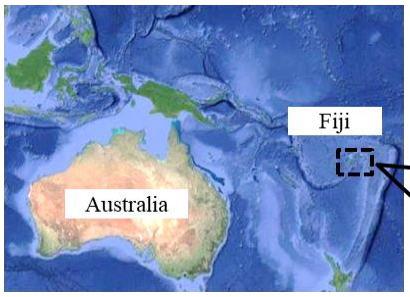
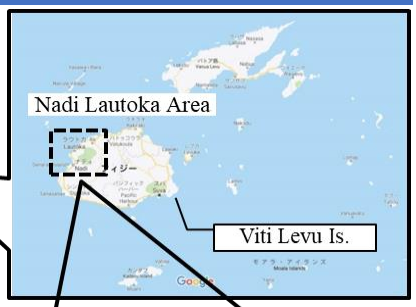
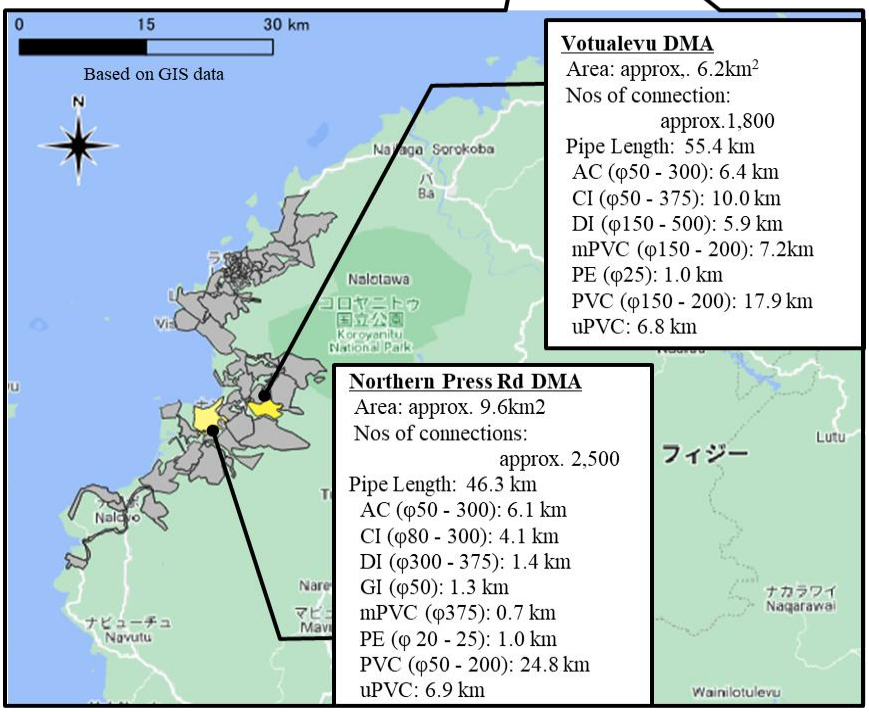
JICA PROJECT BRIEF NOTE

THE PROJECT FOR CAPACITY DEVELOPMENT OF NON-REVENUE WATER REDUCTION IN NADI AND LAUTOKA AREA

April 2024







Reference: Google Map

1. Outline of the Project

(1) Project Background and Issues

The Western Division of the Republic of Fiji (hereinafter referred to as "Fiji"), which includes Nadi and Lautoka (the second and third largest cities of Fiji, respectively), as well as the Nadi International Airport, is an important location for tourism and industries such as sugar and manufacturing. However, the water supply system has not kept pace with population and tourist growth. Fiji's National Development Plan (2017-2036) states the need to develop water sources and facilities to meet the increasing demand for water in Nadi Lautoka area.

Up to now, the Japanese side has implemented the following projects for the water supply sector in the Western Region, including Nadi-Lautoka Regional Water Supply Project (1998-2004: Yen-loan projects), Project to Support Reducing Unaccounted Water Through Effective Control on Nadi/ Lautoka Regional Supply in Fiji (2014-2017) by Fukuoka City Waterworks Bureau, Project for Strengthening Water Supply Services in Nadi Lautoka District (2018-2022)" by Fukuoka City Waterworks Bureau.

The above projects contributed to increasing the daily water supply volume in Nadi Lautoka area from 51,000 m^3 (1998) to 103,000 m^3 (2004), while leakages were reduced by 24,000 m^3 between 2014 and 2018.

Meanwhile, the Nadi/Lautoka Regional Water Supply

Scheme Master Plan 2013-2033 ("NLWMP33"), a water supply master plan for Nadi Lautoka area developed by Fiji Water Authority (hereinafter referred to as "WAF"), predicts that water demand in the area will be 142,000 m^3 in 2033, compared to an average daily demand of 96,000 m^3 in 2013, far exceeding the 103,000 m^3 treatment capacity that was extended through the Yen-loan project. Therefore, there is a need for further development of water sources as well as the expansion of water supply facilities, including water treatment plants, to meet the growing demand.

