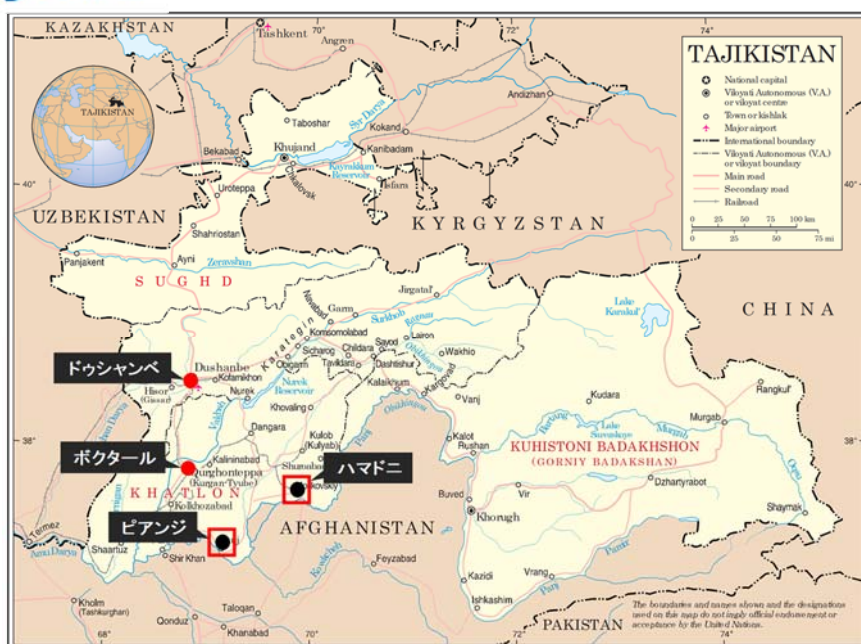


# The Project for Strengthening the Water Service Management of Pyanj and Khamadoni Vodokanals in the Republic of Tajikistan

July 2021



## 1. Project Background and Issues

In National Development Strategy (2007-2015), the government of Tajikistan identified improvement of the water supply as one of the country's priority issues, and established the goal of providing access to improved water resources to 97% of the urban population and 74% of the rural population by 2015. Unfortunately, only 93.1% of the urban population and 66.7% of the rural population had such access as of 2015.

Only 47% of the roughly 3 million people who live in the Khatlon Region—the target area of the Project that is located in the southwest part of Tajikistan—have

access to safe water, a figure that is substantially lower than the national level. Japan has provided support in the drinking water supply sector for the Khatlon Region's Khamadoni and Pyanj Districts, where the stability of people's lives is critical due to the districts' location on the nation's border with Afghanistan.

Khamadoni district: For Moscow town and 2 villages, deep wells (water resource), elevated tanks, distribution pipeline, private taps, public taps and disinfection facilities have been constructed by Japan Grant Aid Project (the "Khamadoni Grant Aid Project": Phase 1: 2008-2010, Phase 2: 2011-2013), and

“Technical Guidance by Experts for Operation and Maintenance of the Water Supply System in the Khamadoni District of the Khatlon Region,” a technical cooperation lasting from 2013 to 2015 for Khamadoni District Vodokanal (“Khamadoni VK”), the public water utility that operates and maintains the water supply facilities constructed under the Khamadoni Grant Aid Project.

Pyanj district: For Pyanj town and 6 villages where Pyanj Vodokanal (Pyanj VK) is managing, deep wells, elevated tanks, distribution pipeline, private taps with water meter and disinfection facilities have been constructed by “Project for the Improvement of the Water Supply in the Pyanj District of the Khatlon Region” (the “Pyanj Grant Aid Project”: Phase 1 and 2: 2014 - 2016). It is worth noting that the Pyanj Grant Aid Project won the 2016 Group II Outstanding Civil Engineering Achievement Award, which is presented by the Japan Society of Civil Engineers to innovative projects that contribute substantially to the development of civil engineering technology and society.

This support from Japan has dramatically improved the water supply facilities of the Khamadoni and Pyanj Districts. In addition, under the Pyanj Grant Aid Project, water meters were installed in the households of all customers in the town of Pyanj, and a transition was made from a fixed-rate system (in which water fees are calculated by multiplying the number of people in each family by a presumptive rate of water usage) to a metered-rate system (in which water fees are tied to the rate of water usage) advocated by the government of Tajikistan. However, metered-rate systems have only been adopted by water utilities in the major cities of Tajikistan; additional support is required to ensure that small and medium-sized VK in rural areas, such as Pyanj VK, are able to employ metered-rate systems.

