made clear, there were some problems. Organizational and technical aspects do not have any specific issues. As for the financial aspects, the fact that agencies at central and field level did not have budgets for the development of small-sized infrastructure, which were necessary for the expansion of JFM, was a problem. As mentioned above, because there were minor problems in the related policy and institutional aspects as well as in the financial aspects, the sustainability of project effects is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

Creation of a consultation window for the support of forest users

In this ex-post evaluation, some examples in which Leskhozoes canceled lease contracts with forest users unilaterally were identified. If there is any possibility that contracts are canceled unilaterally, as mentioned above, forest users could be more reluctant to join forest management activities.

Therefore, it would be necessary to construct a mechanism in which forest users can join JFM without undue worries, for example, by setting up a consultation window at SAEPF where forest users can make complaints.

Securing infrastructure development funds for JFM implementation

Although it was pointed out that minimum infrastructure facilities such as irrigation facilities were needed in order for the successful implementation of JFM, SAEPF did not have the budget available for carrying out such infrastructure investments.

One of the possible measures is to make it possible to keep a part of the income from lease fees at Leskhozoes so that they can redirect them to infrastructure investment for further expansion of JFM activities. It is therefore desirable to consider a fund flow for such re-investments.

Promotion of the utilization of the JFM guideline

Although the JFM guideline was approved by SAEPF, the utilization by Leskhozoes could not be observed. One of the main reasons for this could be the fact that SAEPF did not continue organizing seminars on the JFM guideline for Leskhozoes and AOs. Therefore, it is desirable that SAEPF organize seminars for Leskhozoes and AOs that utilize the JFM guideline in order to further increase the number of JFM implementation areas.

In addition, the lease fees were set at very low levels in many lease contracts concluded by Leskhozoes, and no examples in which lease fees were determined based on the methods described in the JFM guideline were identified.

At the time of ex-post evaluation, SAEPF was revising Decree 482, the decree on leasing, and thus it is recommended to include in the degree the methods to determine lease fees which are described in the JFM guideline.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Securing the sustainability of the project effect through sharing successful examples

In this project, it was observed that the successful practices of pilot projects and technical skills provided by this project, which were the background of such successes, were shared with Batken Province through site visits. This sharing of successful practices led to the expansion and successes of JFM in Batken Province.

Therefore, in cases which projects target disseminating the achievements of pilot projects nationwide as this project did, it is desirable to include into a project design the outputs or activities to share such successful practices, in addition to sharing the preparation and dissemination of guidelines. Such outputs or activities would include a support on mutual visits among project sites and information sharing through the use of websites.

End

Annex: Summary of JFM project sites

JFM project sites			Activities	Type of land	Conclusion of three-party agreement		Contracts on the use of lands
					Written agreements	Main roles described in agreements	
1	Jangy-Pakhta	Chui Province	Production of apricots and timber	AO area	Concluded	Leskhoze: Provision of lands AO: Provision of sufficient water Residents: Land development and maintenance	Lease contract: AO - Leskhoze Land use contract: Leskhoze - Individuals
2	Kok-Moinok	Issyk-kul Province	Production of apricots	AO area	Concluded	Leskhoze: Provision of facilities for planting trees AO: Provision of lands and irrigation facilities Residents: Planting of trees	Lease contract: Leskhoze – Individuals
3	Ivanovka	Chui Province	Production of timber and fruits	SFF area	Not concluded		Lease contract: Leskhoze – Individual
			Production of timber	AO area			Lease contract: AO – Individuals
4	Kegeti	Chui Province	Production of fruits and charcoal	SFF area	Not concluded		CFM contract: Leskhoze – Individuals
5	Karasaev	Issyk-kul Province	Production of timber and apricots	SFF area	Concluded	Leskhoze: Provision of lands, seedlings and technical supports AO: Provision of water and roads, reduction in tax Residents: Land development, planting trees and maintenance	Lease contract: Leskhoze, AO and forest user groups / individuals
6	Oruktu	Issyk-kul Province	Removal of wind-fallen trees and natural conservation activities	SFF area	Concluded	Leskhoze: formulation of activities designs, provision of seedlings and technical supports AO: Mobilization of residents, awareness building of residents Residents: Participation in forest maintenance activities	None (Only an agreement on activities was concluded)
7	Ton	Issyk-kul Province	Production of apricots and management of tourists	SFF area	Concluded	Leskhoze: Installation of water pumps and electric transformers and technical supports AO: Provision of lands Residents: Planting of trees	Lease contract: Leskhoze – Individuals

8	Jeti-Oguz	Chui Province	Plantation of spruce trees and management of tourists	SFF area	Concluded	Leskhoze: Authorization of the use of fallen trees and provision of seedlings AO: facilitation of the communication among stakeholders and provision of fuel Residents: Installation of fence and removal of garbage	Lease contract: Leskhoze – Individuals
		Chui Province	Production of timber, apples and others	AO area			Lease contract: AO – forest user groups
9	Ak-Beshim	Chui Province	Production of apricots	SFF area	Not concluded		CFM contract: Leskhoze - Individuals
10	Talas	Talas Province	Production of apples	SFF area	Not concluded		Lease contract: Leskhoze - Individuals

Republic of Tajikistan

FY2016 Ex-Post Evaluation of Japanese Grant Aid Project

“The Project for Improvement of Water Supply in Mir Saiid Alii Khamadoni District of Khatlon Region” / “The Project for Improvement of Water Supply in Mir Saiid Alii Khamadoni District of Khatlon Region (Phase II)”¹

External Evaluator: Keisuke Nishikawa, Japan Economic Research Institute Inc.

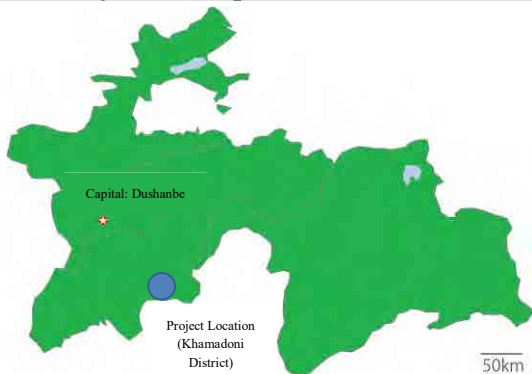
0. Summary

This project was implemented primarily to construct water supply facilities and procure the equipment necessary to drill wells in order to fulfil the objective of improving the water supply coverage rate in Moskva Town and two villages in Mekhanatabod in Khamadoni District of Khatlon Province. This project was consistent with Tajikistan’s development plans, sector plans and development needs at the time of planning and ex-post evaluation as well as with Japan’s ODA policy at the time of planning. Therefore, the relevance of this project was high. Regarding the implementation aspect of the project, while the project outputs were largely in line with the plan, the project cost exceeded the plan and project period substantially exceeded the plan due to the influences of bid tendering failures, etc., resulting in the judgment that the project’s efficiency was low. As for project effectiveness, while the operation indicators were apparently achieved, the water supply system could not be regarded as functioning sufficiently on the whole due to frequent occurrences of water leakages, releases of water taps at each house by the residents and so forth. With regard to impact, positive aspects were observed that the Executing Agency independently conducted geophysical exploration and constructed wells in accordance with the plan by using equipment procured through this project. Therefore, the effectiveness and impact of the project are fair. With regard to operation and maintenance, while no major issues were found in terms of the organizational and technical aspects, there were several issues in that (1) no training structure was established, (2) sufficient repairs and capital investment were financially difficult and (3) maintenance activities such as repairs were insufficient due to a lack of budget. Therefore, the sustainability of the project’s effectiveness was judged to be fair.