However, due to the financial impact of the COVID-19 pandemic, WAF sees that the possibility of implementing substantial water source development or expansion of water treatment plants within the next 5 to 10 years is low, and additional water volume must be secured through non-revenue water reduction measures such as reducing leakages. The JICA Partnership Program has significantly reduced the non-revenue water rate from 54.5% to 26.7% in the pilot sites in Nadi Lautoka area, through various activities such as raising water conservation awareness among residents (including reduction of water leakage in their houses), regulating distribution network pressure, and improving water meter malfunctions. However, in Nadi Lautoka area as a whole, the non-revenue water ratio still remains high (48% in the 1st quarter of the fiscal year 2021-2022 and 46% in the 4th quarter of the fiscal year 2022-2023). Therefore, to improve this situation, it is necessary for WAF to disseminate what worked well in the pilot areas for non-revenue water reduction to apply in other areas, making use of trainers and engineers trained through the JICA Partnership Program.

While the WAF appears to have a surplus in its cash flow thanks to government subsidies that are approximately five times the amount collected in water and sewerage tariffs, the balance of payments turns into a deficit when depreciation is taken into account. Therefore, also from a financial standpoint, it is crucial to increase revenues by reducing non-revenue water.

With this background, the Fiji Government requested that Japan undertake a technical cooperation project on capacity building for non-revenue water control at WAF with the aim of reducing the non-revenue water rate in the entire Nadi Lautoka area. As a result, the project is set to commence in May 2023.

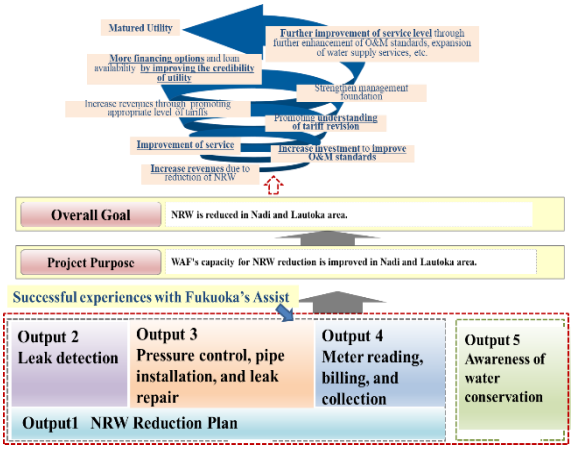


Figure 1 Project activities and Objectives

(2) Objectives and Expected Outputs of the Project

The objectives and expected outputs of the project are as follows:

【Overall Goal】

Non-revenue water (NRW) is reduced in Nadi and Lautoka Area

【Project Purpose】

WAF's capacity for NRW reduction is improved in Nadi an Lautoka Area

【Expected Output】

Output 1: An effective and feasible non-revenue water reduction plan is developed in Nadi and Lautoka area.

Output 2: Leak detection capacity in Nadi and Lautoka area is enhanced.

Output 3: Capacity for water distribution pressure control, pipe installation, and leak repair in Nadi and Lautoka area is enhanced.

Output 4: Capacity for meter reading, billing, and collection in Nadi and Lautoka area is enhanced.

Output 5: Awareness of water conservation among all customers in Nadi and Lautoka area is increased.

The project will last for two phases: phase 1 (May 2023 - April 2024) and phase 2 (May 2024 - July 2026).

2. Problem Resolution Approach

(1) Project Implementation Organization

The JICA Expert Team consists of a long-term expert serving as the chief advisor deployed throughout the project duration, short-term experts dispatched from Fukuoka Waterworks Bureau and a consultant team. The long-term expert also has experience working in local governments in Japan, enabling the utilization of both the expertise in water utility operation and maintenance and the knowledge provided by the consultants.

The work of the chief advisor is mainly water distribution management and GIS in Output 1, while the work of the short-term experts is to assess the capacity level of WAFs in Output 2 (leak detection) and Output 3 (water distribution pressure control, pipe installation, and leak repair), conduct training, and provide some technical guidance to WAFs on non-revenue water management in the target District Metered Areas (hereinafter referred to as "DMA"s). Building upon past JICA Partnership Program experiences and lessons learned, the primary objective is to address physical losses. Specific tasks will be determined based on the progress of the project activities. Additionally, the consultant team collaborates with both the long-term and short-term experts to handle activities from Output 1 to 5.

The chief advisor's tasks include the activities related to distribution management and GIS under the Output 1. The ones for the short-term experts from the Fukuoka Waterworks Bureau are evaluating the present capacity level as well as implementing their trainings, and technical advisory on NRW management within the pilot DMAs under the Output 2 and 3. The ones for the consultant team include all activities related to the project, having a good communication with the long-term expert and the short-term experts from the Fukuoka Waterworks Bureau, in order to maintain the right direction and management of the project.

The counterparts on the Fiji side (hereinafter referred to as "C/P") are MIMS and WAF; the C/P will be mainly staff from WAF Western Division but will work closely with WAF HQ officials on matters related to WAF as a whole, such as the direction of the 'growing water utility', to develop a common understanding.