In contrast, although the dispatch of experts has helped Khamadoni VK improve its capacity to operate

and maintain water supply facilities, the utility has not yet progressed to the introduction of a metered-rate system. In addition, during the summer, when demand for water is high, residents’ excessive use of water has resulted in insufficient flow and water shortages in high-elevation areas and areas located in the end of the network of distribution pipes. Therefore, there is a need to introduce a metered-rate system and educate people about water use in an effort to increase residents’ awareness of water conservation, reduce the overuse of water and improve water supply services.

Furthermore, Pyanj VK and Khamadoni VK have no medium- and long-term plans for providing stable and sustainable water supply services, and there are still capacity and financial issues to be addressed in order to respond independently to the maintenance and expansion of water supply facilities.

## **2. Approaches to Problem Resolution**

### **(1) Details, Inputs and Implementation System of Cooperation**

The implementing agencies of the Project in Tajikistan are Khojagii Manziliyu-Kommunali (KMK)(KMK is managing public water utilities in the country), Pyanj VK and Khamadoni VK. Under the KMK, there are regional VKs responsible for water supply and sewerage services in each province. There are 17 regional VKs under the KMK Khatlon Office in Khatlon Region, which is the target area of the Project, and the Project aimed to strengthen the operational capacity of water supply projects in Pyanj VK and Khamadoni VK.

The Project framework is as follows:

### Overall Goal

To improve water supply services in the districts served by Pyanj VK and Khamadoni VK by continuing the metered-rate system.

### Project Goal

To enhance the water supply system operation capacity of Pyanj VK and Khamadoni VK.

### Outcomes

1. Organize data required for VK water supply system operation.
2. Enhance the water service management capacity of key people in VK management.
3. For Pyanj VK: Ensure that the metered-rate system takes hold.
4. For Khamadoni VK: Introduce a metered-rate system for some customers.
5. Properly operate and maintain water supply facilities.

Project inputs from Japanese experts included Chief Adviser/Water Service Management, Customer Relations (fee collection, customer data management, complaint processing, VK finance management, accounting data management, etc.), Design & Supervision of Service Pipe Installation (design, construction supervision, etc. for the installation of individual household meters and flow meters), and Operation and Maintenance (improvement of water supply facility operation and maintenance).

Project counterparts on the Tajikistan side include the KMK Director General, management personnel from KMK headquarters, the Acting Manager of the KMK Khatlon Office as the coordinator of Japanese experts, and the managers and staff members of Pyanj VK and Khamadoni VK, where the main activities will take place. Two government agencies are participating in the Project as other Project-related organizations: the Tajikistan State Agency on Antimonopoly Policy, which reviews and determines water fees in Tajikistan, and the Agency on Standardization, Metrology, Certification, and Trade Inspection, which inspects

individual household meters.

The target area of the Project (Pyanj and Khamadoni) is close of the border with Afghanistan, therefore the area is classified designated area where Japanese avoid the travel due to security. Therefore, entry into the area by Japanese people is severely restricted; Japanese experts cannot stay or work at the target sites.