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

¹ In this report, „The Project for Improvement of Water Supply in Mir Saiid Alii Khamadoni District of Khatlon Region“ is indicated as „Phase I“ and the „The Project for Improvement of Water Supply in Mir Saiid Alii Khamadoni District of Khatlon Region (Phase II)“ as „Phase II“.

1. Project Description



Project Location (Khamadoni District)



Elevated Water Tank Constructed in This Project

1.1 Background

At the time of planning this project, 699 water supply facilities had been constructed in Tajikistan, of which, 113 were no longer supplying water and 358 did not meet water quality standards (Ministry of Health, 2004). Despite being considered a country rich in water resources, even when viewed globally, only 59% of Tajikistan's population had access to safe drinking water. This placed it last among former Soviet Union countries in terms of developing its water supply and also made it a high-risk country for water-borne diseases. Furthermore, most of the Tajikistan's poor population was concentrated in rural areas such as Khatlon Province, this project's target area, and taking poverty measures in rural areas had been one of the key issues for the country's government.

At the time of planning, the population of the Khamadoni District, the assumed project area, was approximately 119,000, including the population of 21,000 in Moskva Town. The water supply in Moskva Town was operated by a public waterworks company, however, only 52% of the residents were receiving water due to the dilapidated facilities including wells. Also in village areas, while 42 out of 57 total villages had water supply facilities, only 16 of 47 deep wells were operational due to lack of maintenance. Because of this, over 70% of residents relied on unsanitary water sources such as rivers and irrigation canals, which made the updating, improvement, and establishment of a maintenance system for water supply facilities a pressing matter for the country². Against this backdrop, a Grant Aid project to procure well drilling equipment was requested to the Japanese government in order to improve the water supply in Khamadoni District.

Although this project was originally planned as a single project, as described in „3.2.2.1 Project Cost“, it was later divided into two projects. Due to the integrated nature of these

² According to the Basic Design Report of this project (December, 2007)

projects, the ex-post evaluation was conducted for both projects.

1.2 Project Outline

The objective of the project was to raise the water supply coverage in Khamadoni District of Khatlon Province by improving water supply facilities, thereby contributing to the improvement of people's sanitary conditions.

E/N Grant Limit or G/A Grant Amount / Actual Grant Amount	(Detailed Design) 49 million yen / 49 million yen (Construction) Phase I: 955 million yen / 375 million yen Phase II: 779 million yen / 779 million yen
Exchange of Notes Date / Grant Agreement Date	(Detailed Design) December, 2007 (E/N only) (Construction) Phase I: August, 2008 (E/N only) Phase II: June, 2011 / June, 2011
Executing Agency	Center for Management of the Project on Supply of Potable Water to Population of Mir Saiid Alii Khamadoni District (hereinafter referred to as „The Center“)
Project Completion	June, 2013
Main Contractors	(Construction) Phase I: Tone Engineering Corporation Phase II: Dai Nippon Construction (Equipment) Marubeni Corporation
Main Consultant	(Phase I and II) Kyowa Engineering Consultants Co., Ltd.
Basic Design	April – December, 2007
Related Projects	[Technical Cooperation] Dispatch of Expert for the Development of Underground Water in Hamadoni District in Khatlon Province (2012-2013) Training of Operation and Management skills on Water Supply System in Hamadoni District of Khatlon Region (2013-2015) The Project for Strengthening the Water Service Management of Pyanj and. Khamadoni Vodokanals (2017-2020 (scheduled)) [Grant Aid] The Project for Rehabilitation of Drinking Water Supply Systems in Pyanj District, Khatlon Region (2014) [Other International and Aid Organizations]

	(World Bank) Dushanbe Water Supply Project (2002-2016) (European Bank for Reconstruction and Development) Khujand Water Supply Improvement Project (Phase 1: 2004-2008, Phase 2: 2008-2011) (United Nations Children’s Fund (UNICEF)) Communities and Schools Water Supply Project (1996-2000) (United Nations Development Programme) Water Supply Facilities and Transmission Pipes Rehabilitation Project (1999-2005, targeting Hamadoni District)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Keisuke Nishikawa, Japan Economic Research Institute Inc.

2.2 Duration of Evaluation Study

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

Duration of the Study: November, 2016 – April, 2018

Duration of the Field Study: February 15 – 28, 2017 and May 20 – 26, 2017

2.3 Constraints during the Evaluation Study

The Khamadoni District of Khatlon Province, where this project was implemented, was in a state of unstable security even during the ex-post evaluation. Accordingly, on-site work including visits to project sites and conducting of beneficiary surveys was substituted by local consultants. In addition to providing consultation to the local consultant for the site survey in the capital city Dushanbe, the External Evaluator also invited the director of Vodokanal of Khamadoni District (hereinafter referred to as „Vodokanal“), the public water supply and sewerage corporation in charge of operating and maintaining the facilities constructed in this project, to the capital in order to gather information through face-to-face discussions. In Kurgantube, the capital of Khatlon Province where Khamadoni District is located, the External Evaluator also visited the Khatlon Provincial Office of the public housing services corporation that serves as the regulatory body over Vodokanal, where the evaluator held discussions with stakeholders. For the reasons described above, the External Evaluator did not carry out field inspections at the project sites, but rather obtained some information through the local consultants.

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

3.1 Relevance (Rating: ③)⁴

3.1.1 Consistency with the Development Plan of Tajikistan

At the time of planning of this project, Tajikistan's development policy, the *National Development Strategy 2007-2015* (formulated in 2006) set a target of 83% nationwide improvement in the proportion of citizens with access to a safe water supply (urban areas: 97%; rural areas: 74%). In response to the National Development Strategy, a second *Poverty Reduction Strategy* for 2007-2009 outlined a three-pillar approach, one of which being the development of human potential (improving the quality of social services, including water supply).

The policy regarding the water sector at the time of planning was the *National Program on Potable Water Supply for 2007-2020*, announced in December 2006. It attached strong importance to water supply projects that promote poverty reduction and sustainable growth. Under this program, the Khamadoni District required an investment of 27.2 million somoni (7.88 million USD converted at June 2007 rates).

With regard to the development policies at the time of ex-post evaluation, the *National Development Policy for the period up to 2030* was formulated in 2016, and based upon which the *Medium-term Development Strategy 2016-2020* was also announced. In addition to the national development policy setting the improvement of water supply as a priority matter for regional development, it was confirmed that the medium-term development strategy also prioritized improvements in access to safe drinking water in connection with the development of people's living environment. It should be noted that, in terms of plans dedicated to the water sector, although the Tajikistan government was in talks during the time of the ex-post evaluation, the specific details were unknown as nothing had been officially announced.

In view of the above, it was confirmed that at the time of this project's planning and ex-post evaluation, the project was consistent with the government's development plan referring to water supply improvements.