(2) Establishment of JCC

The Joint Coordinating Committee (hereinafter

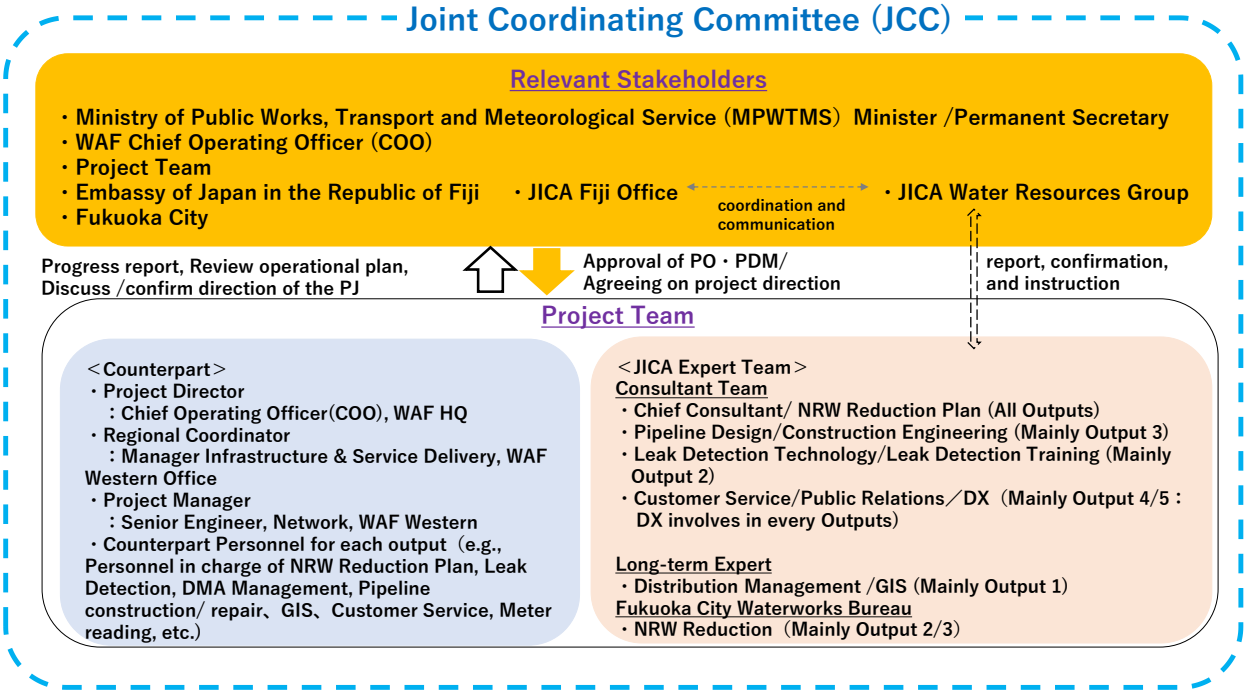


Figure 2 Structure of Joint Coordinating Committee

referred to as "JCC") is established for the purpose of inter-organizational coordination within the project and is held to approve the work plan, conduct progress reviews, and monitor the project. The objective of JCC is to enhance the motivation of the C/P and ensure the smooth implementation of the project. C/Ps will provide information on the project activity status during the JCC meeting and take the initiative in organizing the meeting arrangements, including preparing the agenda and facilitating the discussion. The concept of JCC comprising Japanese and Fijian stakeholders in the project is illustrated in Figure 2.

(3) Activities to Develop non-revenue water Reduction Plan (Output 1)

Activities to develop an effective and feasible non-revenue water reduction plan in Nadi and Lautoka area include:

1-1. Review the current situation of water distribution management in Nadi and Lautoka area (e.g., distribution system diagram, installation of flow meters, pressure reducing valves, DMA meters, data loggers, flow measurement and water pressure management, etc.).

1-2. Assess the level of capacity regarding distribution management of the staff members from Bulk, DMA, Infrastructure and non-revenue water sections.

1-3. Conduct a baseline survey of the water pressure in the Nadi and Lautoka area.

1-4. Conduct basic training on water distribution management.

1-5. Create Effective DMAs.

1-6. Review the current Non-revenue Water Reduction Strategies and identify current conditions necessary to formulate a plan.

1-7. Develop a non-revenue water reduction plan for Nadi and Lautoka.

1-8. Conduct periodic monitoring of water pressure in the target DMAs in order to improve water pressure control and perform simple water quality measurements.

1-9. Conduct Training of Trainers (TOT) on non-revenue water reduction planning and water distribution management.

1-10. Hold discussions regarding the impact of non-revenue water reduction on WAF's finances.

(4) Activities to Enhance Leak Detection Capacity (Output 2)

Activities to enhance leak detection capacity in Nadi and Lautoka area include:

2-1. Review the current status of leak detection activities (physical loss control) in Nadi and Lautoka area.