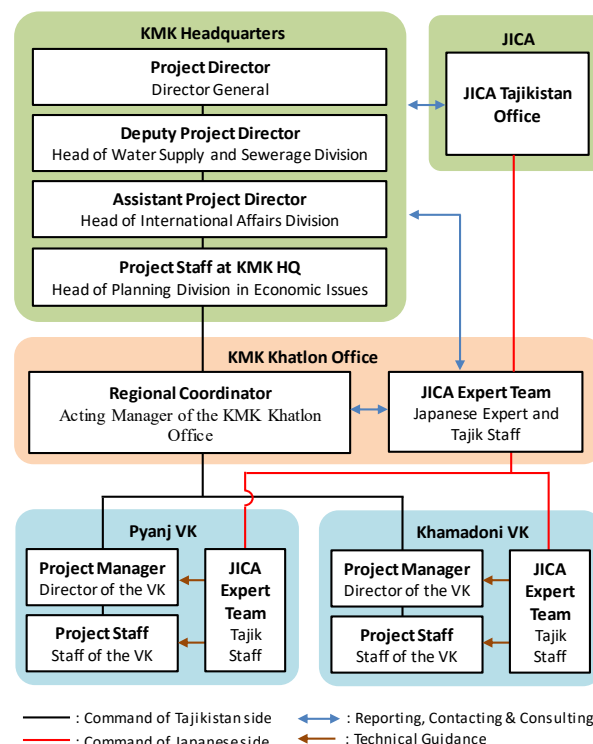


Figure 1: Project Implementation System

In light of these circumstances, a system has been contrived such that local consultants were commissioned as local staff members of the Japanese experts and dispatched to Pyanj VK and Khamadoni VK (one engineer and one operations expert to each VK) to work. Meanwhile, the Japanese experts have established a base at the KMK Khatlon Office in the city of Bokhtar, which is located roughly equidistant from the capital city of Dushanbe and the Pyanj and Khamadoni Districts. From that office, the Japanese experts provided remote instructions to local staff members onsite at each VK.

Furthermore, after the global outbreak of the new coronavirus infection (COVID-19), the Japanese experts stayed in Japan and kept the implementation system as shown in Figure 1, while keeping close

communication with the local community through video conferencing systems and SNS.

## **(2) Descriptions of Activities**

### **1) Activities related to Outcome 1 (Organize data required for VK water supply system operation)**

The Project will enhance the operation and maintenance of water supply facilities, meter readings and fee collection under the metered-rate system, and management of accounting and other data at Pyanj VK and Khamadoni VK. The Project will also organize monthly water production rates, aggregated water demand, non-revenue water percentages and other data required for managing water services. In addition, the Project will strive to streamline operations and make accounting documents more transparent by proceeding with the digitization (database creation) of operation and maintenance ledgers, customer management ledgers and other handwritten records.

### **2) Activities related to Outcome 2 (Enhance the water service management capacity of key people in VK management)**

In order to deepen the understanding of Tajikistan's counterparts on the management principles of water services in general, the importance of business management from a medium- and long-term perspective, capital investment and securing funds for sustainable management, and the importance of customer relations, public relations, etc., two training courses in Japan are planned for executives of organizations related to water services in Tajikistan. After the completion of the training, a follow-up workshop is planned for the training participants to discuss measures to improve water services in Tajikistan, and activities are carried out to achieve these measures.

As an urgent support to the COVID-19 measures

implemented by KMK, the Project manages the delivery of the high test bleaching powder procured by the JICA Tajikistan office and manages the distribution of the powder to VKs throughout the country.

### **3) Activities related to Outcome 3 (For Pyanj VK: Ensure that the metered-rate system takes hold)**

Pyanj VK, which has already made the transition from flat-rate to metered tariffs, is monitored for meter reading and tariff collection, and additional training is planned to ensure that the metered tariff system is firmly established. Pyanj VK also introduce metered tariffs to new customers who will benefit from the expansion of its water supply area.

### **4) Activities related to Outcome 4 (For Khamadoni VK: Introduce a metered-rate system for some customers)**

In Khamadoni VK, the metering system is planned to apply to the customers (about 3,000 households) who will install individual meters during the Project period, and the training is planned on meter reading/rate collection services.

### **5) Activities related to Outcome 5 (Properly operate and maintain water supply facilities)**

To ensure that the water supply facilities in Pyanj VK and Khamadoni VK are properly operated and maintained to provide a stable and safe supply of drinking water, training is provided to the technical staff of both VKs. Specifically, training on the proper operation and management of well pumps and disinfection equipment (bleaching powder dissolution and injection equipment) is planned.

### **6) Other Activities**

#### **(i) Regular meetings**

Quarterly project meetings, semi-annual joint



monitoring meetings and other regular meetings are held under the Project to confirm the progress of the Project, upcoming plans and other matters. In addition, once every six months, a joint coordinating committee that comprises managers from the Japan side and the Tajikistan side meets to make decisions about Project implementation in light of the discussions at the regular meetings.

#### (ii) Workshops

Workshops to diffuse Project outcomes through information sharing and activities are held roughly once per year under the Project. Envisioned participants in these workshops include management personnel at KMK and VK throughout Tajikistan, and key people from international organizations, donor countries and NGOs active in Tajikistan.

### 3. Results of Applying these Approaches

#### (1) Activities Related to Outcome 1

● In Pyanj VK and Khamadoni VK, a system has been established whereby data on the operating hours of the well pumps, the volume of water distributed, the level of the elevated water tank and the concentration of residual chlorine in the water supply are measured by the operators of the water supply facilities and recorded in the operation and maintenance ledgers (handwritten). The Chief Engineer in charge of the technical department is now responsible for compiling and compiling a database of the above operation and maintenance records.