3.1.2 Consistency with the Development Needs of Tajikistan

Tajikistan's stability has been regarded as indispensable in ensuring the economic stability and safety of all Central Asia including Afghanistan (according to the Japan ODA Data Book 2007 (MOFA)). Further, the "'Central Asia plus Japan' Dialogue/Foreign Ministers Meeting," held in 2006, attached importance to controlling borders and securing them reliably,

³ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁴ ③: High, ②: Fair, ①: Low

especially with regard to Tajikistan. Khatlon Province, the target area of this project, shares a border with Afghanistan, and the stability of this national border is important to all of Central Asia.

At the time of project planning, the 119,000 population of Khamadoni District of Khatlon Province consisted of 21,000 people in Moskva Town with the remainder living across various villages. In Moskva Town, only 52% of residents were being supplied with water due to dilapidated water supply facilities. Despite 42 out of 57 total villages having water supply facilities, only 16 of the 47 deep wells were operating due to lack of maintenance. Over the entire Khamadoni District including Moskva Town and other village areas, 59% of the population was not supplied from water supply facilities due to either equipment failure or service suspension.

In the district, locations of pump, transformer, and storage tank failures accounted for respectively 65%, 29%, and 69% of all failures. In particular, submersible pump and elevated water tank failures stood out as prominent factors that prevented achieving an uninterrupted water supply. 49% of the entire pipe lines were unable to distribute water due to its dilapidated state.

In terms of the water supply situation at the time of ex-post evaluation, the percentage of population supplied with safe water in 2015 was 93% in urban areas and 67% in rural areas, confining the nationwide average to just 74%.

According to 2016 data on the project area (Moskva Town and two Mekhnatabad villages) provided by the Executing Agency, the percentage of population served in Moskva Town (population 22,505) and the two Mekhnatabad villages (population 7,103) was 100% in both. Further, the percentage of population served in all villages in the Khamadoni District (population around 70,000) was 85%. However, according to Vodokanal, in most areas where distribution pipe is not been newly installed or updated by this project (i.e. areas outside the scope of this project), water leakage has become normal. For example, although repairs were made at 35 locations in 2016, no meaningful solution has been implemented. According to Vodokanal estimates, the leakage rate of Moskva Town and the two Mekhnatabad villages is 35-50%. Also, 70% of water distribution pipe not covered in this project is in need of replacement, and in addition, water meters must be installed across the region in order to correctly gauge supplied water volume.

In view of the above, among regions in Tajikistan, which neighbors Afghanistan, Khatlon Province in particular lies across the border from Afghanistan. Therefore, supporting improvements in the social living environment of the Khamadoni District, which lies closest to the border, is considered an important task in achieving stability for the entire region. Regarding the water supply situation, the percentage of population served in Tajikistan

(2015) did not reach the 74% target announced in the national development strategy, leaving one-third of the country's population without access to safe water. In Moskva Town and the two villages in Mekhnatabad Jamoat⁵, although the required volume of water is being supplied to residents according to flowmeters at water supply facilities, in reality, 30-50% of that volume is believed to be lost through leakage, resulting in a situation in which residents are still not being provided with sufficient water. The area is in need of further distribution pipe replacement and meter installation.

Therefore, due to the strong need to supply safe water to residents at the time of planning and ex-post evaluation, this project is judged to be consistent with the development needs.

3.1.3 Consistency with Japan's ODA Policy

In the Country Assistance Policy for Tajikistan, which was being formulated at the time of planning of this project in 2007, the basic policy was stated as "nation-building that makes possible sustainable development based on the market economy and poverty reduction," and a priority area (out of 4) was set as the "development and management of basic social services." As part of this, cooperation with Tajikistan government was planned in an effort to ensure a sustainable supply of drinking water to citizens.

Therefore, at the time of planning the overall project, this project was consistent with one of the priority areas in Japan's assistance to Tajikistan.

It was confirmed that this project was consistent with Tajikistan's development plans, sector plans and development needs at the time of planning and ex-post evaluation as well as with Japan's ODA policy at the time of planning.

Based on the above, the relevance of this project is judged to be high.

3.2 Efficiency (Rating: ①)

3.2.1 Project Outputs

This project was designed to construct water supply facilities in Moskva Town and Mekhanatabod Jamoat and to procure well drilling equipment. As its capacity development program (soft component), the project was also designed to provide guidance on geophysical exploration techniques for well drilling and the operation and maintenance (O&M) of water supply facilities. Table 1 shows the planned and actual outputs of this project as understood at the time of ex-post evaluation.

⁵ Jamoat is the smallest administrative division that controls several villages. There are seven jamoats in Khamadoni District.

Table 1: Planned and Actual Outputs of This Project

	Plan	Phase I: Actual	Phase II: Actual
Construction of Facilities	<ul style="list-style-type: none"> - Repair of existing water supply facilities in Moskva Town (Construction of 3 deep wells, Installation of submersible pump, New construction and repair of elevated tank, Installation of distribution pipelines, etc.) - Works for water supply facilities in 2 villages in Mekhanatabod Jamoat (Installation of submersible pump, New construction of elevated tank, Installation of distribution pipelines, etc.) 	<ul style="list-style-type: none"> - Moskva Town: Construction of 3 deep wells 	<ul style="list-style-type: none"> - Moskva Town: Installation of submersible pump, New construction and repair of elevated tank, Installation of distribution pipelines, etc. - Mekhanatabod Jamoat: Installation of submersible pump, New construction of elevated tank, Installation of distribution pipelines, etc.
Procurement of Equipment	<ul style="list-style-type: none"> - Equipment for well drilling and related equipment for the Center (Stationary well drilling machine, Compressor, Water truck, Truck, etc.) - Maintenance equipment for distribution pipelines for Vodokanal (Compactor, Mud pump, etc.) 	<ul style="list-style-type: none"> - Equipment for well drilling and supporting equipment for the Center (Stationary well drilling machine, Compressor, Water truck, Truck, etc.) - Maintenance equipment for distribution pipelines for Vodokanal (Compactor, Mud pump, etc.) 	<ul style="list-style-type: none"> - None
Soft Component	<ul style="list-style-type: none"> - learning and capacity enhancement of the Center on geophysical exploration techniques - Capacity enhancement of the Vodokanal on operation and maintenance 	<ul style="list-style-type: none"> - Learning of geophysical exploration techniques by the Center 	<ul style="list-style-type: none"> - Capacity enhancement of the Vodokanal on operation and maintenance

Source: Prepared based on the Basic Design Report and information provided by JICA



Procured crane-mounted truck



Procured drilling compressor

Major modifications from the original planning design include a 720m extension of the Moskva Town water distribution pipe network and a model change of the well pump control board. The former modification was based on a request after the initial plan from the Executing Agency to extend the distribution pipe network to rural roads where water

distribution pipe had not been installed yet. As a result, the water distribution network installed in Moskva Town was extended to 32.9 km from the initially planned 32.2 km. The latter modification for the pump control panel was due to a request from the Executing Agency to install a control panel that permits understanding of electrical voltage and current data. There were no other major modifications, and these modifications did not have any negative effects on the overall project.