2-2. Assess the level of capacity regarding leak detection of the staff members from non-revenue water and DMA sections.

2-3. Conduct training on leak detection (physical loss control).

2-4. Implement leak detection measures within the target DMAs (physical loss control).

(5) Activities to Enhance Capacity for Water Distribution Pressure Control, Pipe Installation, and Leak Repair

Activities to enhance capacity for water distribution pressure control, pipe installation, and leak repair in Nadi and Lautoka area include:

3-1. Review the current status of water distribution pressure control, pipe installation, and leak repair (physical loss control) in Nadi and Lautoka Area.

3-2. Assess the level of capacity for water distribution pressure control, pipe installation, and leak repair (physical loss control) of the staff members from Bulk, DMA, Infrastructure and non-revenue water sections.

3-3. Review the existing Standard Operating Procedures (SOPs) for pipe installation and leak

repair.

3-4. Conduct training on water distribution pressure control, pipe installation, and leak repair (physical loss control).

3-5. Implement water distribution pressure control, pipe installation, and leak repair within the target DMAs.

3-6. Conduct water pressure tests after pipe installation within the target DMA.

3-7. Update asset database of Nadi and Lautoka water supply system.

(6) Activities to Enhance Meter Reading, Billing, and Collection

Activities to enhance capacity for meter reading, billing, and collection in Nadi and Lautoka area include:

4-1. Review the current status of staff members and implementation structure for meter reading, billing and collection (commercial loss control) in the Nadi and Lautoka area.

4-2. Assess the level of capacity for meter reading, billing, and collection (commercial loss control) of the staff members from Customer Service (CS) and Integrated Meter Management (IMM) sections.

4-3. Conduct training on meter reading, billing and collection (commercial loss control).

4-4. Implement activities related to commercial loss control within the target DMAs.

4-5. Assess the current situation regarding Digital Transformation (DX) activities in customer service and use its suitable DX technology for a feasible pilot activity.

4-6. Review result of the pilot DX activity mentioned in 4-5 to improve the contents.

(7) Activities to Increase Awareness of Water Conservation

Activities to increase awareness of water conservation among all customers in Nadi and Lautoka area include:

5-1. Conduct an interview survey of customer satisfaction of water services in Nadi and Lautoka area.

5-2. Implement awareness raising activities on water conservation for customer of Nadi and Lautoka area.

5-3. Review the results of awareness raising activities on water conservation to improve the contents of activities.

3. Results of Applying these Approaches

Through the project activities so far, it was implicated that the project should focus on the following aspects capacity development, for example:

- To draw up plan for DMA establishment and its implementation.
- To improve technologies and experiences on leak detection that suits the local characteristics.
- To improve leak repair works.
- To enhance efficiency of the above activities.

The following subsections outlines the activities done in the Phase 1 of the project.

(1) Results of Activities for Output 1

The following activities that have been conducted collaboratively by the long-term expert and the consultant team.

- To review of current WAF's water distribution management status, including water distribution pipe network maps, installation of flow meters, pressure reducing valves and valves, DMA meters, data loggers, etc., and flow measurement and water distribution pressure control in the entire Nadi Lautoka area and the two DMA pilot sites, and compiled the baseline data.
- To assess the level of capacity regarding distribution management of the staff members from the Bulk, DMA, Infrastructure, and Non-revenue water sections through questionnaires, interviews, and practical confirmations.

- To review the procedures for regular water pressure surveys in all 8 zones of the Nandi-Lautoka area, and considered the draft input sheets.
- Based on the existing drawings and GIS data of the two DMAs (Votualevu DMA and Northern Press Rd. DMA) where pilot activities will be carried out under the project, a desk study was conducted to establish the boundaries and entry/exit points of both DMAs.

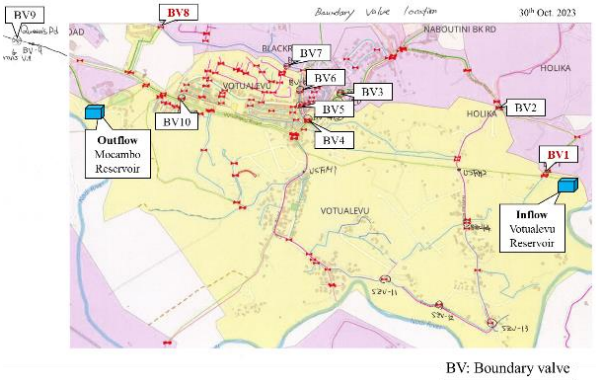


Figure 3 Location of the Boudary Valve of Votualevu DMA

During the process, it was discovered that the inflow/outflow situation at Northern Press Rd. DMA is complex, necessitating considerable time for hydrological fragmentation work. Consequently, in consultation with the C/P, work commenced on the Votualevu DMA first. Once progress with non-revenue water reduction activities in this DMA was evident, the decision was made to proceed with the Northern Press Rd. DMA.