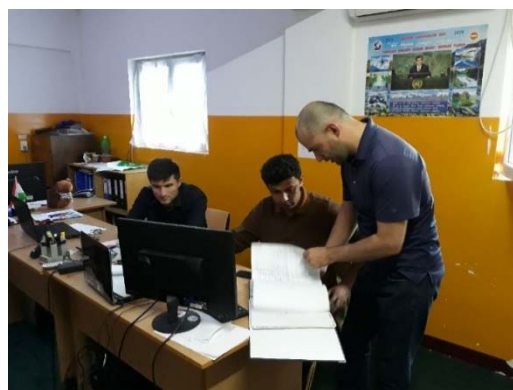


Picture 1: Instruction on methods of recording and data in operation and maintenance ledgers (Pyanj VK)



Picture 2: Instructions on data management of water distribution (Khamadoni VK)

● By the customer management software developed in the Project, the customer data in the customer management ledger (handwritten) carried by the meter reader/collector can be converted into a database by PC operator, so that the amount of water used, the amount of bills, the amount collected and the amount outstanding for each month can be automatically calculated.



Picture 3: Instruction a PC operator on data management (Pyanj VK)

●For the management of the accounting data of Pyanj VK and Khamadoni VK, accounting software (1C) in accordance with international accounting standards has been introduced, which enables the preparation of quarterly financial statements.



Picture 4: Instruction on accounting software (Pyanj VK)

## (2) Activities Related to Outcome 2

The first training in Japan was held for 10 days from late March to early April 2018, and the second training was held for 10 days from late October to early November 2019. In addition to the General Director of KMK, Deputy General Director and senior officials of KMK, the Director of Pyanj VK and Khamadoni VK, management personnel of the State Agency on Anti-Monopoly and the Agency on Standardization, Metrology, Certification and Trade Inspection, as related water service organization in Tajikistan participated in the training.

In the training, with the cooperation of the Yokohama City Waterworks Bureau and the Japan Water Works Association, lectures on setting appropriate water rates, the importance of customer relations and public relations, and the verification of individual meters, as well as facility tours and practical training were included, with the theme of "sound waterworks business management".



Picture 5: A lecture on sound water service management



Picture 6: Practical training on water meter inspection

After the trainees returned to Tajikistan, Pyanj VK and Khamadoni VK held water supply classes at primary schools and nursing schools in the town. In these classes, the VKs explained the work of VK, how water reaches each household, and how to disinfect the water supply to ensure safety. In addition, by holding tours of the water supply facilities owned by each VK, they had the opportunity to interact with customers and promote their understanding of the water services.



Picture 7: Water class by Pyanj VK

Furthermore, the Project also provided emergency support for COVID-19 by procuring 300 tons of high

test bleaching powder, managing its delivery and managing its distribution to all VKs under KMK in the country. This support has enabled many of the country's citizens to access safe, chlorinated water as the COVID-19 outbreak spreads in Tajikistan.



Picture 8: Delivery of high test bleaching powder to KMK's warehouse



Picture 9: Handing over ceremony for high test bleaching powder

### (3) Activities Related to Outcome 3

In Pyanj, about 4,800 households had been metered by the Pyanj Grant Aid Project. Since then, the VK has expanded its water supply area and installed water meters in about 1,000 new households and introduced metered rate system.

In the Project, additional instruction (classroom and on-the-job training) for the meter reader/collector had been provided. As a result, mistakes in the daily meter reading and fee collection operations were almost completely eliminated and the operations could be carried out smoothly. In addition, the introduction of the aforementioned customer management software has created a database of customers, which has

eliminated calculation errors in the calculation of fees, etc., and has enabled to obtain the accurate data necessary for waterworks management.



Picture 10: Instruction on customer database (Pyanj VK)

### (4) Activities Related to Outcome 4

The Khamadoni VK water supply area, Moscow town, has been extended by the Khamadoni Grant Aid Project to surround the outside of the existing water supply area built in the former Soviet Union. This new water supply area had been a major problem in the summer season, when some areas suffered from poor water supply and water failure.

The reason is that there are many households in the town who have large home vegetable gardens and who use the tap water for irrigation during the summer. As a result, the amount of water distributed per day was three times higher than planned (this amount of water could be distributed due to the use of old existing wells in addition to the new wells), and it was found that the amount of water distributed far exceeded the capacity of the distribution pipes, causing a decrease in water pressure at the end of the distribution network.