In addition to the cooperation items from the Japanese side, this project also included plans intended for the Tajikistan side to carry out. Besides acquiring the necessary approvals and authorization to implement project work, the Tajikistan side was also expected to handle the following items:

- Install fences
- Draw in 10 kV transmission line (750 m length)
- Establish a drilling equipment yard in Khamadoni District
- Install water supply connection lines and valves in residences
- Repair leakages in existing distribution pipe
- Pay fees related to the Banking Arrangement

According to the Executing Agency and Project Consultant, all responsibilities on the Tajikistan side were carried out by the time Japanese side construction was completed.

3.2.2 Project Inputs

3.2.2.1 Project Cost

This project was planned to cost 1,028 million yen⁶, consisting of the project cost of 1,005 million yen (detailed design: 49 million yen; construction works: 955 million yen⁷) from the Japanese side and the costs of roughly 23 million yen from the Tajikistan side.

As detailed below, actual project costs for Japan were 375 million yen for the Phase I and 779 million yen for the Phase II (detailed design cost was 49 million yen as planned). The breakdown of each is shown below in Table 2.

⁶ The project cost estimated at the time of initial planning of this project, based on the Basic Design Survey Report

⁷ The sum of individual values and the total value may not match due to rounding.

Table 2 Actual Breakdown of the Project Cost (Japan side only)

(Unit: million yen)

Item		Phase I	Phase II
Equipment procurement	Equipment cost	280.0	-
	Design and supervision costs	12.0	-
Facility construction	Construction cost	49.7	690.0
	Design and supervision costs	33.8	89.0
Total		375.5	779.0

Source: Materials provided by JICA

The circumstances which led to the initially planned single project being split into two phases are described as follows.

- 1) Well drilling in Mekhanatabod Jamoat was planned at a location composed of an alluvial fan of cobbles that required advanced technology to drill, which resulted in a failed bidding as no bidders competed in the first bidding round in December 2008 (in contrast, equipment procurement bidding was approved and the equipment was delivered in September 2009).
- 2) In the second bid held in July 2009, despite the bids being tendered by drilling operators without any experience in laying water distribution pipes, all bids were rejected due to exceeding the ceiling price.
- 3) A subsequent third bid was planned, however, in light of (a) the unlikelihood of securing a successful bidder and (b) even if a successful bidder could be secured, it would be unlikely for construction to be completed within the period specified in the Exchange of Notes (E/N). Thus it was decided to first drill three wells in Moskva Town using the well drilling equipment already procured. Ultimately, a bid for the reduced-scope was approved in May 2010.

Due to the above flow of events, project costs were divided into a Phase I project cost, in which equipment was procured and three wells were drilled, and a Phase II project cost, in which the remaining work was carried out. In the Phase II project, the project cost was revised as a result of the Implementing Review Study and a Grant Agreement (G/A) limited to 779 million yen was separately signed.

According to the Executing Agency, the actual cost by the Tajikistan side was 911,000 somoni. The cost exceeded the planned amount (664,000 somoni⁸) due to

⁸ Based on the Basic Design Survey Report (December, 2007)

higher-than-planned expenses to install fencing as well as residential water supply connection lines and valves. Nevertheless, the yen-denominated amount calculated based on the average exchange rate⁹ during the project period totaled 19 million yen.

Based on the above, the project cost—including detailed design and combining Phases I and II—was 1,203 million yen on the Japanese side and 19 million yen on the Tajikistan side for a total cost of 1,222 million yen. As total project cost was estimated at 1,028 million yen in the initial plan, the actual cost exceeded the plan (119% of the plan).

3.2.2.2 Project Period

The project period was planned as follows: 8.5 months for detailed design and bidding; 9.5 months for procurement of equipment and materials; 14.5 months for facility construction; and 5.5 months for implementing soft components. However, because some processes overlap, the entire project was scheduled to last 31 months from the conclusion of the Detailed Design E/N¹⁰.

As described in "3.2.2.1 Project Cost," events such as reimplementing of the Implementation Review Study and the re-signing of the E/N due to the occurrences of the bid rejection and the bid failures required 67 months. The breakdown of the project period is described below.

Table 3: Actual Project Period

	Period*	Number of Months Required
Detailed Design	December, 2007 – December, 2008	13 months
Phase I	August, 2008 – March, 2011	32 months
Phase II	June, 2011 – June, 2013	25 months
Total	December, 2007 – June, 2013	67 months

* Starting with the month when the Exchange of Notes or Grant Agreement was signed

Source: Information provided by JICA

According to the Executing Agency and the Project Consultant, given the fact that no delays occurred during the construction stage, the primary factors delaying the project were bidding rejection/failure and the implementation of the feasibility study.

Accordingly, the project period significantly exceeded the planned 31 months, finally completing after 67 months (216% of the plan).

⁹ The International Financial Statistics (IFS), International Monetary Fund, was used as reference for the exchange rate data.

¹⁰ Similarly to the project cost, this was based on the project period described in the Basic Design Survey Report.

With the exception of some changes, outputs were generally achieved as planned. As for project cost, however, there was a disparity between the cost estimate calculated by the Project Consultant and the bid price from contractors, leading to the need for a feasibility study to reassess the project costs. As a result, the actual cost was 119% compared to the plan. The project period also significantly exceeded the plan by 216% due to the impact of the bid rejection, bid failure, and the subsequent feasibility study.

Based on the above, the efficiency of the project is judged to be low.

3.3 Effectiveness¹¹ (Rating: ②)

3.3.1 Quantitative Effects (Operational Effects)

At the time of planning of this project, the operation and effect indicators of this project were expected to be the increase in population with water supply; improvement in the percentage of population served; and the increase in the amount of water supply. The actual values for these indicators after project completion are shown in Table 4.

Table 4: Operation and Effect Indicators of This Project

		Baseline	Target	Actual			
		2007	2013	2013	2014	2015	2016
		Planned Year	Completion Year	Completion Year	1 Year after Completion	2 Years after Completion	3 Years after Completion
Population with Water Supply	Moskva Town (person)	10,700	22,230	22,230	22,320	22,380	22,505
	Two villages in Mekhanatabod Jamoat (person)	0	6,640	6,640	6,870	6,900	7,103
Percentage of Population Served	Moskva Town	52%	100%	100%	100%	100%	100%
	Two villages in Mekhanatabod Jamoat	0%	100%	100%	100%	100%	100%
Amount of Water Supply per Day*		3,030m ³	6,615m ³	6,615m ³	7,480m ³	7,515m ³	7,580m ³

Source: Basic Design Survey Report for the Baseline and Target figures of the Population with Water Supply and the Percentage of Population Served, Ex-Ante Evaluation Summary (Phase II) for the Baseline and Target figures of the Amount of Water Supply per Day. Information provided by Vodokanal for all Actual figures

* While the target value indicates the maximum water supply volume per day, the actual values show the average volume of water per day, including the amount taken from existing wells, supplied to the target area of this project.

By implementing this project, it is indicated that the 'population with water supply', 'percentage of population served', and 'amount of water supply' indicators all reached their

¹¹ Sub-rating for Effectiveness is to be put with consideration of Impact.

target values immediately after project completion. The actual value for population with water supply was estimated by the Statistical Agency. The target and actual values in 2013 indicate the same value. According to Vodokanal, the percentage of population served is assumed to be 100% because the supply is connected to the entire population in the project area. The amount of water supply per day was as recorded by the flowmeters at each pump station.