- After confirming the location and function of the buried existing valves that serve as the boundary valves of the Votualevu DMA on site, a Zero-pressure Test was carried out (see 'Action Plan for Output 2') to confirm the hydraulic fragmentation of the Votualevu DMA. The results confirmed hydraulic fragmentation.
- WAF's existing plans, including "Non-Revenue Water Reduction Strategy – Decision Paper," which gives a non-revenue water reduction strategies[1] of WAF, and "Water Sector Strategy 2050" were reviewed as a first step to initiate developing an outline of a non-revenue water reduction plan. In addition, WAF intends to implement a performance-based contract (PBC)[2].

(2) Results of Activities for Output 2

<u>Assessing the current status of leak detection activities in Nadi Lautoka area.</u>

In the Western Region of WAF, Leak Detection Units (LDUs) are organized in Nadi Depot and Lautoka Depot to (i) conduct walk-the-line surveys (visual leak detection and repair), (ii) install shallow buried water pipes to the appropriate depth, (iii) activities to provide protective measures for unprotected water supply pipes crossing over waterways, (iv) leak detection, (v) measuring water pressure on low water pressure lines and responding to identify the cause, (vi) installation of valves, air valves, pressure reducing valves, etc., and (vii) flow measurement work. After the project began, JICA expert team accompanied the LDU team to verify the leak detection method. We noticed that in many cases, they relied on experience rather than using

[1] WAFs non-revenue water reduction strategy, which was drawn up in 2021, includes that statistical analysis of leakage record, monitoring of system input/outflow volume of a DMA and minimum night flow, defining a DMA boundary and its confirmation (Zero-pressure test), replacement old and ceased customer meters, distribution system pressure control using pressure reducing valves, Effective monitoring and control of operations and core NRW reduction works, intensive leak detection works for surface and underground leakages, investment of renewal of facilities.

[2] PBC project for the reduction of non-revenue water in the Central Region is under procurement process as of March 2024. The one for the Western Region, a tender call is to be expected soon, according to WAF.

detectors to identify the leak locations. Learning leak detection techniques through equipment operation should be needed.

Checking the function of the boundary valves and carrying out the Zero Pressure Test

Functional investigations of the boundary valves were carried out in the work of separating DMAs and building Sub DMAs.

[Photo] Left: work to check boundary valve position, right: check valve function in Sub DMA.

As a method to check whether the DMA was completely isolated from the rest of the water distribution system, a Zero Pressure Test was conducted, in which the valve on the outlet side of the distribution basin was closed and the water pressure in the area was zero or close to zero. The LDU staff understood the concept of the Zero Pressure Test, but had no experience carrying it out, so the required work items, procedures, and working time for each item were checked in advance and a statement of work procedures (SOP) was prepared.

[Photo] Night-time survey Zero Pressure Test

It was proposed to carry out water pressure measurements from the JICA expert team side before and after the master valve closure, inside and outside the boundary valve, and at the highest and lowest elevation points in the DMA assumed area, as well as at the likely points of connection of unknown pipes.

Training on leak detection equipment

A test yard was constructed at the Lautoka Depot site as part of the JICA Partnership Program of the Fukuoka City Waterworks Bureau. 14 participants, 6 from Nadi LDU and 8 from Lautoka LDU, spent about 2 hours training on the principles and operation of the equipment using the actual equipment.

[Photo] Procured equipment training

Capacity assessment of C/Ps

Face-to-face interviews were conducted with C/Ps about their work history in the WAF, their daily work, their knowledge of leak detection, and their frequency of use and knowledge of survey equipment. Staff with more than 20 years of service tended to have in-depth knowledge of non-revenue water reduction, while the staff primarily responsible for maintaining DMA tended to be less knowledgeable about leak detection equipment. Overall, there is not much experience using leak detection equipment for investigations.

(3) Results of Activities for Output 3

Key issues identified through field visits and discussions

- In some cases, leakage are found at excessively large bending angles of the coupling joints near branch of secondary pipes from distribution main pipes. Careful attention shall be paid to designing or planning before laying pipes, for example, using curved pipes or spreading bending angle to

numeral joints within the permissible level.

[Photo] Leakage from a misaligned part of the coupling

- Distribution/ transmission pipes seem to be laid with sufficient soil cover in general. However, leaks were found from exposed pipes on slopes. When repairing uneven road surfaces (unevenness) on unpaved roads, it is common to scrape the road surface without filling soil, which leads to the exposure of pipes. Although the leaks were repaired and covered with soil, there is high possibility of recuring leaks due to the improper burial conditions. It is necessary to consider how to address the cases of shallow soil cover caused by road scraping.
- In many cases, service pipes are laid with inadequate soil cover, which often leads to exposure of service pipes even outside of private premise, Leakage often occurs from compression joints where soil cover is insufficient. Other than at compression joints, leakage was also observed from unprotected pipes at road crossings,
- Leakage was found from a crack in the PVC pipe. It is assumed that the cracks were made by long-term vibration where pipe is directly contacted with sharp crushed stones. Sand (dust) and crushed stone are currently stored at storage yard. However, crushed stone is sometimes mixed with sand especially during backfilling, which cause direct contact of sharp material with pipes. Training is necessary to improve the handling of backfill materials together with proper compaction methods.