In the Project, water meters were installed to 1,625 households in the new water supply area extended by the Khamadoni Grant Aid Project, and water tariff system was switched to metered rate system. As a result, water wastage, which had been caused by residents leaving their taps open, was greatly reduced, supply water pressure increased (up to the second floor of apartment blocks could be supplied under direct



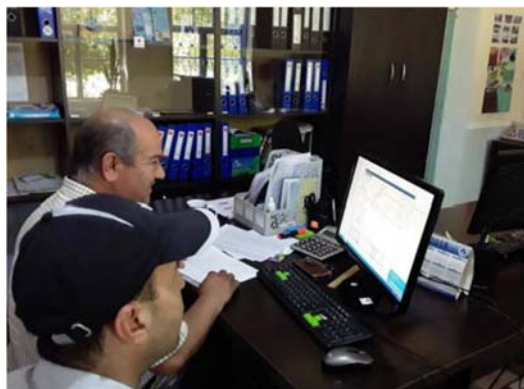
pressure), and poor water supply and water failure in the Moscow town were resolved. In addition, the water supply area that introduced the metered rate system improved the water supply service significantly, as from a timed water supply (10-12 hours per day) to a 24-hour water supply.



Picture 11: Water supply conditions after installation of water meters

In the village of Mehnatobod, another water supply area of Khamadoni VK developed by the Khamadoni Grant Aid Project, water supply pressure was poor and water failure during the summer season for the same reasons as in Moscow town. In the Project, water meters were installed for 700 households in the village and switched to metered rate system. As a result, the water supply situation in the village has been greatly improved too.

When introducing the metered rate system, Khamadoni VK, like Pyanj VK mentioned above, customer database has been built using a customer management software, Khamadoni VK can be obtaining the accurate data needed for waterworks.



Picture 12: Instruction on customer database (Khamadoni VK)

## (5) Activities Related to Outcome 5

In Pyanj VK and Khamadoni VK, instruction on the operation and maintenance of water supply facilities was provided. Specifically, how to operate and manage each facility, such as well pumps and disinfection equipment (bleaching powder dissolution and injection equipment), as well as on how to read various meters, measure the residual chlorine concentration in the water supply, and maintain the equipment were provided to VKs.

In addition, as the operation management of the water supply system as a whole, instruction on the operation management based on the "PDCA cycle", which is to make a daily operation plan based on the data such as the amount of water distributed, the level of water in the elevated water tank, and the residual chlorine concentration in the water supply, which are measured every day at regular intervals, and to operate the facility based on the plan, were provided. By this operational control method, a stable supply of safe water, as the previous day's data is fed back into the daily produced water volume (well operating hours), and the injection rate of the chlorine injection pump, is being ensured.

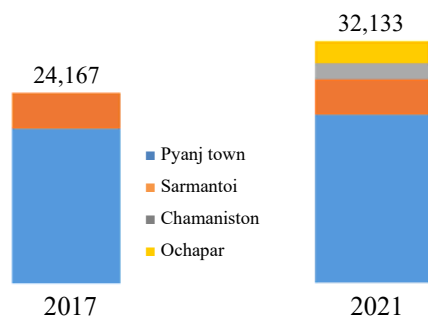


## (6) Quantitative assessment of outcomes

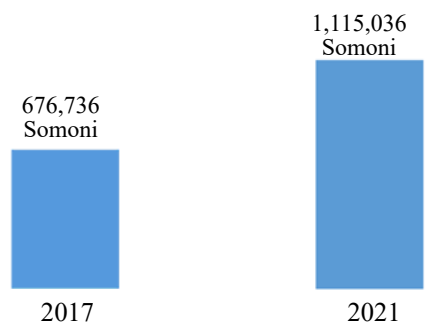
A comparison of the outcome achieved through the activities of this project at the beginning (2017) and the end (2021) of the Project is shown below.