Water is supplied via individual residential water connections in Moskva Town and via a common faucet used by multiple families in the two villages in Mekhanatabod Jamoat. However, since water meters are not installed, it is impossible to ascertain how much water is delivered to each household. Water supply facilities were designed to permit water to be supplied 24 hours a day in Moskva Town and 8 hours a day in Mekhanatabod Jamoat. As water volume was supplied accordingly, the figures in the table were obtained from the Executing Agency.

It was expected at the time of planning that the distribution areas in entire Moskva Town would be divided into four blocks to enable efficient water supply management. However, water was actually supplied to entire Moskva Town from the pumping station (the point where a magnified drawing is shown) all together instead of distributing to each zone. (After that, in the Technical Cooperation Project being implemented at the time of ex-post evaluation, Moskva Town has been divided into multiple zones: a zone where water is supplied using existing water distribution pipes (Zone 6 on the Figure 1) and zones where water is supplied using the water distribution pipes installed through this project (Zones 1 - 5)). In other words, in order to also distribute water from the pumping station upgraded by this project to the existing water supply zone, which had poor water supply, water had to be distributed to all zones at the same time without dividing into separate water supply zones. According to Vodokanal, this resulted in exacerbating water leaks¹² in Zone 6, which contained existing dilapidated distribution pipes. There were also many residents leaving their faucets always open for the purpose of irrigation especially during the summer. As a result, these factors caused a situation that prevented sufficient water volume from reaching the end-point areas of distribution pipes and elevated areas developed in this project.. Further, since water meters were not installed in residences, many residents left faucets open continuously for the purpose of irrigation especially during the summer, contributing to the chronic shortage of water supply throughout the distribution network. In terms of the capacities of water supply facilities, although it was technically possible to continue supplying water 24 hours a day, water leakages and faucets being left open not only made it

¹² Although leakage and non-revenue water rates are unknown, the leakage rate estimated by Vodokanal is 35 to 50%, as shown earlier.

difficult to maintain water pressure, but also wasted a massive volume of water. Because of this, it was decided to suspend pumping at night and early afternoon when actual demand was low.¹³

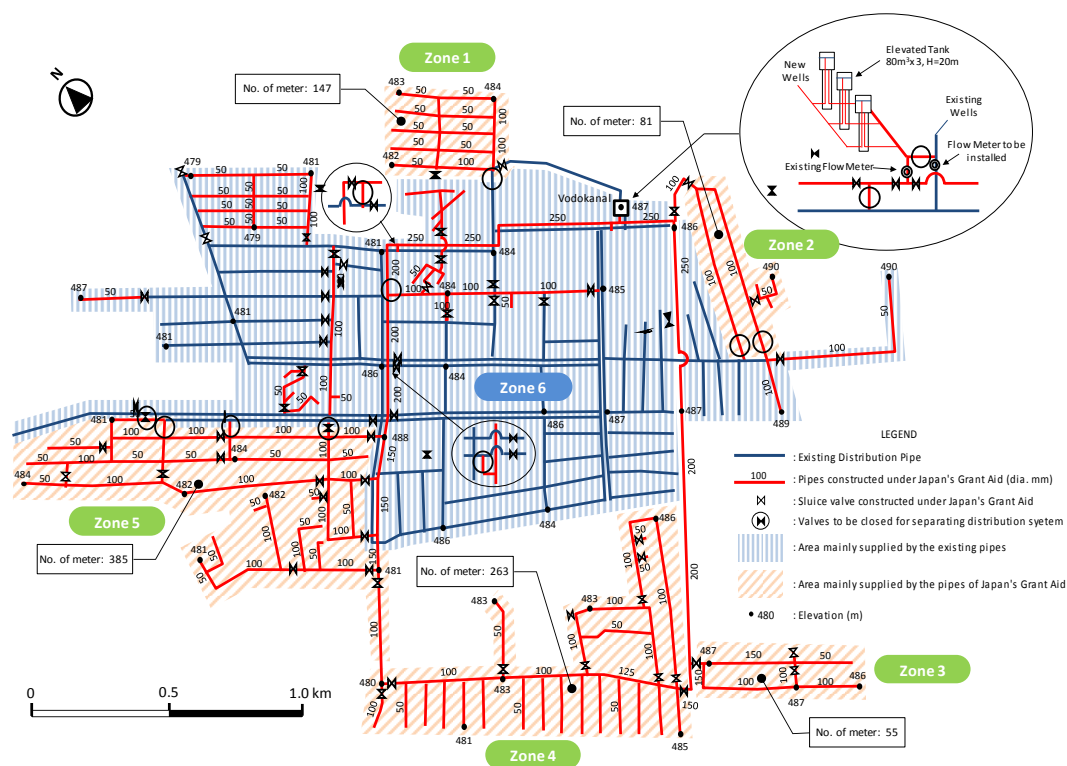


Figure 1 Schematic Diagram of Moskva Town's Water Distribution System

Source: Provided by the experts of „The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanal“

The beneficiary survey¹⁴ targeting the residents in the project area was conducted during

¹³ Water supply times during the ex-post evaluation were for 13 hours from 5:00 am–1:00 pm and 4:00 pm–9:00 pm.

¹⁴ In the evaluation of this project, the beneficiary survey was conducted twice as described below with the aim of collecting additional quantitative analysis material from directly benefiting water users. The first survey was conducted by the beneficiary survey assistant during the Phase I field survey. However, during the Phase II field survey, local reports indicating that improvements were made to the water supply by modifying the water supply method in Moskva Town.

The first beneficiary survey was conducted as described below.

[Survey Target Group] A total of 100 residents in the project area (75 water users from Moskva Town water users and 25 water users from two other rural villages (15 from Gulobod village; 10 from Navobod village)). The male to female ratio was 66% males to 34% females.

* Since the beneficiary ratio was roughly 3:1, surveyed participants of 'Moskva Town: Other Two Villages' was set to the same ratio (75:25 people).

[Survey Method] Interview format using a questionnaire. The survey team visited several families along pipe laying sections in the project area and interviewed those living there.

[Questions] Questions cover the following topics: Water supply improvement (stability of water supply, supply times, water quality, water pressure); frequency of drawing water after the project; satisfaction with the water supply project; changes in sanitary conditions; occurrence of waterborne illnesses; changes in the living environment; presence/absence of economic or social impacts; impact on the environment during and after the project; presence/absence and contents of social impacts (resettlement, land acquisition), maintenance conditions.

the ex-post evaluation to assess changes in the water supply situation. In the survey, before the project was implemented, water supply was unstable in Moskva Town and there was no water supply at all in Mekhanatabod Jamoat. According to the survey, almost all respondents indicated that water supply remained unstable even after the project was implemented. However, when asked to compare the stability of water supply before and after project implementation, 99% of the respondents replied that conditions had "slightly improved." Thus it appears that water supply conditions improved slightly, despite remaining unstable.