[Photo] Leakage from abandoned water pipes

Review of SOPs on existing pipeline construction and leakage repair.

SOPs have been prepared as method statements or construction plans for each project, but not as standard procedures for pipeline construction, leak repairs and supervision of them. Therefore, in a meeting with the main C/Ps for Output 3, the needs for these SOPs are discussed and concluded that it would be desirable to prepare simple handbooks as SOPs, which can be used by the field staffs. Relevant useful information for developing new handbooks or SOPs was collected.

Conducting brainstorming sessions for improving pipeline construction and leak repair

A brainstorming session was held to collect information of experienced leakage and ideas from C/Ps about improvement of pipeline construction and leak repair. Ther results would be used for consideration of future activities related to Output 3, including preparation of SOP. The main topics for the brainstorming were "causes of leaks" "challenges in leak repair and pipeline laying," and "possible solutions." Participants were divided into small groups of about six individuals to raise issues encountered in their daily work and possible solutions in keyword format, and then present their findings. Ground rules, such as “not deny any ideas”, were set to encourage free talking. Approximately 70 ideas on challenges and corresponding solutions were raised through brainstorming, including duplicates. Practical methods

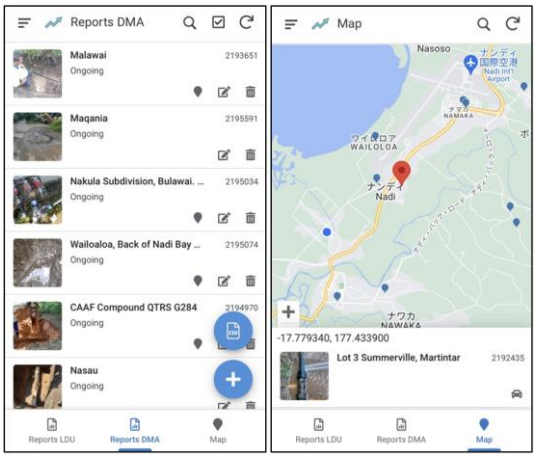
for improvement of the situation were also discussed. The raised ideas were categorized by JET as external factors, facility-related issues, human-related challenges, material-related issues, and equipment-related matters. Issues to be explained in SOP and training were also listed up. In addition, issues to be handled for non-revenue water reduction other than through training were also identified. These insights will be integrated into future project activities.

Building a database of leakage repair records using DX technology

Through activities and discussions with the C/Ps, it became clear that the lack of basic information had prevented the implementation of activities such as effective leakage reduction planning and preparation of appropriate materials and equipment, etc., when delving into the causes of the issue of high leakage rates. WAF field staff are also aware of the importance of accumulating information on leakage repair locations and causes, and the status of leakage repair work, materials, equipment, and personnel are recorded on the Work Order Sheet provided by the field supervisor, but data recording is complicated and rarely implemented.

Therefore, the key issue was to improve the existing pipeline information database, and the introduction of DX technology was considered.

In this project the leakage repair recording application was created using Google's AppSheet with the aim of easily inputting information on site through smartphone.

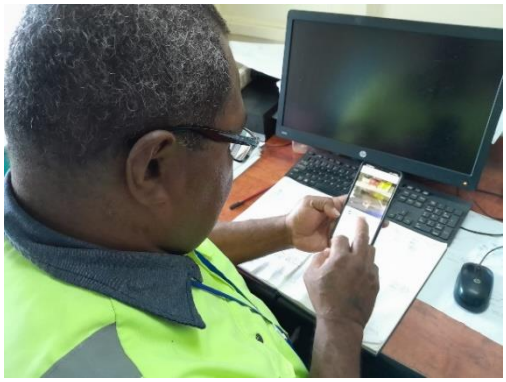


[Photo] Screen of leakage repair record application

The target of this DX technology introduction includes personnel from the DMA Unit, such as the supervisor, technical officer, and technician of the target DMA for this project, as well as personnel from the Leak Detection Unit (LDU), including the responsible person, maintenance officer, and clerk. Additionally, a GIS officer from WAF West is also included.

Streamlining the reporting flow within the WAF using DX technology

As the starting point of the DX technical study was inadequate leakage records, the main focus was on building leakage repair records, but further interviews revealed issues such as information not being passed from the LDUs to the GIS personnel and information not being smoothly transferred between the DMA Unit and LDUs. Therefore, the GIS Unit, DMA Unit, and LDUs mutually shared information on the AppSheet to facilitate smooth task handover and reporting, thereby improving operational efficiency.



[Photo] Information shared among staffs

The operation of the AppSheet is currently being tested within the pilot DMA, but it will be rolled out to other DMAs in the future.