### ● Pyanj VK

#### < Water Supplied Population >

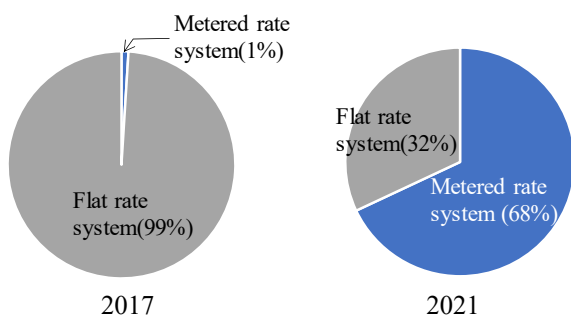


#### < Revenue >



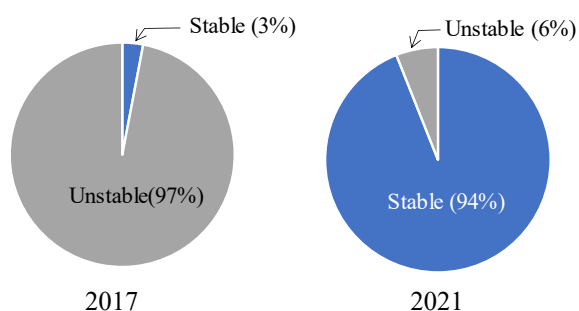
### ● Khamadoni VK

#### < Rate of introduction of metered rate system >

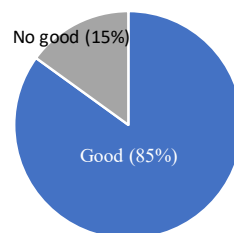


#### < Water Supply Service >

##### • Stability



##### • Water Quality

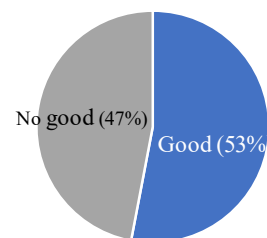


2017



2021

##### • Water Pressure

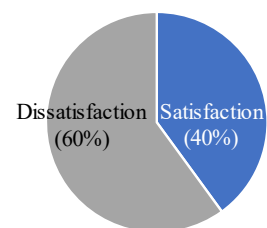


2017



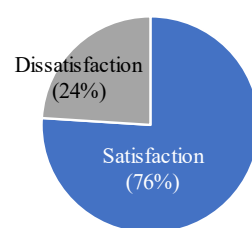
2021

##### • Water Supply Hours



Average 10.0 hours

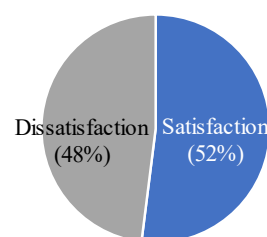
2017



Average 18.3 hours

2021

##### • Customer satisfaction

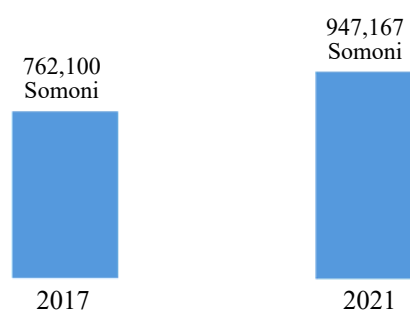


2017



2021

#### < Revenue >



## (7) Other Activities

### (i) Regular meetings

In the Project, regular meetings with relevant personnel were held to discuss the progress of the Project, upcoming plans and other matters. In addition, a joint coordinating committee that comprises managers from the Japan side and the Tajikistan side had met to make decisions about Project implementation after discussing problems that arise in Project implementation, envisioned risks of upcoming activities and other matters.



Picture 13: Joint Coordinating Committee

### (ii) Workshops

A workshop on Capacity Development (CD) was held in late September and early October 2018 in Pyanj VK and Khamadoni VK. The workshop covered the Vision that each VK should take as a water utility, and the knowledge and skills required of each staff member to achieve the Vision.

In order to share the results of the Project with VKs and other donors across the country, a final workshop was held on 19 May 2021. At the workshop, the directors of Pyanj VK and Khamadoni VK presented the activities and achievements of the Project. The Japanese experts made presentations focusing on the results and good practices achieved in the Project. The Japanese expert presented a comparison of before and after the introduction of the metered rate tariff system in Khamadoni VK, highlighting the benefits of moving from a flat rate system to a metered rate system, such

as reduced water wastage and improved water supply conditions.



Picture 14: Workshop on CD

### (iii) Handwashing Campaign

In the Project, following the COVID-19 epidemic, the JICA-promoted "Handwashing for Health and Life" campaign was implemented in Pyanj district. The campaign targeted 1,700 school children from four primary schools in the district, and a total of 2,000 participants including administrative organizations such as Pyanj District Office, Town and Village Councils, District Education Board, and students from the District Hospital and Nursing School.



Picture 15: Handwashing Campaign

During the Handwashing Campaign, a pamphlet on proper handwashing, translated into Tajik, was used, and students from a nursing school taught hand washing. The campaign was covered by the national TV station and broadcasted on the national network. The video was also uploaded on JICA's YouTube channel.