With respect to water supply hours, Moskva Town respondents reported an average of 10.9 hours per day, while the two Mekhanatabod Jamoat villages reported an average of 7.9 hours per day. Since the Mekhanatabod Jamoat facility was designed to supply water for 8 hours per day, this shows that it has, for the most part, achieved its goal. As for Moskva Town, the responses show that residents feel they are supplied water 84% of the time based on a 13-hour water supply system, which was in place at the time of the ex-post evaluation.

After receiving advice from a JICA Technical Cooperation Project Expert Team, from May 2017 Vodokanal changed the water supply system by separating Zones 1-5 and Zone 6 (Figure 1) in Moskva Town. Accordingly, in July 2017, another beneficiary survey was conducted on residents of Moskva Town in the ex-post valuation in order to assess improvements. As shown in Table 5 below, although there was no change in supply stability, number of changes were seen in water quality, pressure, and supply hours.

Table 5 Comparison of Changes Before-and-After the Project / Before-and-After Changes in the Water Supply Method (May 2017)

		Before the Project			After the Project – May, 2017			After May, 2017		
		Zone 1-5	Zone 6	Total	Zone 1-5	Zone 6	Total	Zone 1-5	Zone 6	Total
Water Quality	Good	74%	71%	72%	85%	85%	85%	89%	83%	85%
	Acceptable	26%	27%	27%	15%	15%	15%	11%	17%	15%
	Bad	0%	2%	1%	0%	0%	0%	0%	0%	0%
Water Pressure	Good	15%	29%	24%	48%	56%	53%	56%	56%	56%
	Acceptable	59%	56%	57%	41%	35%	37%	30%	38%	35%
	Bad	26%	15%	19%	11%	8%	9%	15%	6%	9%
Average hours of supply (hour/day)		6.7	9.2	8.3	10.2	11.2	10.8	10.0	11.4	10.9

Source: Results of the second beneficiary survey

Note: In May 2017, the method to supply water to supply zones expanded by this project was changed to supply water only via the distribution network constructed in this project without going through the existing distribution pipes. A second beneficiary survey was conducted for all of Moskva Town including families supplied by the existing water supply network.

The second survey focused on Moskva Town. A total of 75 people (53% male, 47% female) were surveyed in the same manner as the first survey. Questions were limited to: Water supply stability; supply times; water quality; water pressure; satisfaction with the water supply project; and changes in amounts of water supplied after May 2017.

Results demonstrated that water quality and pressure in Moskva Town greatly improved over conditions prior to the project. It was reported that after the water supply method was changed in May 2017, a slight improvement in water pressure was obvious as water flowed from faucets that had no running water before. The project area was extremely hot in July, and despite being the month of highest water demand, water pressure was actually slightly better than in May. We can assume that this means a certain degree of improvement in water conditions was achieved beyond what is shown from just the numbers.

Water supply improvement levels in Zones 1-5 and Zone 6 indicate the same pattern with better water quality, water pressure, and water supply times than before the project in all zones. It was observed that the percentage of residents feeling „Good“ water quality and pressure rose further in Zones 1-5 after May 2017.

With regard to satisfaction with water supply services, 64% of respondents answered "Satisfied," 32% answered "Not really satisfied," and 4% answered "Dissatisfied," meaning just under two-thirds of users were satisfied.

As demonstrated by the above results, the indicators for population with water supply, percentage of population served, and amount of water supply have all achieved their targets based on the data provided. Nevertheless, frequent water leakage from existing distribution pipes not covered in this project coupled with the influences of leaving faucets open shows that the water supply from water pipe newly installed and upgraded in this project were insufficient, resulting in a situation where water did not reach the entire district. In fact, since water supply time has been confined to half the 24-hours or less it is capable of by design, and since there are opinions that water pressure has not been good while it has improved, it cannot be said as a whole that the project has achieved the high level of achievement shown by the data in Table 4. However, changes to the water supply method after May 2017 have shown gradual improvements in water supply conditions across Moskva Town and there is a possibility that further improvements will be made in the future.



Water Leakage onto Roadways

3.3.2 Qualitative Effects (Other Effects)

As a qualitative effect of implementing the project at the time of planning, it was expected that it would be possible to repair existing water distribution pipes and also connect the water supply to all residences by utilizing the procured equipment, and by improving geophysical exploration and O&M skills through the project's soft component.

With regard to training geophysical exploration skills (described in more detail later) a total of nine types of deliverables were prepared in the soft component of this project, including textbooks on geophysical exploration/hydrogeology, manuals on project planning, manuals on water distribution pipe O&M, etc., which were used to provide training to staff at Vodokanal overseeing these respective fields. According to the soft component report, although a certain degree of improvement in knowledge and technical skills at Vodokanal was achieved, it was not necessarily enough. In response, further initiatives to enhance operation and management skills were planned. Specifically, two Short-Term Experts on the O&M of water supply facilities and the business improvement of waterworks utility were dispatched from 2013 to 2015. Also, a JICA Technical Corporation Project, "The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanals" has been implemented from 2017 with an approximate 3-year project timeline.

In other words, the soft component of this project did not solely account for greatly improving the skills to realize the higher percentage of population served with water. It can be said that further improvements of technical skills have been endeavored through follow-up expert dispatches and the technical cooperation project.

3.4 Impacts

3.4.1 Intended Impacts

The following impacts were assumed as result of implementing this project.

- 1) A well drilling team is set up at The Center and 23 wells are independently drilled over the five years using procured equipment.
- 2) Better sanitary conditions are realized for residents in the project area (fewer residents will have water-borne diseases in the target town and villages).

At the time of ex-post evaluation, the following situation was confirmed through interviews with the Executing Agency and relevant government agencies.

At the time of the feasibility study in 2010, it was decided to begin drilling new wells in 2012 with 2016 as a target completion year. The Executing Agency planned the drilling of 20 wells based on a planned water supply that made allowances for population increases and

used procured equipment to perform work, and by 2016, the 20 wells were in fact all drilled according to plan.

Table 6 Construction of New Wells in Khamadoni District

Completion year	Number of wells	Construction cost (Units: 1000 somoni)
2012	4	826.1
2013	4	793.4
2014	4	1,220.0
2015	4	1,224.4
2016	4	1,432.9
Total	20	5,496.8

Source: Prepared based on materials from the Executing Agency

Upon questioning Vodokanal and the Project Consultant on whether sanitary conditions had improved for residents, opinions were heard that the water quality had largely improved. Checking the inspection results of water quality of water sources and water in each area by Vodokanal and the Committee on Environment have found no health concerns with the water itself other than high salinity in some samples (but not high enough to cause adverse health effects).

When asked whether sanitary conditions had improved as a result of implementing the project in the beneficiary survey, 2% of respondents answered "Greatly improved," 75% answered "Somewhat improved," 9% answered "No change," and 14% answered "Don't know." Regarding the data on the occurrences of waterborne diseases in the project area, no organized data were available at hospitals, etc., and they could not be obtained. According to the beneficiary survey, 98% of the respondents indicated that water-borne diseases were occurring before the project and 96% said that they occurred even after the project was implemented. However, it is unknown whether illnesses like diarrhea are caused by tap water in light of the fact that no abnormalities were discovered by water quality testing, and water quality assessments were generally quite high. Therefore, it is conceivable that some other factors were affecting the quality. It is considered necessary to collect samples not only at pump stations, but also of water as received at residences in order to accurately assess the situation.