(4) Results of Activities for Output 4

Review of the current situation regarding staffing and implementation systems for meter reading, billing, and collection (commercial loss control)

One of the challenges in the work of the meter reading/installation unit in the western part of the WAF is that when residents are not available to read the meter due to absence, an 'estimated meter reading' (Estimated meter reading) is carried out based on the previous meter reading, but residents often complain that the value is excessive in relation to the estimated meter reading.

A review of historical data on the number of 'estimated meter readings' in Nadi and Lautoka shows that the figures are lower in Lautoka, ranging from 7.9 to 17.9% in Nadi and 1.5 to 4.1% in Lautoka.

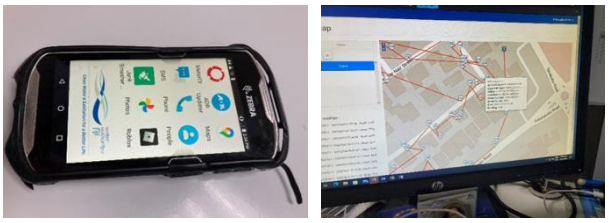
One possible reason for this is the effect of the evening meter reading from 5-7p.m. in Lautoka, and the possibility of implementing this in Nadi is under consideration. If this can be done, the activity will be implemented as an initiative to achieve Output 4, Project Indicator 4-2: 'The proportion of estimated meter readings in the target DMAs is reduced from the baseline (target value: 13%)', and the effect will be verified.

Current status of DX initiatives related to customer management

The status of DX initiatives on customer management in the WAF West is as follows:

a. Meter Reading System

In 2019, WAF invested $700,000 to introduce an Australian meter reading system called MeterOr and distributed 100 attached mobile meter reading devices to WAF offices nationwide. This device is equipped with functions such as GPS, time sheet, camera, map, SMS, and telephone, and meter readers follow the GPS and read meters along a predetermined route. If there is a large difference between the meter reading data and past data, the device will issue a warning. Additionally, meter readers take photos of meters as evidence to prevent meter reading errors from occurring. According to WAF West, the number of complaints from customers due to incorrect meter readings has decreased drastically following the introduction of this technology.



[Photo] Left: Handheld device for meter reading installed by WAF, Right: Example of a screen displaying the meter reading route by WAF.

b. Smart Meter

For the past five years, hotels and large commercial facilities in Nadi and Lautoka have been conducting automatic meter readings using smart meters (using Krohne meters). Data is automatically sent to an aggregation system in WAF West, and it is forwarded to the Gentrack billing system in WAF Central, where billing is processed.

c. Automatic meter reading technology (under experiment)

In February 2023, SUEZ experimentally installed smart meters for free in five residential buildings in the Denarau area of Nadi and is currently continuing the experiment while making various improvements to the device and software.

d. Billing System

In 2014, WAF installed a billing system from New Zealand-based Gentrack at WAF HQ to centrally

manage national fee billing and improve billing efficiency; in 2023, the company's contract was renewed, and a new system was installed to enhance its revenue management capabilities.

(5) Results of Activities for Output 5

Conducting customer satisfaction interviews

Questionnaires on customer satisfaction and water-saving awareness in the pilot DMAs, Northern Press and Votualevu, were conducted (see Table 1).

Table 1 Questionnaire survey on customer satisfaction and water-saving awareness

Target Area	Northern Press DMA, Votualevu DMA
Target Population	A total of 400 people were surveyed in both DMAs, and 390 responded. 183 males and 195 females (12 non-respondents by gender)
Study Scheme	Survey was conducted based on the questionnaire format on customer satisfaction and water conservation awareness determined through discussion between JICA Expert Team and C/P for Output 5.
Date	5 days from July 31 to August 4, 2023
Personnel	19 WAF Western Nadi Depot staff split up and took it in turns to conduct the survey.

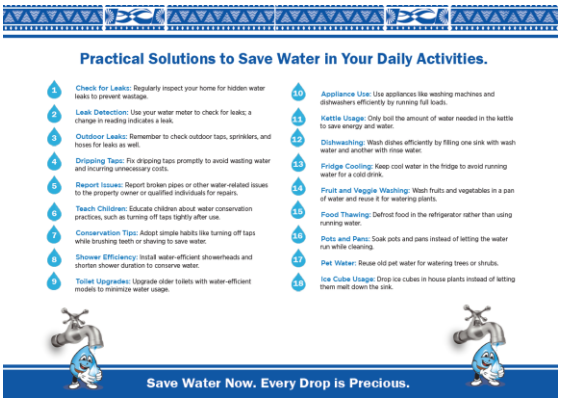
The results of the survey were compiled by the C/P of Output 5 and were largely completed by the end of March 2024. Analysis of the aggregate results is still underway.