<https://www.youtube.com/watch?v=edGeXrECZ7Q&t>

## **4. Creative Solutions and Lessons in Project Implementation**

### **(1) Transformation of water utilities into a positive cycle**

In Khamadoni VK, a new water supply facility was constructed under the Khamadoni Grant Aid Project and was put into service in 2013. However, at the beginning of the Project, many residents visited the VK office to complain about poor water pressure and water failure during the summer. The relationship between VK and the residents was not good, as the residents were not happy with the fixed monthly fee despite the poor water supply.

The Project tried to move from a flat rate system to a metered rate system as a method of improving water supply services in Khamadoni VK. As a result, residents' behavior change occurred, and residents who had previously left their taps open began to close them appropriately, which reduced a large amount of wastage of water. In addition, the reduction of wastage water has increased the water supply pressure in the entire water supply area, which has solved the problems of poor water pressure and water failure. Furthermore, the introduction of a metered rate system and 24-hour water supply has further improved the water supply service and gained the confidence of the population in VK's water supply service.

As a result of the above improvements in water supply services in Khamadoni VK, the water consumption of the residents has also increased. This increase in water consumption has benefited from the metered rate system, which charges according to the amount of water used, and has increased the VK's revenue from tariffs compared to the fixed rate system. The reduction of wastage water has also resulted in a reduction in the amount of water distribution throughout the water supply system, creating more production capacity in the water sources (wells) and more capacity in the distribution pipes to flow water.

This surplus capacity facilitates the operation and management of the water supply facilities and improves the water supply service. In the future, this surplus capacity could be used to extend the water supply area to adjacent areas.

As mentioned above, the introduction of the metered rate system in Khamadoni VK has improved water supply services and restored the trust between the water utility and its customers, which is a necessary condition for running a water supply business. The improvement of water supply services has also improved customers' willingness to pay for water charge, and tariff revenues have increased in line with the increase in water consumption. In addition, we expect to use the surplus capacity of our water sources to expand our water supply area, which will improve financial situation of VK by gaining new customers and increasing the revenue of VK.

In this way, the Project has been able to lead Khamadoni VK into a "positive cycle" of improving and developing the management of its water services, which had been in a difficult situation. Many other VKs in the country are also facing the same difficulties as Khamadoni VK before the implementation of the Project, and it is hoped that these VKs will also use the experience and knowledge gained from Khamadoni VK to turn their water services into Positive Cycle.

### **(2) Models of VK's water utilities in the country**

In Pyanj VK, a new water supply facility was built under the Pyanj Grant Aid Project, and put into service in 2016. The VK continues to operate and maintain the water supply facilities and manage the data based on the manual developed during the Pyanj Grant Aid Project. Regarding the operation management, the PDCA cycle has been continued, in which the operation management plan for the day is formulated on the basis of the measurement data of the bulk flow meter reading, the water level of the elevated tank and the residual



chlorine concentration in the water supply, which are measured every day at the regular time (8 am), and fed back to the daily operation management.

Such strict operational control has ensured that the water has been supplied 24 hours a day, 7 days a week, for almost five years since the start of service. In addition, the concentration of residual chlorine in the water supply is strictly controlled, so that it is safe to drink the water directly from the tap. Furthermore, customer satisfaction with Pyanj VK's water supply service is very high, and there has never been a complaint from a customer during the Project. Thus, Pyanj VK's methods of operation and maintenance of its water supply facilities and the level of its water supply services are a model for other VKs in the country.

In the beginning of the Project, all data required for the water utilities in Pyanj VK was managed by handwritten ledgers and forms, which was far from data management. However, the operation and maintenance data of the water supply facilities, customer management data and financial management data are now all electronic and stored in a database, which has dramatically improved the efficiency and accuracy of data management. In addition, the director and managers of the VK are using these data as information for management decisions.

The management of customer data for tariff collection is very important for water utilities. In the Project, customer management software has been developed and installed in Pyanj VK and Khamadoni VK. The software not only automatically calculates and compiles billed water volume and water rates by entering meter readings, but also complies with various rules related to the collection of water rates in Tajikistan, such as exemptions for the socially vulnerable, and is versatile enough to be used in other VKs in the country. It is expected that the know-how on strengthening data management capacity and the various software

developed through the activities of the Project will be disseminated to other VKs in the country and contribute to the improvement of their management.