3.4.2 Other Positive and Negative Impacts

3.4.2.1 Impacts on the Natural Environment

It was confirmed at the time of planning of this project that conducting the Environmental Impact Assessment (hereinafter referred to as 'EIA') was exempted based

on the notice from the Environment Management Bureau of the Ministry of Agriculture and Environmental Protection (No.1/307 issued on 7 November, 2007), and it was concluded that performing the EIA was not necessary.

In implementing the project, mainly the following measures were to be taken to avoid adversely impacting the natural environment.

- To measure wells' groundwater levels and test water quality at least once per year and monitor changes in groundwater level and quality in future years.
- To properly manage slurry and surplus soil from drilling, and avoid overnight construction in residential areas.

According to the Executing Agency, Vodokanal, and Committee on Environment, no particular negative impact to the natural environment occurred as a result of implementing this project either during construction or after its completion. In addition, the Khamadoni Department of Sanitation and Infectious Disease monitors water quality twice a month; the Department of Geological Research quarterly monitors water levels; and Vodokanal checks chlorine levels daily and bacterial levels weekly. As described above, it can be judged that there are no serious concerns with regard to water quality when it is sent from pumping stations.

With regard to managing slurry and surplus soil from drilling, the Executing Agency has reported that disposal was carried out with the permission of the Khamadoni District Department of Environment. Also, no overnight work was performed in residential areas.

Therefore, it is believed that, on the whole, there were no problems in terms of negative impact on the natural environment from this project because there were no negative impacts occurring either during the project or after its completion, and because it was verified that control measures have been established and carried out.

3.4.2.2 Resettlement and Land Acquisition

No resident resettlement or land acquisition was expected in this project as the project site was either at pump stations or on roads. It was confirmed through information obtained from relevant organizations and by results of the beneficiary survey in the ex-post evaluation that there were actually no resettlement or land acquisition cases.

Regarding the quantitative effects of this project, all the operational indicators assumed at the time of planning have been achieved. Also, Tajikistan independently conducts geophysical exploration and constructs wells using the procured equipment as planned. Thus, the positive effectiveness and impact of this project were confirmed. However, the water supply system as a whole including the areas targeted in this project is not functioning sufficiently in terms of a

stable water supply due to frequent water leaks, especially from the water distribution network not covered in this project, and also due to faucets being left open especially during the summer season at many houses. Therefore, it is judged that, in practical terms, the project is only partially satisfactory in achieving the project's aim of increasing the percentage of population served.

It is deemed that there was no negative impact on the natural environment as well as no resident relocation or land acquisition as a result of implementing this project. With regard to water quality, testing results indicated no problems, and water quality was largely highly rated by residents in the beneficiary survey. However, in light of residents' harsh view of waterborne diseases, checking the quality of water coming into households is necessary.

Based on the above, while a certain degree of effectiveness has been achieved by implementing this project, there are problems in terms of providing a stable water supply for the water supply hours targeted in towns and villages covered. Therefore, the effectiveness and impact of the project are judged to be fair.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

The competent authority on this project was an emergency committee and the Executing Agency was the "Center for Management of the Project on Supply of Potable Water to Population of Mir Saiid Alii Khamadoni District" („The Center“). The Center continued drilling another 20 wells until the end of 2016 even after the completion of this project. The Center (Executing Agency), which fulfilled its role, was in the midst of being dissolved at the time of ex-post evaluation. Well drilling equipment owned by The Center was physically stored in a Vodokanal warehouse in Moskva Town, but it was not decided who would take ownership after The Center is dissolved.

After the completion of this project, Vodokanal will become responsible for the operation and maintenance of facilities, as planned. Khojagii Manziliyu-Kommunali (KMK, meaning housing service corporation) serves as the supervising body of Vodokanal nationwide.

Under the organizational structure shown in Figure 2, as of May 2017 Vodokanal is composed of 28 staff members, 23 of whom are technical experts. According to Vodokanal, it is mostly composed of staff with degrees or qualifications in related fields such as civil or electrical engineering, and it was not feeling insufficiency in terms of the number of staff.

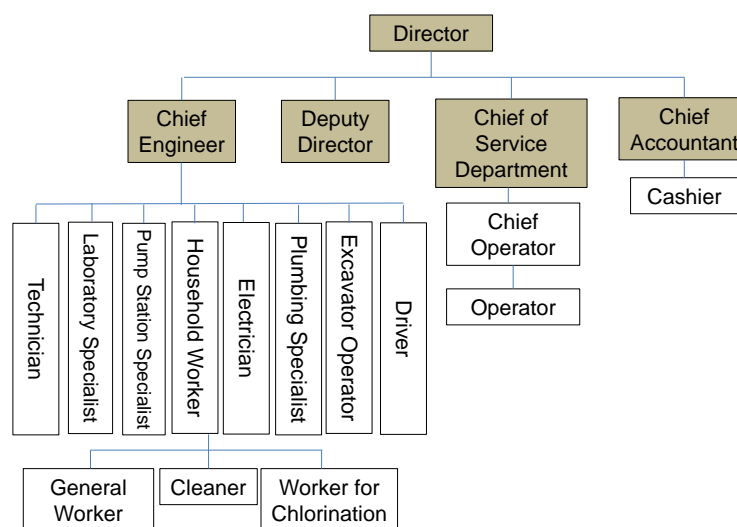


Figure 2 Organization Chart of Vodokanal in the Khamadoni District

Source: Information provided by Vodokanal

The organizational structure of Vodokanal has not changed much since the time of project planning. However, Vodokanal is aware of the urgency to secure the technicians required to operate and maintain facilities in the future since the average age of technicians is 51. Nevertheless, they are also aware that securing highly capable technicians in rural areas far from major cities is a formidable challenge.

In light of this situation, while there are no current issues in the O&M organizational structure or number of personnel, including technicians, some concern is felt over securing enough technicians in the future.

3.5.2 Technical Aspects of Operation and Maintenance

According to Vodokanal, although the technical knowledge and skill of staff has reached a certain level, there is no budget to install meters or upgrade dilapidated distribution pipes, nor do they have the equipment to do so. Because of this, they have been able to do little more than repair leaks. The pumping facilities in Moskva Town and Mekhanatabod Jamoat are equipped with technology designed to operate problem-free and in fact have not encountered any technical problems. However, given that no water meters are installed and residents leave faucets open, and that there are frequent water leakages, it cannot be said that water supply management is being carried out according to the O&M plan.

In addition to the soft component implemented in this project, technical cooperation was also provided through dispatch of two Short-Term Experts. In the experts' opinion, this has succeeded in improving the skills of Vodokanal technicians in areas such as data recording and management, welding equipment operation and maintenance, water quality testing, and

repair of leaking sections. There are also additional efforts being taken to further improve O&M capabilities, including the installation of water meters in some areas through a technical cooperation project underway since 2017. On the other hand, Vodokanal has no systematic training program in place, and besides training provided through JICA technical cooperation, the only training efforts are OJT (On-the-Job Training). It is essential to establish a structure of passing down technical expertise to future technicians amid the aging staff.

Based on the above, it is considered important to improve O&M skills through the technical cooperation project underway at the time of ex-post evaluation, and to put a system in place that improves capabilities toward future.