[Photo] WAF customer satisfaction survey

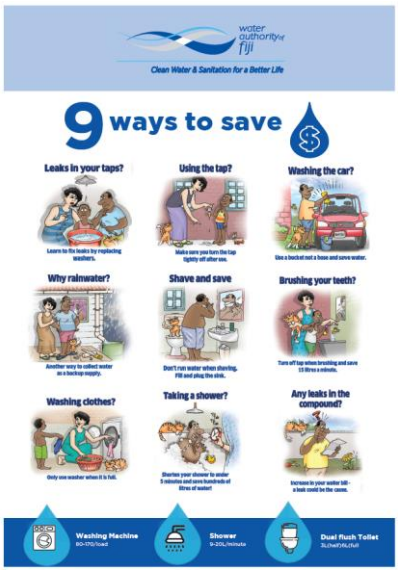
Implementation of customer water conservation awareness activities

WAF distributes flyers like the one shown in the photo to participants at public events, elementary school outreach lectures, awareness campaigns on rainwater usage, initiatives to address illegal connections, facility tours, and media-based awareness activities to promote water conservation awareness among residents.

As part of the efforts to achieve one of the indicators of Output 5, which is "increased participation in water conservation awareness activities and education," activities such as awareness campaigns at public events and elementary school outreach lectures are effective. However, since the number of public events is limited, ensuring an increase in participants and practical examples necessitates focusing on elementary school outreach lectures as the most effective approach. Therefore, throughout the project duration, efforts will be made to increase elementary school outreach lectures using flyers like the one shown in the photo while further exploring more effective activities with the C/P of Output 5.



[Photo] Flyers designed to enhance water conservation awareness（No.1）



[Photo] Flyers designed to enhance water conservation awareness（No.2）

[Photo] Publicity activities by WAF (awareness-raising activities on water conservation, etc. through representatives of residents)

Participation in World Water Day 2024

World Water Day is held annually in rotation in cities across the country, and in 2024, it was held in Tavua in the western district. The event brought together students from several nearby schools who created artworks such as paintings and models under the theme "Water for Peace." This was aimed at promoting and raising awareness of environmental conservation through water. WAF created a water-themed model to illustrate the flow and importance of water. Additionally, pamphlets on water conservation and rainwater usage were distributed to attendees, contributing to various awareness-raising efforts.

[Photo] Participation in the World Water Day 2024 event.

(6) Results of Short-Term Expert Activities

The WAF's activities on non-revenue water management were assessed, and training on water supply system construction was provided. As the status of standards for the construction of water supply systems is not yet fully developed in Fiji, the procedures for the construction of water supply systems in Fukuoka City were explained to the participants.

[Photo] Training on water supply system construction

Particular emphasis was placed on 'water supply system construction planning', 'construction approval', and 'completion inspection', which are important in the construction of water supply systems.

4. Creative Solutions and Lessons in Project Implementation

(1) Ownership of WAF

The following are some of the innovations that have been made to foster ownership in WAF departments:

Overall

It is necessary for WAFs to understand the spiral up of the project activities, whereby the reduction of non-revenue water increases revenues and enables new investments, leading to improved service standards and further increases in revenues, leading to a more mature entity. Therefore, the project was conscious of ensuring that project stakeholders participated in the activities

with the understanding that they were implementing the project for their own sake.

[Photo] Meeting with key C/Ps

WAF Management Level

WAF management needs to first realize that non-revenue water control activities are essential for water utility management. To this end, the project needs to demonstrate that the activities are effective in terms of cost-effectiveness. In the early stages of the project, the project tried to show concrete results by concentrating on those parts of the activities where output is easily achievable.

WAF Western Office

WAF staff need to be proactive in implementing activities. For example, as part of the current status survey at the pilot sites, opinions on current challenges and improvement methods were collected through brainstorming, promoting a common understanding among C/Ps and creating an environment for active involvement in the project. In progress meetings, efforts were made to foster ownership by encouraging C/Ps to set up the meetings, and report on the progress and future activities themselves.

[Photo] Brainstorming session

(2) Effective project implementation using the results of previous technical cooperation

In this project, WAF personnel trained by the JICA Partnership Program were deployed as project C/Ps to act as instructors in the training of trainers (TOT) and C/P training, taking care to ensure consistency between past technical cooperation and the guidance policy of the project.

(3) Monitoring Meeting

Monitoring meetings were held to report on the progress and challenges of project activities. Participants were C/Ps and Japanese experts, and the meeting was facilitated, and each outcome was reported by the C/Ps. A handover ceremony of equipment procured under the project was also held to encourage effective use of the equipment.

[Photo] Group photo of the monitoring meeting

(4) Securing Multiple Activity Bases

Long-term experts were stationed at the WAF Western Office (Lautoka), where the Regional Coordinator (RC) and Project Manager (PM) work, in line with the office deployment status of the main C/Ps, while the respective experts were stationed at the Nadi Depot, where the main C/Ps working on the pilot sites work. Efforts were made to establish a work structure in line with the C/P structure by deploying the experts at the WAF Western Office (Lautoka), where the Project Manager (PM) works.

(Project Period: 2023 May -2026 July)