The metered rate system in Pyanj VK was introduced during the Pyanj Grant Aid Project and has been in operation for about five years. The VK has established a system to train newly hired meter readers and collectors through classroom and on-the-job training by VK staff, using manuals and teaching materials developed under the Project. In addition, Pyanj VK has a wealth of knowledge and experience in metered rate system and could be a trainer for future metered rate system introduction in VK in the country.

During the implementation of the Project, Pyanj VK has developed a plan for the expansion of the water supply area, and based on the plan, villages adjacent to the existing water supply area have been included in the new water supply area, increasing the number of customers by about 33% compared to the beginning of the Project. The financial situation has also been improved with an increase in revenue of about 65%. In addition, the improved financial situation has enabled Pyanj VK to increase the salaries of its staff, which is one of the reasons why they remain highly motivated in their work. In other activities, Pyanj VK has been practicing activities to strengthen its relationship with the customers, such as holding "waterworks classes" related to the supply of safe water and "hand washing for health and life campaign" at elementary schools in the district in relation to the prevention of COVID-19 infection. The knowledge and experience of Pyanj VK in the management of water services is expected to be disseminated to other VKs in the country as a model for water utilities.

### **(3) Lessons from the introduction of metered rate system**

At the beginning of the Project, it was expected that there would be strong opposition from the local

population to the transition from a flat rate system with unlimited water use to a metered rate system with charges based on the amount of water used. In the Project, a new water supply area in Moscow Town and customers in the village of Mehnatobod, which was extended by Khamadoni Grant Aid Project, were installed with a water meter for each house and shifted to a metered rate system. In the selection of these areas, JICA Expert Team selected those with poor water supply conditions, where poor water supply and water failure had occurred, and held information meetings in these areas to promote understanding of the metered rate system. At the explanatory meeting, it was explained to the residents that there are no water supply problems or water failure in Pyanj VK, which is a precedent of the metered rate system, that the water supply is 24 hours a day, and that after the transition to the metered rate system, about half of the residents paid less for water than they were paying under the fixed rate system, and the introduction of the metered rate system was accepted. The reason why the residents accepted, they had been hoping to improve the water supply situation strongly.

In the Project, after the introduction of metered rate system in the above two districts, the residents (130 households) of these districts were interviewed. The results showed that none of the respondents opposed to the introduction of metered rate system. On the other hand, about 80% of the respondents gave reasons for accepting the metered rate system, such as the improvement of water supply services (stability of water supply, improvement of water quality and water pressure, 24-hour water supply, etc.). The remaining 20% said that metered rate system's main function was to allow them to pay according to their consumption. According to the results of this survey, it seems that residents are aware that they are paying for the quality and quantity of water services, and that a metered rate system would be easier to introduce in areas with poor water supply conditions.

#### (4) Approach to the SDGs

Project activities were carried out with attention paid to Target 6.1 and 6.4 of Sustainable Development Goals (SDGs) as well as coherence with the development goals of the Tajikistan side.

Table 1: SDG Targets

Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all	
Direct Contributions of the Project to SDGs	
(1) Improved access	<ul style="list-style-type: none"> <li>• Provide water supply services to individual households to shorten the time required to draw water.</li> </ul>
(2) Improved availability	<ul style="list-style-type: none"> <li>• Achieve a 24-hour water supply to ensure that water is available when people need it.</li> </ul>
(3) Improved water quality	<ul style="list-style-type: none"> <li>• Maintain an appropriate residual chlorine concentration in the water supply to ensure the safety of the water supply.</li> </ul>
Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity.	
(1) Improved water-use efficiency	<ul style="list-style-type: none"> <li>• Improve residents' awareness of water saving through educational activities.</li> <li>• The installation of water meter in each house will reduce wastage water and improve water use efficiency.</li> </ul>
(2) Sustainable water intake.	<ul style="list-style-type: none"> <li>• Reduce the amount of water distribution through instruction on repairing water leakages to enable sustainable intake of water resources.</li> </ul>

In the Project, activities that contributed to the achievement of Target 6.1 (1) to (3) and Target 6.4 (1) to (2) in the table above were carried out, and the results were shared with international organizations, donor countries and NGOs at the final workshop.

(Project implementation period : April 2017 – June 2021)

References :

“Detail Planning Survey Report for the Project for Strengthening the Water Service Management Capacity of Pyanj and Khamadoni Vodokanals in the Republic of Tajikistan” (Japan International Cooperation Agency, 2017)