3.5.3 Financial Aspects of Operation and Maintenance

Vodokanal operates the water supply business under an independent financial system. Its income and expenditures of the past few years are shown in Table 7. Water charges account for the majority of revenue – for example, they were 97% of revenue in 2016 – but as shown, there are many years in which revenues have not been sufficient to cover expenditures, resulting in a loss for the financial year.

Table 7 Vodokanal Income and Expenditures

(Units: somoni)

	2013	2014	2015	2016
Income	385,889	526,788	588,317	658,593
Expenditures	489,889	540,843	561,629	708,443
(Of which, salaries comprise)	211,464	253,548	290,867	256,594
(Of which, O&M comprises)	25,800	14,635	0	72,398
Income	- 104,000	- 14,055	26,688	- 49,850

Source: 2013 and 2014 data obtained by Experts from "Training of Operation and Management skills on Water Supply System in Khamadoni District of Khatlon Region" (2013–2015). 2015 and 2016 data obtained from Vodokanal.

Vodokanal's income has increased greatly in recent years as the range of water supply has expanded from this project, but cost to provide water service has increased. While O&M expenditures are viewed as insufficient, due to the financially independent nature of the business, a situation has continued where Vodokanal cannot repair water pipes or make capital investments that would further extend losses.

Water rates per 1m³ have been set as follows: 0.83 somoni for regular households; 1.40 somoni for public organizations; and 2.40 somoni for private organizations. Nevertheless,

since no water meters have been installed, water customers are permitted to use unlimited water by paying 13.4 somoni per month (168 yen at the end of August 2017), which prevents Vodokanal from growing revenue through water charges. According to Vodokanal and experts, the bill collection rate of the company is almost 100%.

Therefore, the O&M financial situation is viewed as being structurally flawed in that water charges are set excessively low and there are no water meters installed, essentially meaning that the cost to provide water supply services per user gets increasingly more expensive relative to the fixed rate revenue from each user.

3.5.4 Current Status of Operation and Maintenance

In the site survey conducted by the local consultant, facilities and equipment put in place by this project were being used and generally found to be in good condition. However, repairing leaks in Moskva Town's existing water distribution pipes, which was outside the scope of this project, was not sufficiently done, which hindered the overall water supply to Moskva Town. Although an annual O&M plan was prepared and approved by KMK, much of the time is spent on repair, the budget is insufficient, and regular maintenance work is not being regularly performed. According to Vodokanal, spare parts were also not sufficiently purchased due to the lack of budget.

As for Mekhanatabod Jamoat, it was decided to use the existing well in this project as they were no water quality problems detected¹⁵ at the time of planning the project; however, upon drawing water from the well after the work was completed, the water drawn often came to have a strong saline taste—although not at levels considered a health risk. The Tajikistan government drilled another well to address this, however, the water quality was unsatisfactory and ultimately water ended up being supplied in this project using a pump-installed well. Nevertheless, water quality complaints from residents are frequently received (note that inspections have found that water quality is not at levels harmful to health).

No major issues were apparent in the O&M system. On the technical side, however, the issue was found that the training system was not established sufficiently. On the financial side, there were difficulties in making adequate repairs and capital investment mainly due to the inability to collect water charges based on amount of water used. As far as O&M, the facilities built through this project were for the most part in operation; however, maintenance activities as a whole

¹⁵ The Kenja Abdul well used in this project was built in 1985 but had not been used for many years. The two villages of Mekhanatabod Jamoat were receiving water supply services from a different well. Since the water distribution network was badly damaged, it was decided to test the water quality of the nearby Kenja Abdul well, and as no problems were found, the decision was made to utilize this well by installing a pump.

could not be considered satisfactory.

Based on the above, there are some problems in the technical, financial, and O&M aspects of the project. Therefore, the sustainability of the project effect generated is judged to be fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented primarily to construct water supply facilities and procure the equipment necessary to drill wells in order to fulfil the objective of improving the water supply coverage rate in Moskva Town and two villages in Mekhanatabod in Khamadoni District of Khatlon Province. This project was consistent with Tajikistan's development plans, sector plans and development needs at the time of planning and ex-post evaluation as well as with Japan's ODA policy at the time of planning. Therefore, the relevance of this project was high. Regarding the implementation aspect of the project, while the project outputs were largely in line with the plan, the project cost exceeded the plan and project period substantially exceeded the plan due to the influences of bid tendering failures, etc., resulting in the judgment that the project's efficiency was low. As for project effectiveness, while the operation indicators were apparently achieved, the water supply system could not be regarded as functioning sufficiently on the whole due to frequent occurrences of water leakages, releases of water taps at each house by the residents and so forth. With regard to impact, positive aspects were observed that the Executing Agency independently conducted geophysical exploration and constructed wells in accordance with the plan by using equipment procured through this project. Therefore, the effectiveness and impact of the project are fair. With regard to operation and maintenance, while no major issues were found in terms of the organizational and technical aspects, there were several issues in that (1) no training structure was established, (2) sufficient repairs and capital investment were financially difficult and (3) maintenance activities such as repairs were insufficient due to a lack of budget. Therefore, the sustainability of the project's effectiveness was judged to be fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Even after the project was implemented, water leakages frequently occurred in areas that were not covered by the project, placing a significant burden on Vodokanal's operation of the water supply system. It is therefore necessary to supply water to respective zones depending on the leakage conditions of each individual zone, and to take steps to improve the leakage situation by repairing leaks across the water distribution network on an ongoing basis. It is

also important to install water meters at each residence through the technical cooperation project currently underway, to establish a billing system based on amount of water use, and to improve the financial situation of Vodokanal. Furthermore, it is desirable to establish its own training system so that the improvement effects will be sustained.

4.2.2 Recommendations to JICA

The Executing Agency, Vodokanal, Project Consultant, and experts have unanimously stated that the major problem in operating the water supply system overall is the leakages in water distribution pipes in areas not covered by the project. In the water supply system, the water intake, water transmission, and water distribution all work together to supply water properly to users. This is why it is important to improve the distribution network of sections not covered by this project; install water meters at each residence as part of the improvement; and provide guidance through the technical cooperation project currently in progress in order to ensure smooth operation of the water supply operations achieved by implementing these actions. By doing this, we can expect to see improvements in the financial status and operational capabilities of Vodokanal.

4.3 Lessons Learned

A project plan with a big-picture view of the entire water supply system

In Moskva Town, covered by the scope of this project, leakages frequently occurred from several sections of dilapidated water distribution pipe that was not replaced (areas not covered in the project), resulting in a situation whereby water could not be adequately supplied with the water pipes newly constructed or upgraded in this project. This is considered a major factor behind the project not achieving its intended effect. Furthermore, as a result of not installing water meters, there is no way to assess the percentage of leaked water or non-revenue water. This seems to be a factor in both residents' continuous opening of faucets and the difficulty in effectively formulating and carrying out a business plan. In order to improve the management of the water supply business, it is desirable to plan an integrated project or program that encompasses not only the construction work that allows the water supply system to function as a whole—including repairs and updates of existing water distribution pipe and installation of water meters at residences—as these are essential elements in improving the prerequisite hard component, but also the implementation of soft components such as spreading awareness among residents on how to properly use the water.

(End)